

Report to the Illinois Department of Natural Resources



Illinois Department of Natural Resources Climate Action Plan

Submitted to Illinois IDNR by:

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LETTER FROM THE DIRECTOR



Addressing Climate Change is one of the most challenging issues of our time.

IDNR is committed to supporting Gov. JB Pritzker's goal of making Illinois a leader in fighting climate change. Our Climate Action Plan is unique, as it focuses our efforts on internal Agency practices. As a government agency, we can't ask you to make sacrifices and changes we are not willing to make ourselves. That is why we are hoping to share the results of our efforts with you. Hopefully, we can all work together to reach the important goal of reducing the State's carbon emissions to zero by 2050.

IDNR has worked closely with the Smart Energy Design Assistance Center (SEDAC) at the University of Illinois to create this plan, and we are grateful for their professionalism and support. To develop this plan, SEDAC facilitated a year-long series of meetings with up to 70 IDNR staff from all parts of the agency. The result is a plan that recognizes we must go forward, but one that acknowledges the limitations of people and resources.

To make the most of IDNR's capacity, we will undertake pilot projects that are designed to test new ideas before they are rolled out to the whole agency. As we learn more, we will adapt and change to get the most from our staff and funds. We hope that our work over the coming years will benefit all the people of Illinois.

I look forward to working with you to create a brighter, greener future for Illinois.

A handwritten signature in black ink that reads "Natalie Phelps Finnie". The signature is written in a cursive, flowing style.

Natalie Phelps Finnie
Director
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The following individuals served on resource and conservation Working Groups under the Climate Implementation Team, meeting bi-weekly over the course of 2022 to develop the goals, objectives, and strategies in this Climate Action Plan. Thank you to these individuals for taking time to focus on planning climate action in addition to regular responsibilities and tasks.

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Executive Summary

The Illinois Department of Natural Resources (IDNR) has developed a Climate Action Plan (CAP) with the goal of achieving net-zero greenhouse gas emissions by 2050. The plan outlines strategies for reducing emissions from operations, buildings, and transportation, and increasing the use of renewable energy production sources. The CAP was facilitated by the University of Illinois Smart Energy Design Assistance Center (SEDAC) and developed with the participation of over 70 IDNR staff over the past year. The plan helps guide the agency toward overall climate footprint reductions while increasing the resilience of Illinois natural resources. The plan outlines the steps to address climate change across the agency and in partnership and collaboration with local communities and stakeholders.

The IDNR CAP recommends strategies to reduce IDNR emissions through conservation and energy efficiency and support renewable energy generation with an overall goal of net-zero carbon emissions. The Emissions Mitigation Wedge Diagram, shown below, models how recommended measures (represented by the colored wedges) lead to net-zero emissions by 2050. The brown, purple, green, and dark gray wedges represent strategies to decrease emissions associated with IDNR’s building energy use, waste, wastewater, water, and transportation. The blue, yellow, and teal wedges represent strategies to offset remaining emissions through on-site solar, renewable procurement, and sequestration. The plan describes in detail how these strategies can be accomplished.

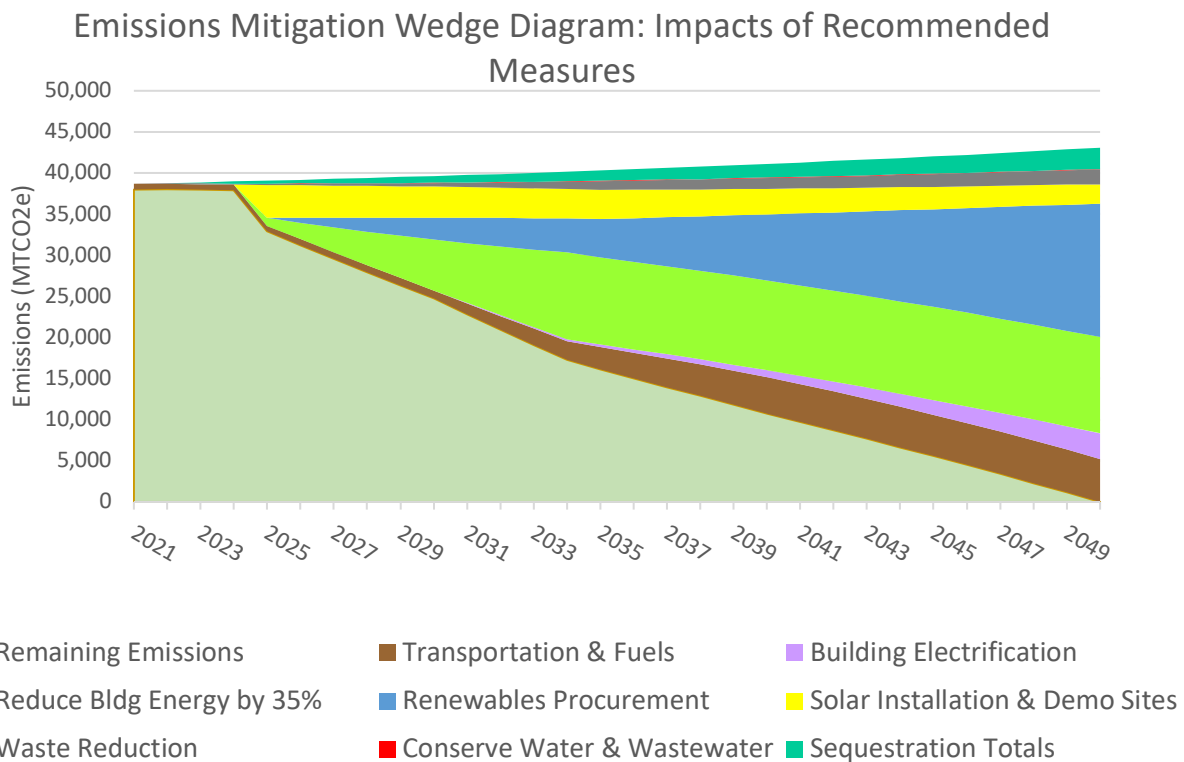


Figure 1. IDNR Emissions Mitigation Wedge Diagram: Impacts of Recommended Measures

Emissions Inventory

Total current IDNR emissions are estimated to be 38,700 MTCO₂e annually, with 50% coming from electricity, 20% from transportation and fuels, 13% from natural gas, 9% from propane, 7% from waste, and 1% from water and wastewater.

Emissions were projected to 2050 using a Business-as-Usual baseline and a Net-Zero Plan scenario. Business-as-Usual (Figure) is based on current carbon emissions and anticipated growth of IDNR emissions from 2019 to 2050. This projection helps identify potential strategies for mitigation by indicating which sectors need attention. Electric consumption is the largest current contributor to emissions, with heating fuels and transportation the next largest contributors. Based on the potential growth of visitors (1.6% annually), total emissions are anticipated to increase gradually over the next 28 years, with slight transportation decreases due to continued improvement of vehicle fuel efficiency and the expanding use of electric vehicles.

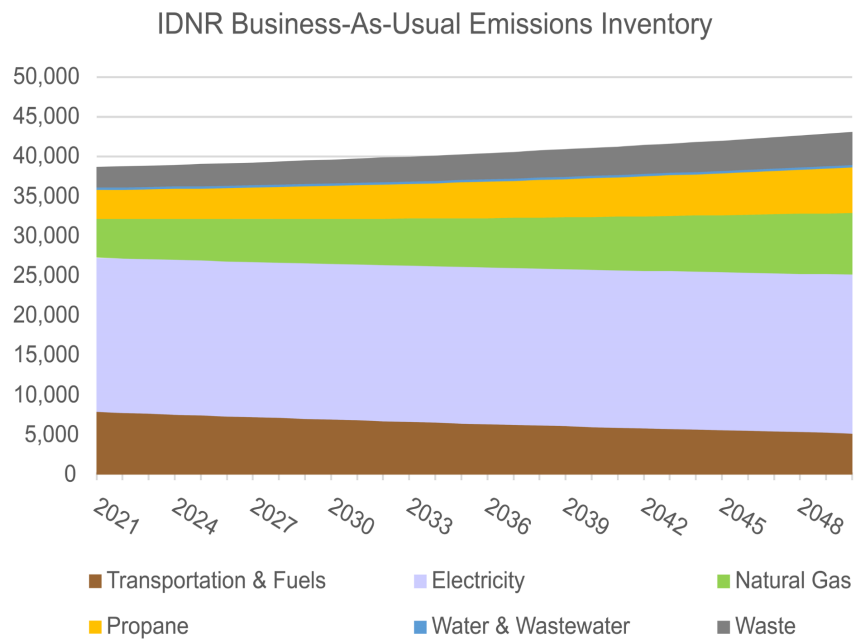


Figure 2. IDNR Business-As-Usual (BAU) Emissions Inventory

The wedges (described in Figure 1) represent a plan for a ‘conserve and load’ strategy of building energy efficiency and electrification with renewable production sources. Unavoidable emissions from visitor transportation can be offset by sequestration initiatives (i.e. native plantings, habitat restoration, prairie recovery, and floodplain management). Integral to these efforts is an internal and external educational and outreach program to help make the public aware of IDNR conservation and carbon mitigation efforts.

Climate Strategies

The IDNR CAP is organized into five key areas: utilities and buildings, sustainable site operations, climate-smart natural areas, equity, and learning and engagement. The plan includes recommendations for strategic approaches to achieving net zero, data tracking and ongoing assessment, strengthening partnerships with various stakeholders, and education and engagement. Equity and inclusion are foundational to the plan and require attention throughout implementation. The appendices of the CAP include a table of strategies for tracking progress, detailed summaries from working groups, details on the methodology for analyzing emissions, a glossary, citations, and references.

Utilities and Buildings highlights strategies that promote healthy, efficient facilities that emit fewer emissions, use fewer natural resources, and use carbon-free electricity. IDNR manages visitor and historic infrastructure to further the public's understanding and appreciation of Illinois' natural, recreational, and cultural resources. As IDNR continues to expand and grow, utility use will increase slightly unless the following measures are implemented.

There are six main goals aimed at reducing energy and water consumption in IDNR facilities:

1. **Reduce energy consumption by 35% by 2035.** This will involve performing energy assessments on IDNR facilities to prioritize energy efficiency projects, developing a list of best management practices for reducing energy consumption and tracking.
2. **Move toward electrification** of facility infrastructure.
3. **Procure 100% renewable energy** for all IDNR sites by 2050. This will require careful coordination and planning and include a range of IDNR personnel.
4. **Reduce use of potable water.** This requires a water infrastructure inventory, metering, and other tracking methods.
5. Track utility data to establish a baseline for energy and water use across IDNR sites and buildings, and to identify potential areas for improvement. This will involve developing a system for tracking utility data and involving IDNR staff and utility companies in the process.
6. Develop best management practices and efficient design standards for new construction and renovation projects. This consists of establishing net-zero energy and emissions standards for all new construction and renovation projects.

Sustainable Site Operations describes strategies that will position IDNR as a model for operating and managing sites sustainably, while making climate-neutral infrastructure decisions. Although emissions associated with site operations will never disappear, there are significant opportunities to operate and manage sites within a carbon neutrality framework.

There are five goals toward improving the sustainability of IDNR operations:

1. Adopt sustainable groundskeeping practices, including irrigation management techniques, reduced use of chemical fertilizers and pesticides, and increased use of native plants.
2. Install green infrastructure to decrease runoff, capture gray and rainwater, and minimize energy consumption.

3. Minimize waste and create a sustainable purchasing policy through waste reduction, reuse, and recycling initiatives, and by assessing current procurement practices and identifying potential suppliers for recycled materials.
4. Electrify IDNR's vehicle fleet and outdoor equipment to reduce fuel use and emissions by procuring fuel-efficient and electric vehicles and installing charging infrastructure.
5. Increase the efficiency and operation of the IDNR's vehicles by procuring fuel-efficient vehicles and promoting fuel-efficient driving practices.

Outcomes of this section include reduced erosion and fuel use; reduced waste and emissions related to purchasing; and increased water infiltration, capture and reuse at sites.

Climate-Smart Lands describes how IDNR can address the impacts of climate change on IDNR lands and natural resources. It focuses on resilience of natural systems and species as well as the carbon sequestration and storage potential of IDNR properties.

This section describes three major goals:

1. Enhance the resilience of natural systems and species. This requires a capacity to acquire critical land parcels and implement sustainable site management practices.
2. Increase carbon sequestration and storage on IDNR properties. This requires estimating the current carbon sequestration and storage on IDNR properties and implementing management practices to increase carbon sequestration and storage potential.
3. Enhance partnerships and connections with other programs and organizations suggests the IDNR engage with private landowners whose land management practices have a large impact on natural resources throughout the state. IDNR has already started implementing best practices across their agricultural lands and have instituted a policy that requires these best practices. IDNR should continue to work with partners to expand climate-smart agricultural practices on IDNR lands to decrease runoff and minimize energy consumption.

Equity & Inclusion explores how IDNR's climate actions can help disadvantaged communities acquire critical resources to address and mitigate climate impacts. This can be achieved by promoting community empowerment through sustained engagement, investment, trust building, and partnership. This section focuses on strategies that further the public's understanding of Illinois' rich, diverse history and culture while building a more inclusive organization and supporting communities impacted by our changing climate. All communities are welcome and encouraged to participate in IDNR's climate change efforts.

The IDNR CAP establishes six equity and inclusion goals:

1. Ensure that all IDNR climate action strategies and implementation take place equitably and connect holistically with existing and planned diversity, equity, accessibility, and inclusion (DEAI) activities. To achieve this, IDNR should incorporate recommended strategies into its broader strategic planning process and seek input from diverse organizations involved in environmental and social justice advocacy.
2. Identify, prioritize, and engage communities that have been disproportionately impacted by climate change and/or systemically disadvantaged in the allocation of resources. To achieve this, mapping tools and data resources are recommended along with regular internal reviews/audits to ensure programs are meeting community and departmental needs.

3. Recognize and engage members of these communities
4. Emphasize the need to become a diverse, equitable, accessible, and inclusive agency that reflects the considerable diversity of the state.
5. Ensure equitable access to IDNR public lands and resources.
6. Increase outreach and public participation in IDNR climate change efforts.

Learning & Engagement. Sharing CAP goals and successes is important for building partnerships, maintaining excitement around implementation, and demonstrating IDNR leadership in climate action. Internal and external communication are also critical to implementing the strategies outlined in this CAP. This section suggests empowering IDNR staff, partners, and the public to support IDNR climate action goals while teaching visitors how to take sustainability home to communities across Illinois.

The goals of this section are to:

1. Empower IDNR staff to implement solutions outlined in the CAP.
2. Increase transparency and buy-in for proposed climate actions among external IDNR audiences by sharing highlights of the CAP and soliciting feedback.
3. Increase public participation in Illinois' climate change efforts through robust educational resources and programming.
4. Inspire the public to join Illinois climate change efforts by showcasing IDNR climate actions.
5. Broadly communicate agency progress in reducing carbon emissions.

Implementation

Integrating strategies in the CAP with existing operations, funding and work processes will help mobilize internal resources and staff to accomplish climate strategies. External partnerships and funding will help accelerate implementation.

To lay a foundation for the implementation of the CAP, IDNR should:

- Continue to work with existing climate action groups to integrate climate strategies into current operations and processes.
- Coordinate and communicate efforts across departments and leadership.
- Engage stakeholders and develop partnerships.
- Prioritize and seek new funding to support goals outlined in the CAP.
- Establish baselines and tracking systems to communicate progress towards net-zero goals.

The top priorities for the IDNR's climate strategy include:

- Building energy conservation and electrification
- Solar project development
- Launching a utility tracking program
- Developing renovation design standards and best management practices
- Implementing a IDNR fleet electrification pilot
- Piloting restoration and landscaping projects
- Testing small electric site maintenance equipment
- Establishing landscape demonstration sites, and
- Studying solid waste and purchasing infrastructure and operations.

IDNR should prioritize equity and inclusion in its climate action efforts by engaging and empowering underserved communities that have been disproportionately impacted by climate change. It should also promote diversity, equity, accessibility, and inclusivity within the organization. IDNR should support research and monitoring efforts and engage and inspire the public, staff, and partners through communication, education, and outreach to advance knowledge and understanding of climate change and its impacts.

1. Introduction

The Illinois Department of Natural Resources (IDNR) has developed a Climate Action Plan (CAP) with the goal of reaching net-zero greenhouse gas emissions by 2050. This Plan outlines a series of strategies for reducing carbon emissions from operations, buildings, and transportation, as well as increasing the use of renewable energy sources. A roadmap with goals, objectives, and timeframes has been developed to increase the overall resilience of IDNR lands against climate change and contribute to Illinois' commitment to the U.S. Climate Alliance in January 2019.

The IDNR's vision, as described in the 2021-2024 IDNR Strategic Plan, is to lead the state and its governments in mitigating climate change in Illinois. Aligned with its mission, IDNR is uniquely positioned to help the State of Illinois meet its greenhouse gas emission goals, safeguard the environment for future generations, and provide a model for climate-conscious resource management.

Over 70 IDNR staff participated in the development of this plan. Staff from a variety of job roles and units participated, including biologists, law enforcement, historic preservation, and land stewards. Seven working groups were created to evaluate the impacts of various operations and actions, including: Education & Engagement, Energy & Renewables, Equity & Inclusion, Natural Resources, Solid Waste, Transportation & Fuel Use, and Water & Wastewater. These working groups met every two weeks and were facilitated by staff from the University of Illinois Smart Energy Design Assistance Center (SEDAC).

To establish an emissions baseline for the plan, SEDAC staff estimated emissions from transportation, electricity, natural gas, propane, water and wastewater, and waste, using data between 2020 and 2021. These emissions are projected to 2050 under both a Business-as-Usual scenario (BAU) and a net-zero plan scenario. The net-zero plan scenario shows how the climate strategies in this plan can lead IDNR to a net-zero emissions future by 2050.

The climate goals and strategies in the plan are organized into five key areas:

1. Utilities and buildings
2. Sustainable site operations
3. Climate-smart lands
4. Equity & inclusion
5. Learning & engagement

The rest of the report is organized as follows:

- Section 1 addresses the climate impacts in Illinois, describes IDNR's climate action vision and progress to date, and highlights the importance of equity and inclusion in these climate actions.
- Section 2 describes the emissions inventory and models how the strategies outlined in this Plan can IDNR to net-zero emissions.
- Section 3 summarizes the goals and strategies outlined by each working group.
- Section 4 outlines a pathway to implementation and next steps.
- Section 5 includes the following appendices: a table of strategies that can be used to track progress, detailed summaries from the working groups, details on the methodology for analyzing emissions, a glossary, citations, and references.

Throughout the document, we reference strategies as immediate (completed within 1-2 years), short-term (completed by 2030), medium-term (completed by 2040), or long-term (completed by 2050). Some strategies are described as “ongoing” – these are projected to be implemented throughout 2022-2050.

IDNR already has engaged staff and leadership in departments across the agency to mobilize this plan into action. Expanding internal engagement and communication around goals and progress, developing external partnerships, and seeking additional funding will accelerate climate mitigation efforts and unify communities across the state to act on climate change. Now is the time for IDNR to lead Illinois’ efforts on climate change. This Plan charts a course for IDNR to become the first net-zero agency in Illinois.

1.1 Climate Impacts in Illinois

Climate change is changing the lives of Illinoisans with heat waves, increased flooding, more intense rainstorms, summer droughts and other extreme weather events (Wuebbles, et al. 2021). More subtle changes are also taking place, such as shifting ranges of plant species and altered timing of flowering. Both rural and urban residents in Illinois are vulnerable to climate change, though some communities are especially vulnerable. In urban areas, dense concentrations of pavement, buildings, and other surfaces that absorb heat without the presence of trees or natural land cover cause urban heat islands. This effect increases energy costs, air pollution levels, heat-related illnesses, and even mortality (EPA). Climate change is also affecting lands managed by IDNR and cherished by Illinoisans by amplifying the threats already faced by wildlife and ecosystems and challenging their ability to adapt, especially with the rapid pace of climate change (Wuebbles, et al. 2021). The IDNR mission to manage, conserve and protect nature is more important than ever.

The reality of climate change (causes and impacts) is well-documented by scientists (IPCC, 2022a) and increasingly by professionals in diverse disciplines including security, agriculture, real estate and insurance. The science is clear that the climate is changing because of human activities that increase the concentration of greenhouse gasses in the atmosphere; these activities include burning fossil fuels, releasing methane and refrigerants, deforestation, and changing land cover and land use. Evidence shows that climate change is no longer just a problem in the distant future – the effects are being felt now, with weather-damaged crops, flood-destroyed infrastructure, heat-related health issues, range-expanding invasive species and more. Science is also clear that urgent action is needed to avoid the worst impacts of climate change and irreversible tipping points of climate breakdown.

Evidence of our changing climate is gathered in numerous reports nationally and internationally, including the global IPCC reports and the US National Climate Assessments (IPCC 2022a; IPCC2022 b; Reidmiller et al., 2018). On the state level, several recent reports describe the reality of climate change within IDNR’s backyard (U.S. Forest Service Northern Research Station, Wuebbles, et al., 2019; 2014 Wuebbles, et al., 2021). These climate impacts in Illinois are highlighted below.

Temperature changes

- In most of Illinois, the average daily temperature has increased 1 –2 °F, since 1900.
- Nighttime temperatures have increased more than daytime temperatures. This interferes with diurnal cycles.
- Heat waves and days with temperatures over 95°F are happening more often.
- In the winter, fewer nights have temperatures below freezing. This can enable pests to overwinter.
- Spring is projected to be warmer and wetter in the future; summers are projected to be hotter and drier. Winter is projected to be warmer.

Water cycle changes

- Increases in annual peak flows have been seen in Illinois, particularly the Des Plaines and Kankakee River watersheds. These increases correspond to increases in precipitation, not simply to changes in land use and water management.
- Flooding is projected to intensify, especially in urban watersheds.
 - Low-income communities are most vulnerable because of low tax bases and lower investment in infrastructure.
 - Flooding can increase contaminants from runoff and combined sewer overflows, causing concern for drinking water quality.

Wildlife and ecosystem changes

- Climate change has extended the growing season in Illinois
- Novel climate conditions are expected to favor some species, such as post oak, hackberry and prothonotary warbler, while disfavoring other species, including eastern white pine, basswood, pawpaw and Ohio buckeye.
- Conditions will likely benefit invasive species that are already present in Illinois, such as emerald ash borer and Amur honeysuckle. Other invasive species, such as kudzu, may spread northward.
- Warmer winter temperatures mean less lake ice, which can affect fish populations.
- Habitat fragmentation is likely to hinder the ability of wildlife to adjust to climate change through migration.
- Changes in phenology can affect interactions between birds, insects, and plants.
- Changes in hydrology will impact wetlands and riparian areas where species are strongly influenced by hydrology.¹

These changes are the result of greenhouse gas emissions from human activity. Historically, emissions have been highest from the wealthiest countries, and this remains true today. The US has the highest level of cumulative emissions in the world (Hickel, 2020). Within the US, Illinois has been an industrial and agricultural center since the 19th century and, as a result, the state has been a significant source of greenhouse gas emissions and ecological changes that have been drivers of climate change. Today, Illinois ranks high among the states in the US with the highest energy-related carbon dioxide emissions,

¹ (U.S. Forest Service Northern Research Station, Wuebbles, et al., 2019; 2014 Wuebbles, et al., 2021)

ranking 7th in 2020 and 5th from 2015-2019 (U.S. Energy Information Administration, 2020). Given the historic and contemporary climate impact of Illinois, there is a special responsibility for climate action in Illinois.

Nature can play a complementary role in climate action, with carbon sequestration and storage in protected and restored natural areas helping to offset emissions that cannot be eliminated (Anderson, et al., 2019). Nature-based climate actions have additional benefits, such as cleaner air and increased biodiversity for healthier human and ecological communities (Aerts et al., 2019; Bratman et al., 2019; Diaz et al., 2018; IPBES, 2019; Mace et al., 2012; Millennium Ecosystem Assessment, 2005). However, natural systems have already absorbed much of the excess CO₂ pollution and cannot solve the climate crisis without substantial cuts in emissions (Anderson et al., 2019).

IDNR is the caretaker of natural, recreational, and cultural resources in our state and continues to lead in their protection through its mission. Its mission also guides the organization to further the appreciation of those resources and to educate the public around the protection of these resources for present and future generations. Guided by this mission, IDNR can promote the science of climate change and address public safety of its natural resources through climate action. IDNR's leadership can help Illinois communities address current and future climate impacts and help the state implement responsible practices across its operations, buildings, and protected areas.

A group of IDNR staff has spent the past year developing this Climate Action Plan to guide the agency's path to reduce its climate footprint, while increasing the resilience of the natural resources in its care. With this Climate Action Plan, IDNR outlines steps to address climate change in its own backyard. As with any organization, IDNR has a climate footprint that has a real and measurable impact on climate change. This plan describes strategies to reduce that footprint. In addition, IDNR is in a unique position to implement nature-based climate actions that can play a role in reducing greenhouse gas concentrations in the atmosphere while increasing resilience through services such as flood mitigation and temperature regulation. Thoughtful education and engagement can make sure that these actions are implemented in an equitable and meaningful way.

This Climate Action Plan charts a path for IDNR to achieve net-zero emissions by 2050 while enhancing the resilience of Illinois natural resources. In partnership with forward-thinking residents, organizations, and agencies, IDNR can lead Illinois to a vibrant, stable future.

1.2 IDNR Climate Action Vision & Progress

The State of Illinois joined the U.S. Climate Alliance in 2019 and committed to the principles of the Paris Climate Agreement to combat climate change in the state. IDNR will lead the state and its agencies in mitigating climate change in Illinois. The agency is building upon its core strengths and already taking steps to reduce climate impacts while meeting its mission to manage, conserve, and protect Illinois' natural, recreation and cultural resources. It has implemented projects to further the public's understanding and appreciation of those resources, while promoting education and engagement around Illinois' natural resources.

IDNR is leading the charge for natural resource protection across Illinois. The agency chaired the statewide 30x30 Conservation Task Force, an initiative to advise on the establishment of a bold goal for protecting natural lands and waters of Illinois. The Task Force was established in August of 2021 and a report with recommendations from listening sessions and members has been submitted to the General Assembly. IDNR also led the development of a new Illinois State Water Plan, which had not been updated since the 1980s. Public meetings to receive comment on the draft plan have been held and an updated plan has been published.

IDNR divisions and commissions protect our natural resources and support public engagement to further appreciation and understanding. The Division of Natural Heritage has already spent millions of dollars on stewardship contracts to restore high quality natural areas. The Illinois Nature Preserves Commission can dedicate and register public or private high-quality natural lands and provide the highest level of legal protection. Private lands can be protected in this program at little cost to the state. The Heritage Division has created species recovery teams to address state-listed species. Each plant or animal has a designated species lead. Finally, the Mason Tree Nursery grows plants, trees and pollinator seeds for government agencies and the public. All these activities enhance and protect our natural resources in Illinois.

IDNR also invests in natural areas to protect and restore native habitat. Illinois is receiving \$75 million in federal funds to reclaim mines abandoned before the 1977 Surface Mining Act and is receiving more federal funds to cap 4,353 abandoned oil wells in the state. Additionally, the Conservation Reserve Enhancement Program reopened this summer after being closed during the budget impasse in 2015. CREP allows landowners to retire farmland in flood-prone areas, return it to natural cover and receive an easement payment. The General Assembly has provided more than \$50 million in capital funds to support CREP for the next decade.

IDNR also partners nationally to protect natural resources. IDNR's Wildland Fire Crew assisted wildfire management efforts in California in 2022. The agency sends at least one crew per burn season to assist other states. Foresters are helping reduce direct effects due to wildfire and assist with tree planting and forest management to mitigate future wildfires.

Climate Action at the IDNR

Climate change is happening now and the IDNR is leading the way to set a vision for how the agency will address and prepare for climate change across its operations. IDNR has established both an initial Climate Change Action Plan (2020) and a Strategic Plan (2021-2024), which identify key climate goals for the agency.

The first agency goal is to "Reduce IDNR's carbon footprint and set an example for the rest of state government." Toward this goal, IDNR has collaborated with the Smart Energy Design Assistance Center (SEDAC) at the University of Illinois at Urbana-Champaign to develop a proactive approach to climate change. Our approach promotes dialogue and awareness both internally and externally, identifies

actions to mitigate carbon emissions, and provides a model for other agencies and assets across the state.

Components of IDNR's climate work include:

Agency-wide solar site assessment; complete RFP and legal analysis for solar installations on marginal land at two pilot sites. In FY2020-FY2021, all IDNR sites were screened for solar potential and narrowed down to a list for further review. SEDAC evaluated IDNR sites from each region, along with feedback from within the agency, to identify feasible and appropriate sites. Subsequent efforts included site selection and RFP development for implementation of utility-scale solar installations. An agency policy to govern siting of solar installations is in development.

Pilot climate neutrality plans and sequestration assessment at individual sites. SEDAC completed net-zero plans for Rock Cut State Park and Jake Wolf Fish Hatchery (FY 2020) and recommended a planned approach that includes energy savings, renewable energy, evaluation of sites' natural sequestration potential, and other measures. This approach can be applied to other sites and the agency overall. Jake Wolf Fish Hatchery implemented a recommendation that reduced the operation of their freezer cooling system and is now saving \$38,000 per year in energy costs.

IDNR's Climate Leadership

IDNR continued to work with SEDAC in 2022 on an updated IDNR Climate Action Plan and additional technical assistance in response to site-specific requests. Our work advanced the agency's progress on Strategic Plan Objective 1: Reduce IDNR's Carbon Footprint, and it is increasing internal staff capacity for climate planning and implementation. Our core focus was to update the IDNR Climate Action Plan, through collaborative engagement with IDNR staff across the agency.

By developing an agency-wide Climate Action Plan, IDNR is taking the first step to quantify and implement climate strategies to reduce overall agency impact. With the help of over 70 IDNR staff, a Climate Implementation Team, seven Working Groups, and a Site Managers Collaborative were established to collect input on priorities and strategies for an updated IDNR Climate Action Plan. It was critical to have agency-wide representation in the development of this plan and bring expertise from across the agency to develop climate solutions. Working Groups were developed along 7 key themes:

Education & Engagement

Develop internal and external engagement, outreach and education strategies around climate change and the DNR Climate Action Plan.

Natural Resources

Propose climate strategies for site management practices, sequestration and restoration to reduce overall DNR emissions and establish pathways for greater climate mitigation and resilience.

Energy & Renewables

Create concrete and measurable climate and net-zero energy goals for the agency, focused on energy conservation, building standards, energy generation, and procurement.

Solid Waste

Identify opportunities to understand and implement climate strategies to reduce, reuse and divert solid waste, through means such as recycling and composting.

Equity & Inclusion

Develop internal and external engagement, outreach and education strategies around climate change and the DNR Climate Action Plan.

Transportation & Fuel Use

Build climate strategies for reducing DNR fleet and site operation fuel use, as well as travel by staff.

Water & Wastewater

Propose climate strategies that focus on reducing water use, managing wastewater treatment and handling and address water management strategies, such as flooding, floodplains and runoff.

From site technicians to directors, biologists to historic site managers, all were welcome to share ideas and build comprehensive strategies for climate action. To populate climate working groups, a call to action was shared across the agency to participate in the climate action plan revision process. Volunteers were recruited from across departments and levels across the agency. Agency volunteers participated in this process in addition to their regular job requirements and duties, meeting every two weeks between April and November 2022 to develop climate strategies for the agency.

Our collaborative approach demonstrates IDNR staff's strong commitment to increase the agency's climate resilience and help the agency reach net-zero by 2050. Building bridges between departments was also a strategic agency goal, and the climate action planning process directly contributed toward bringing diverse staff together to work towards a common goal. Many working group participants believe that the collaborative CAP development process made them better IDNR staff members because they were able to understand the agency and its operations through different roles, initiatives, and departments. Staff across IDNR are excited and committed to shaping the agency's climate response plan and to sustaining subsequent implementation efforts.

Achieving net-zero will require transformational changes for IDNR lands, parks, facilities, and operations. It will require aggressive measures, new policy directions, and out-of-the box thinking. The Climate Implementation Team and Working Group structure has built a foundation for success within the agency, though additional staff and partnerships will be needed to manage and implement all facets of this plan.

1.3 The Importance of Equity & Inclusion in Climate Action

Without doubt, climate change will have drastic and lasting impacts the world over. Monumental forces at such large scales tend to dampen the urgency. Apathy becomes the default. Nevertheless, climate change is not happening only in disparate, far-flung locales removed from Illinoisans' everyday lives; it is happening right here in Illinois, it is happening right now, and the Department of Natural Resources can do something about it. This report has already referenced the very real impacts of climate change on Illinois' diverse environments, its natural resources, and its weather patterns.

Average temperatures have increased, and temperature extremes are more commonplace. Storms are more severe. Drought and flooding occur more regularly and with more devastating effects on communities across the state. Illinoisans can speak to these events and relay the challenges imposed on their lives, but some communities face more difficult climate burdens than others. While climate change affects everyone, disadvantaged communities, communities of color, and otherwise underserved Illinoisans bear the brunt of these negative impacts. Moreover, past climate mitigation strategies have been applied selectively to communities that both vocalize their climate priorities and possess political and financial resources to realize smaller carbon footprints. When protected and stewarded, the natural environment provides benefits such as shade and cooling effects, flood mitigation, CO₂ storage, and even improved mental health. IDNR can be at the forefront of climate equity by working toward the just distribution of climate mitigation solutions as well as environmental resources. By centering equity, IDNR can uphold its mission to ensure that action on climate change and access to natural resources benefits everyone.

Historic and continued systemic racism and discrimination make climate change much worse for underserved communities in Illinois. As a result of redlining practices, institutional discrimination, and government disinvestment, Illinoisans of color and households in poverty must deal with several specific challenges concerning their health, depressed and declining property values, and degrading physical spaces. This discrimination also undermined the political representation and community wealth necessary to identify and resolve climate-based challenges.

Siting, construction, and operation of heavily polluting factories, hazardous waste disposal facilities, extractive industries, and fossil fuel power plants occurred in these communities over time, often despite protest from area leaders and advocates. As a result of this environmental racism, residents of these communities experience higher levels of exposure to fine particulate matter as well as deleterious chemicals like benzene and lead. These pollutants have been linked to the prevalence and severity of asthma, other lung conditions, heart attack, low birth weights, and high blood pressure.

Underinvestment in gray and green infrastructure has also led to deficiencies in communities' abilities to handle climate change. Many homes in areas of poverty are in desperate need of weatherization to protect against more intense storms and extremes of heat and cold, while well-maintained sewer and stormwater systems can crucially be the difference between manageable and disastrous flooding. Additionally, improving green spaces by planting trees can improve air quality, provide shade, combat heat island effects, and mitigate flooding. They can even make residential and commercial spaces more desirable and may contribute to improved mental health. In cities like Chicago, however, the tree

canopy in communities of color has decreased even as it has increased in more affluent, white neighborhoods.

The same redlining and institutional discrimination that subjected communities of color to polluting industries also resulted in decreased access to green spaces and outdoor recreational opportunities. Between segregation; lack of reliable transportation; and a dearth of easily accessible, convenient, and explicitly welcoming local, state, and national parks, not everyone has been given the opportunity to enjoy and appreciate these places. For low-income households, it can be tremendously difficult to choose a nature outing that costs money in time and gas over essentials like housing and food. In parks across the state, most visitors are white, and parks departments lack the diversity vital to making Illinois' resources accessible to everyone in an equitable way.

The key to equitable action on climate change—to helping disadvantaged communities acquire critical resources to address and mitigate climate impacts—is no secret: promote community empowerment through sustained engagement, investment, trust building, and partnership. These strategies are simple but nonetheless demanding to execute. The goal of engagement must be to achieve representation in decision-making—supporting the restoration of real control and agency for these underserved community members. Ultimately, community members know their own histories and contexts; these Illinoisans are experts in their own lives, and they must be respected and treated as such. This Climate Action Plan details strategies that uphold these best practices and emphasize diversity, equity, accessibility, and inclusion as throughlines tying together each facet of climate change action, from promoting diversity within the agency and across its natural sites, to informing the way climate mitigation strategies are carried out, to developing connections with leaders and community members external to IDNR.

Effective climate action requires equity, and successful implementation of a climate action plan builds upon existing best practices in community engagement. Real equity necessitates collaborative and empowering partnerships with well-established, diverse, and innovative community-based organizations to identify climate challenges and work towards practical solutions. In Illinois, these organizations and prospective partners already exist. Sometimes the simplicity of this message belies the actual complexity in following through mere endorsement or one-off participation will only exacerbate mistrust within disadvantaged communities. True support and trust-building calls for proof of commitment and willpower, as well as the ability to provide support and act as a resource rather than a sole decision-maker.

2. IDNR Emissions Inventory

The IDNR emissions inventory was created using three years of data between 2019 and 2021. Emissions are broken out into six general categories based on IDNR operations (Figure 1).

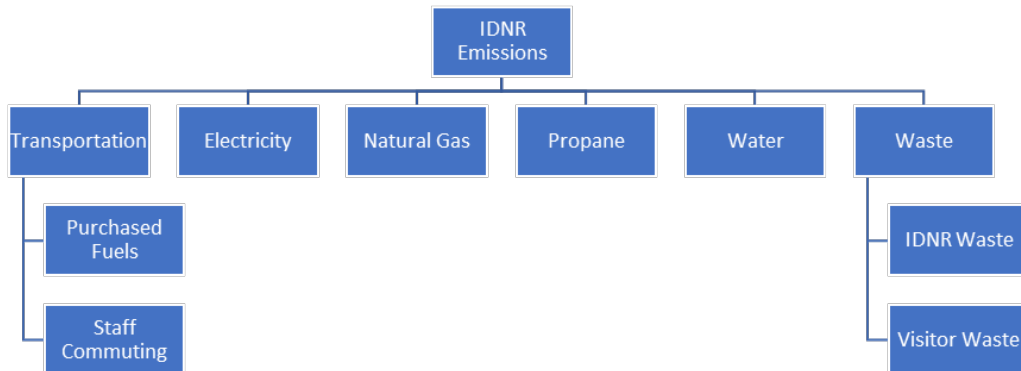


Figure 1. Carbon Emissions Inventory by Sectors

Total emissions attributable to the organization are estimated at 38,700 MTCO₂e (metric tons of carbon dioxide equivalent) annually. Table 1 outlines IDNR’s current carbon emissions by resource category.

IDNR sites also provide a source of carbon sequestration; about 144,000 tons of carbon annually, based on an analysis of land cover and typical sequestration values for broad land cover categories. IDNR forested lands sequester two-thirds (66%), wetlands almost one-quarter (24%), and prairies about 5% of the total amount of carbon sequestered on IDNR land. The remaining sequestration occurs on developed sites and agricultural land. IDNR also promotes conservation programs for private landowners that also have an impact. For example, forests enrolled in the Forest Certification Program sequester approximately 339,000 tons of carbon per year. This estimate was developed by the University of Illinois at Urbana-Champaign LEAM Lab.

Table 1. 2021 IDNR Current Carbon Emissions

Resource Category	Total Emissions (MTCO ₂ e)
Transportation	7,900
<i>Purchased Fuels</i>	4,500
<i>Staff Commuting</i>	3,400
Electricity	19,400
Natural Gas	4,900
Propane	3,600
Water & Wastewater	300
Waste	2,600
<i>IDNR Waste</i>	200
<i>Visitor Waste</i>	2,400
Total Emissions	38,700

2020-2021 Average Annual Carbon Emissions Breakdown

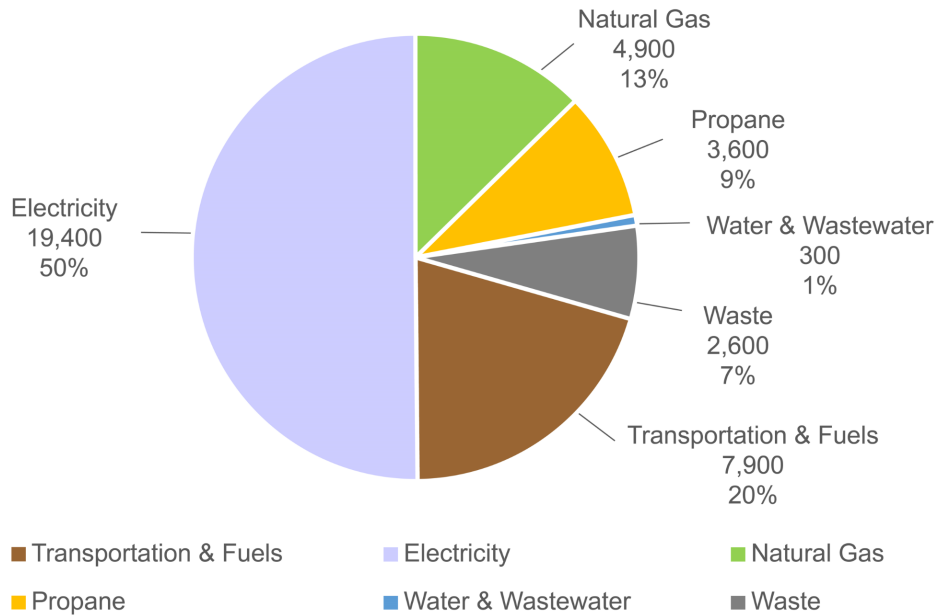


Figure 2. Overview of Total IDNR Carbon Emissions in MTCO₂e

Figure 2 describes IDNR’s current carbon emissions inventory by resource category. Electric consumption at IDNR facilities is the largest source of emissions for the agency. Overall, building energy use emissions (electricity, natural gas, propane) account for 72% of IDNR’s total emissions. Transportation and fuels (IDNR purchased fuels and staff commuting) is the next largest category at 20%. In our model, visitor transportation has been excluded from this analysis, as IDNR can have little influence on visitors traveling to their sites. Water and Wastewater and Solid Waste emissions make up the remaining 7% of IDNR emissions. To calculate IDNR’s emissions baseline, data was collected from across all aspects of the agency. For more information on how emissions were estimated across all resource categories, please visit Appendix C: Emissions Inventory and Mitigation Methodology.

2.1 A Projection of Future Carbon Emissions

Figure 3 shows a projection based on current carbon emissions and anticipated growth to 2050. This projection helps identify potential strategies for mitigation by indicating which sectors need attention to reach carbon neutrality. Electric consumption is the largest contributor to emissions, with heating fuels and transportation the next largest contributors.

Visitor counts directly impact carbon emissions. We calculated anticipated growth in visitors at 1.6% per year based on National Park Services data from Illinois (Illinois State Parks, 2001), Wisconsin (Wisconsin IDNR, n.d.), and Michigan (Michigan 2021) over the last 20 years (Figure 3). Transportation is expected to show a decrease in emissions of about 1.5% per year due to continued improvement of vehicle fuel efficiency and expanding use of electric vehicles.

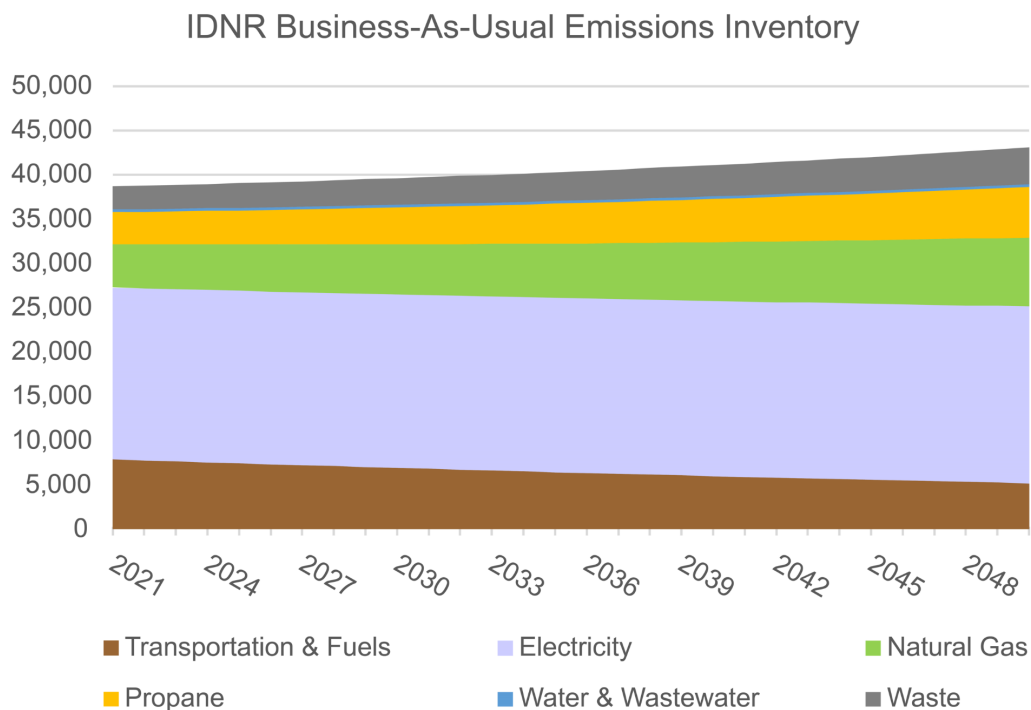


Figure 3. IDNR Future Projection of Annual Carbon Emissions by Emission Type from 2021 to 2050

3. Reaching Net-Zero: Climate Goals and Strategies

This Climate Action Plan serves as a roadmap for how the IDNR can become climate neutral by 2050. Figure 4 below shows a projection of carbon emissions along with climate mitigation strategies (wedges) that describe this roadmap to net zero. These strategies were developed by the IDNR Climate Implementation Team, resource-focused Working Groups and SEDAC staff.

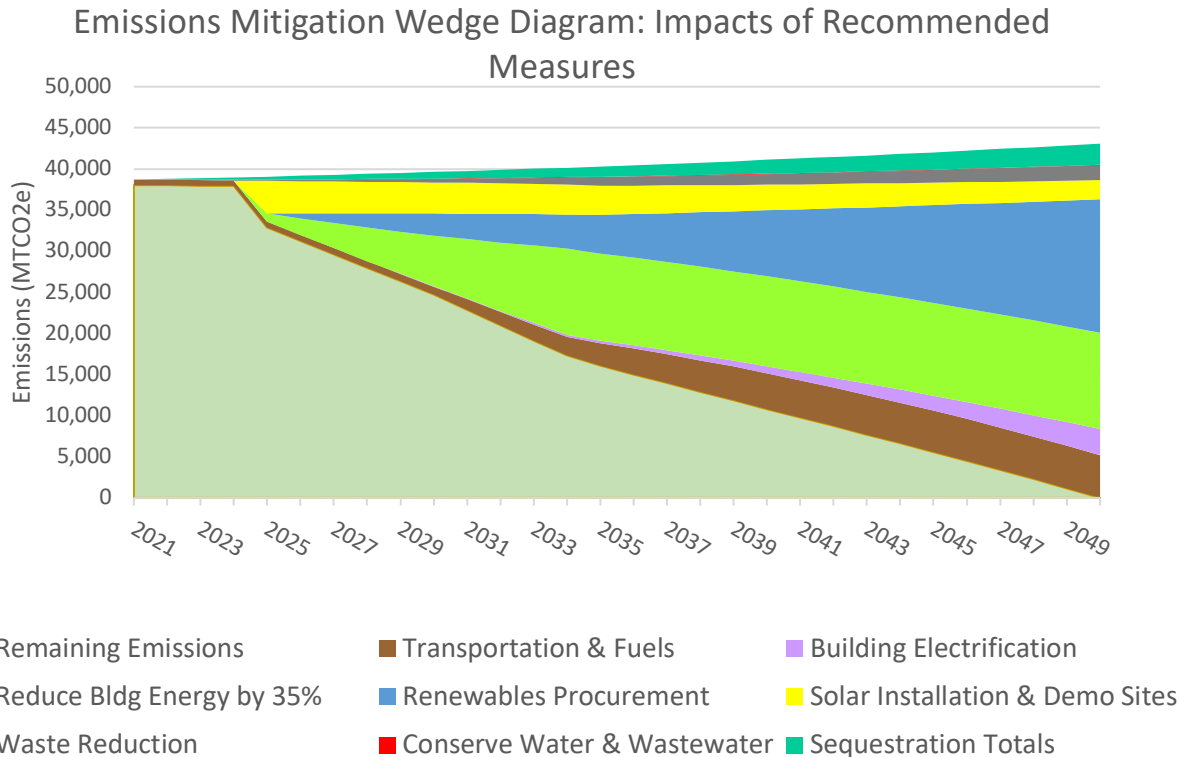


Figure 4. Projected Impact of Recommended Climate Action Plan Strategies 2021 Through 2050.

The overall strategy consists first of implementing conservation and efficiency measures to reduce emissions associated with building energy use, operations, transportation, water, wastewater, and solid waste. Next, electrification of natural gas and propane-powered equipment is needed to eliminate emissions generated on site. Finally, all remaining electrical emissions are offset with renewable energy production. This ‘conserve and load’ strategy which includes energy efficiency measures, electrification, and renewable energy, can offset 94% of total IDNR emissions (Figure 5).

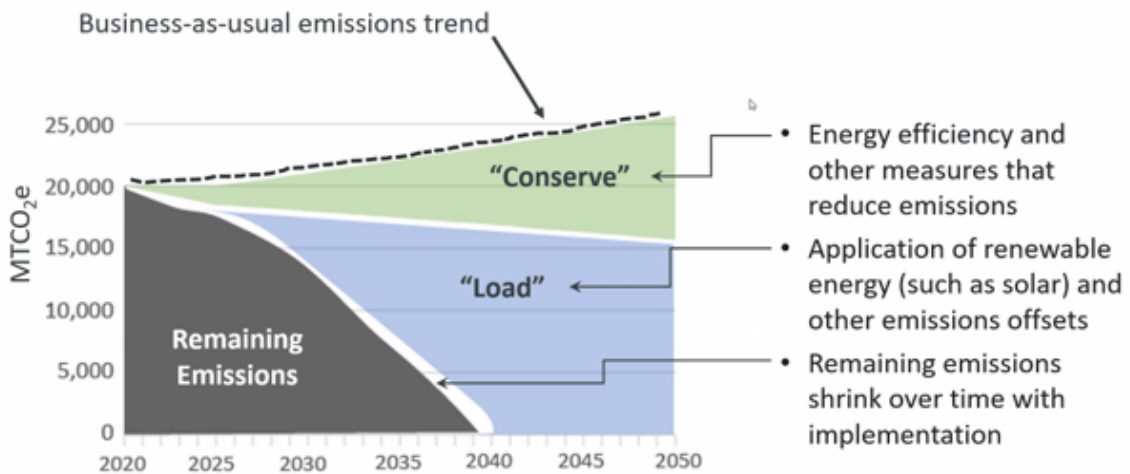


Figure 5. Conserve and load description

The Plan also makes recommendations to reduce IDNR use of fossil fuels for landscaping maintenance and transportation along with maintaining and increasing natural habitats (sequestration) and reducing water use.

Meeting climate strategy targets requires setting up systems for ongoing data and implementation tracking, conducting deeper assessments to collect more information about utility usage and opportunities for energy use reductions. Early climate strategies should also focus on establishing efficient renovation and new construction design standards, and engaging staff in strategies to reduce site fuel use. These will help kickstart Plan implementation and set a foundation for achieving net-zero emissions by 2050.

Unavoidable emissions from staff transportation to IDNR job sites or waste can be offset by initiatives to enhance native plantings, habitat restoration, and floodplain management, which enhance sequestration of carbon on IDNR lands. In our calculations, approximately 100 acres of forest would need to be planted to sequester the remaining carbon emissions not offset by recommendations in the Plan. The forest would have to grow for at least 28 years, starting in 2023, to be able to sequester this amount of carbon². Together, these measures will help reduce IDNR’s dependence on purchased electricity emissions reductions and help the agency reach its goal of becoming a carbon neutral agency.

Integral to these efforts is an internal and external educational and outreach program, so that agency staff and the public are made aware of conservation and carbon mitigation efforts. Not only will this help avoid push-back from IDNR visitors and staff, but this can help IDNR achieve their mission of leading the State to a more sustainable future. Additionally, partnerships with external agencies and external funding will support and accelerate implementation.

² <https://www.fs.usda.gov/research/treesearch/22954>

Figure 6 below demonstrates how climate strategies will reduce IDNR's emissions over time, reaching a goal of net-zero greenhouse gas emissions by 2050.

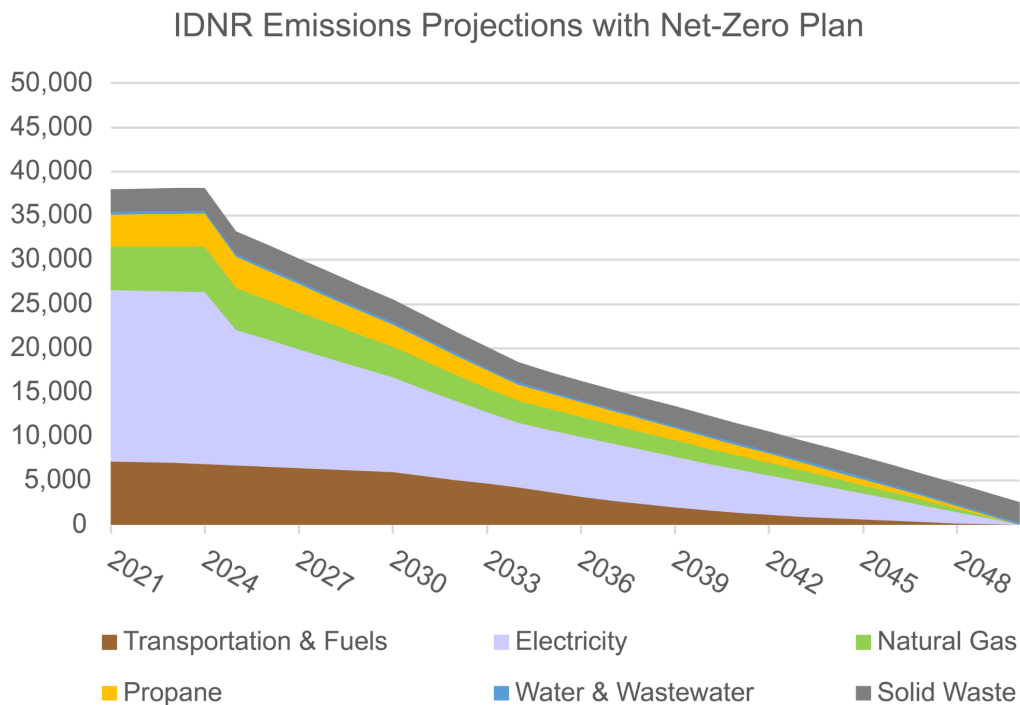


Figure 6. IDNR Projected Emissions by Emissions Type as a Result of "Conserve and Load" Strategies 2021 Through 2050.

Below is a description of the strategies under each category that will help the agency reach net-zero emissions by 2050:

Transportation & Fuel Use

Climate objectives in this category to reach net-zero include:

- Use landscaping or native plant restoration to minimize mowing.
- Encourage the use of electric site maintenance tools.
- Electrify IDNR's fleet
 - Increase access to EV charging at IDNR sites.
- Procure renewable energy to offset IDNR's electric use for vehicles and tools
- Encourage staff to use fuel efficiently at their sites.
- Encourage staff ridesharing and carpooling, when applicable.
- Incorporate remote work and meeting options, when applicable.
 - Other strategies to reduce employee commute will need to be determined over time to further reduce fuel emissions related to employee commute. This is where sequestration could also play a role in the agency reaching net-zero emissions.

Electricity, Natural Gas and Propane

Climate objectives in this category to reach net-zero include:

- Aim to reduce energy consumption by 35% by 2035
- Use heat pump technology where available to minimize energy consumption and ongoing cost impacts
- Develop renovation and new construction best management practices to ensure energy efficiency, electrification, and renewable energy is incorporated into capital projects.
- Develop a policy where new construction is net-zero, where all new energy consumption is offset by renewable or carbon free energy generation.
- Increase procurement of renewable energy over time to reach 100% renewable by 2050.
- Complete the IDNR's solar farm project
- Install at least 1 solar array, wind turbine, or other renewable source in a visible location at each IDNR site as feasible.
- Reduce embedded energy in water use and treatment.

Water & Wastewater

Climate objectives in this category to reach net-zero include:

- Reduce IDNR's use of potable water.
- Implement a policy to reduce potable water consumption at all IDNR sites.

Solid Waste

Climate objectives in this category to reach net-zero include:

- Piloting waste reduction and sustainable purchasing programs and expanding these programs across the agency, achieving 35% waste reduced by 2035 and 50% by 2050.

3.1 Climate Action Strategies

The following sections in this report detail specific climate strategies shown in Figure 4 above that will guide IDNR to reach net-zero emissions. Climate strategies developed by the IDNR Climate Implementation Team and Working Groups are divided into five key areas:

Utilities and Buildings

This section highlights strategies that promote healthy, efficient facilities that lower emissions, expend fewer natural resources, and utilize carbon-free electricity. As IDNR continues to grow, utility use will continue to increase slightly over time. IDNR will also always manage visitor and historic infrastructure. Through tracking utility use, reducing energy use, procuring, and developing on-site renewable energy systems, reducing potable water use, and developing climate-smart design strategies for new construction and renovation projects, IDNR can lower utility costs, increase the resilience of its facilities and infrastructure, and engage the public to follow its lead.

Sustainable Site Operations

This section covers strategies that will position IDNR to be a model of sustainable site operations for other state agencies. Although emissions associated with site operations will never disappear, there are significant opportunities to operate and manage sites with sustainability in mind. Site managers and staff play a critical role in decision-making, material use and landscape decisions that affect the agency's climate impacts. This section highlights opportunities to evaluate internal operations and procedures, IDNR can be a leader and adopt sustainable groundskeeping practices, utilize green infrastructure,

minimize waste, and purchase items made of sustainable or recyclable materials. It upholds climate-neutral infrastructure decisions. Additionally, this section highlights opportunities to reduce fuel use through the electrification of IDNR's fleet and outdoor maintenance equipment. It also encourages site staff to operate vehicles as efficiently as possible. Anticipated outcomes include reduced fuel use; reductions in waste and emissions related to purchasing; and increased water infiltration, capture and reuse at sites.

Climate-Smart Lands

This section emphasizes IDNR's mission to manage, conserve and protect resources. The strategies for climate-smart natural areas outline a path for IDNR to fulfill that mission while enhancing the resilience of natural systems, developing management recommendations, and building natural area acquisition capacity. While natural resources are threatened by climate change, they play an important role in mitigation through carbon sequestration and storage, as well as offer other ecosystem services. This section calls for a detailed analysis of carbon sequestration and storage opportunities on IDNR land. The section also provides guidance on how to incorporate carbon sequestration into the complex mix of considerations involved in natural resource management. The capacity of IDNR to achieve these recommendations will be enhanced by partnerships that can complement the work of IDNR staff. Education, staff training and equity are essential to the long-term success of all of this work, so these natural resource strategies are linked to strategies in other sections of this plan.

Equity & Inclusion

Equitable action on climate change is needed to help disadvantaged communities acquire critical resources to address and mitigate climate impacts. The key to equitable action is to promote community empowerment through sustained engagement, investment, trust building, and partnership. These strategies are simple but nonetheless demanding to execute. Now is the time for IDNR to address climate change and support underserved communities who have for so long had to rely only on their own advocacy. This section focuses on strategies that further the public's understanding of Illinois' rich, diverse history and culture while building a more inclusive organization and supporting communities impacted by our changing climate. Strategies in this section will ensure that IDNR's climate action strategies and implementation take place equitably and connect to existing DEAI activities, identify, and engage communities that have been disproportionately impacted by climate change, and empower communities through engagement and funding. It also emphasizes the need for the agency to become a diverse, equitable, accessible, and inclusive organization that reflects the diversity of Illinois while ensuring equitable access to all IDNR sites.

Learning & Engagement

Sharing the Climate Action Plan goals and successes will be important to building partnerships, maintaining excitement around implementation, and demonstrating IDNR's leadership in climate action. Communication both internally and externally are also critical to the success of implementing strategies outlined in this Climate Action Plan. This section describes strategies to empower IDNR staff, partners, and the public to support the agency's climate action goals. It recommends education opportunities to inspire others to make their homes and communities more sustainable.

By organizing strategies across these categories, IDNR staff, sites, and departments can bring their unique perspectives and expertise together under the agency's core operations to meet the agency's net-zero goals while understanding climate challenges are complex and take diverse staff from across

the agency to address. The plan is structured around broad goals, with specific strategies to reach each goal. It challenges departmental sections to go beyond normal operations to incorporate practices that will increase the overall resilience of the agency over time.

While this plan focuses on internal operations, public engagement and outreach are vital to IDNR’s success towards its climate goals. This plan challenges IDNR to equitably engage the public, key stakeholders, and develop deep partnerships to join the agency in its journey toward net-zero carbon emissions.

For a full list of goals, strategies, and timelines by section, visit Appendix A: Index of IDNR Climate Strategies.

3.1.1 Utilities and Buildings

Healthy, efficient facilities that decrease emissions, use fewer natural resources, and use carbon-free electricity.

Illinois has passed landmark legislation to ensure that 100% carbon-free energy will be used across the electric grid by 2045. IDNR’ goal is to transition its electrical use to carbon-free sources, and eliminate its carbon emissions in other sectors, like transportation and equipment, by 2050. IDNR will increase energy efficiency by procuring and developing renewable energy systems, reducing potable water use, and developing climate-smart design strategies for new construction and renovation projects. By doing so, IDNR can lower utility costs, increase the resilience of its facilities and infrastructure, and engage the public to follow its lead.

Climate Action Plan Working Groups that developed climate strategies in this section include the Energy & Renewables Working Group and the Water & Wastewater Working Group. Many of the goals, objectives and strategies for utilities and buildings overlapped between the two working groups. Full working group summaries for all strategies below can be found in the Energy & Renewables Working Group Summary and the Water & Wastewater Working Group Summary in Appendix B: Climate Working Group Summaries.

Goal 1: Track agency-wide utility data to understand utility consumption and determine baseline use.

Objective 1: Determine baseline utility consumption.		
<i>Develop a method for tracking energy consumption.</i>	<i>Track water utility consumption in a software, webtool, or central database.</i>	<i>Develop a process to track utility reductions from climate projects and improvements.</i>
Timeline: Immediate through 2025		

The first step towards implementing a strategic utility plan across IDNR sites and buildings is to understand overall utility consumption. IDNR does not have a central location where utility usage is tracked for each site, and it is difficult to access this information because many sites have multiple utility accounts and bills. By tracking utility information in a central location, an actual baseline utility consumption can be developed to identify energy and water efficiency projects and plans for the

greatest areas of impact. Additionally, utility tracking and annual benchmarking can help IDNR develop a long-term utility reduction plan.

To accomplish this goal, a method and system for tracking utility data will be developed by the Energy & Renewable and Water & Wastewater Working Groups, working with additional IDNR staff. A central database, webtool, or software system should be used to input utility data monthly by site. All electric, natural gas or propane, and water data should be entered into this system. Over time, this system could also be used to track site fuel use and waste volumes. Then, reports within the utility tracking system can be created to share with site and other IDNR staff to track baseline use and identify issues over time.

Staff who have already input utility bills and information into IDNR’s systems should be involved in developing a methodology and digital system for utility tracking. IDNR staff interested in reviewing consumption data should also be engaged in this process to identify communication and reporting preferences. The Education & Engagement Working Group should be consulted to develop an engagement and feedback process for this task. Utility companies should also be project collaborators to identify opportunities for digital data transfer rather than manual upload. Third-party companies that provide utility data harvesting and dashboard software and services may be consulted to assist IDNR in this task.

Using this data, IDNR can continuously improve their long-term energy and water reduction plans and identify additional opportunities for reduction. A central utility data tracking system will also be critical for measuring and documenting the results of actions implemented from the Plan.

Goal 2: Reduce energy consumption by 35% by 2035.

Objective 1: Perform energy assessments at IDNR sites to prioritize projects.	
<i>Develop a best management practices list of energy consumption-reducing projects. Make this list accessible to site superintendents and others to implement best management practices at applicable times.</i>	<i>Implement metering of wells or estimate use based on park visitor counts and typical water use values.</i>
Timeline: Short to medium term	Timeline: Short term
Objective 2: Use heat pump technology where available to minimize energy consumption, alleviate ongoing cost impact, and transition away from fossil fuels.	
<i>Convert natural gas and propane appliances and infrastructure to electric.</i>	<i>Upgrade existing electric appliances to utilize heat pump technology or other high efficiency products.</i>
Timeline: Short to medium term	Timeline: Short to medium term

Objective 3: Reduce the embedded energy in water use and treatment.

<i>Perform energy assessments of DNR-owned wastewater treatment plants.</i>	<i>Convert DNR well water sites, where feasible, to municipal water sources.</i>	<i>Upgrade well pumps to most efficient systems as possible.</i>
Timeline: Short term	Timeline: Long term	Timeline: Medium term

Objective 4: Identify funding sources for annual appropriation to fund energy efficiency projects.

Timeline: Short term

Shrinking the IDNR energy footprint is the first step in achieving its goal of operating as a net-zero agency. Before powering IDNR fully with carbon-free energy sources, energy reductions are critical to minimize costs while increasing the resilience of IDNR facilities and sites. The goal to reduce 35% of energy consumption is an agency-wide goal. Individual sites may be able to achieve more or less than this target, but every site's contribution to energy reduction will be critical to achieve this goal.

To identify energy reduction opportunities, IDNR must perform energy assessments on existing IDNR facilities to prioritize energy efficiency projects. The emissions inventory identified 5 facilities that use over 500,000 kWh of electricity annually (see Table 2 below).

Table 2. IDNR top 5 sites using the most electricity annually.

Site Name	Site Type	Average Estimated Electric Usage (2019 - 2021)
World Shooting & Recreational Complex	State Recreation Area	4,700,000 kWh
Giant City State Park & Lodge	State Park	760,000 kWh
Chain O'Lakes CA & State Park	State Park	580,000 kWh
Mason State Forest Tree Nursery	State Tree Nursery	560,000 kWh
Starved Rock State Park & Lodge	State Park	530,000 kWh

The facilities listed in the table above should be prioritized first to jumpstart energy reduction. By assessing these locations first, IDNR can realize early wins in by reducing energy use and utility costs due to the large size of site buildings and facilities. IDNR should also identify how much energy is IDNR operations-based consumption, and how much is visitor and campsite consumption. Addressing these two different categories will require vastly different outreach and education methods to ensure success, and strategies should prioritize the largest consumers first for the greatest impact.

Energy assessments review major building components, such as the building envelope, lighting, heating, ventilation, and cooling systems. Utility use and building systems are analyzed to generate a list of

recommendations to save energy and money at a facility. Information about potential project costs, payback periods, and incentives are included. Potential energy-reducing strategies that could result from an assessment at IDNR buildings could include:

- Retrofitting lighting to LEDs
- Planning for end-of-life HVAC replacements
- Adopting variable frequency drives for pumps and motors
- Requiring net-zero design strategies for future renovations
- Installing renewable energy technologies

Replacing natural gas and propane equipment with electric options will allow sites to consume all energy from carbon-free sources. IDNR should use heat pump technology where applicable to minimize consumption and ongoing utility costs. As equipment needs to be replaced and rehabilitation projects are implemented, IDNR will upgrade existing electric appliances to utilize heat pumps or other higher efficiency products. Additionally, natural gas and propane appliances and infrastructure should be evaluated for conversion to electric equipment.

After an energy assessment is completed, site management and staff can then select and prioritize projects for implementation. As more sites are assessed, common energy efficiency strategies will emerge across the agency and can be implemented across all facilities. An analysis across all site assessments should be completed to develop a list of best building management practices and common energy-use reduction projects. The Education & Engagement Working Group should be engaged to design and assist with the distribution of this document to all IDNR staff. This document should be made accessible to site superintendents and other staff to manage buildings and renovation projects with energy efficiency in mind.

Reducing Embedded Energy in Water Treatment

IDNR-owned wastewater treatment plants should be assessed and metered to reduce energy consumed for water and wastewater treatment. Metering of wells or estimating water use based on park visitor counts and typical water use values can also identify opportunities to reduce energy from water consumption. To further reduce the embedded energy in water use and treatment, a study should be conducted to determine if the agency can convert well water sites, where feasible, to municipal water sources. Centralized water benefits from economies of scale and consumes less energy per gallon than local water wells. Additionally, cost and labor for treatment and well maintenance are off-loaded from IDNR staff, allowing redirection of valuable staff time to other projects. Based on well metering and inventories, this strategy can be further explored.

Allocating Funding

It will also be critical to identify funding for annual appropriation to implement energy efficiency projects over time. Earmarking a portion of department funds as energy efficiency funds will allow site superintendents to immediately begin replacing equipment with new energy-efficient equipment. Funding is critical to achieving this energy reduction goal.

Goal 3: Procure renewable energy for all IDNR sites to reach 100% renewable by 2050.

Objective 1: Strive to achieve 100% renewable generation at sites, where feasible.			
<i>Identify existing renewable generation currently occurring.</i>	<i>Identify renewable resources at sites.</i>	<i>Select sites that could be developed internally or through a power purchase agreement (PPA).</i>	<i>Install at least 1 solar array or wind turbine in a visible location at each DNR site, as feasible.</i>
	<i>Sub-strategy: Investigate the potential for micro and pico-scale hydropower at IDNR-operated reservoirs, locks, and other waterways.</i>	<i>Sub-strategies: Sites where IDNR has agricultural leases in place, as well as brownfields and decommissioned mine properties, should be evaluated for renewable infrastructure. Evaluate the potential for installing and using energy storage systems. Include renewable energy ratio in electricity procurement contracts.</i>	
Timeline: Short term	Timeline: Medium term	Timeline: Short to medium term	Timeline: Medium to long term

Renewable energy is critical to reaching the agency’s goal of net-zero emissions by 2050. Two strategies can be used to meet this 100% renewable energy goal: installing on-site renewable energy systems and procuring renewable energy for all IDNR sites. Additionally, IDNR should install at least one solar array or other renewable source in a visible location at each IDNR site, where feasible. Installing renewable energy infrastructure onsite and at visible locations will allow IDNR sites to start generating and using renewable energy while also making these projects visible and available to educate and inform the public about the feasibility and potential aesthetics of such projects. The Education & Engagement and Equity & Inclusion Working Group should be solicited to develop accessible educational signage and programming around solar installations across IDNR sites.

First, IDNR should identify existing renewable energy generation on IDNR lands and maintain that inventory over time. System production outputs should also be tracked in a central location. The agency is already in the process of developing a solar installation on its lands through a power purchase agreement (PPA), but this won’t cover all of IDNR’s electric needs. IDNR should continue to evaluate additional sites for the feasibility of solar, wind, or other renewable infrastructure.

Owned or leased site types that are reviewed for renewable energy could include agricultural sites, brownfield & abandoned/decommissioned mine properties. Sites that have strong potential for renewable energy generation could then be developed internally or through a PPA. As renewable energy is explored at these site types, sites should be evaluated for potential installation of energy storage systems to store generated power that can be used in times of grid failures or emergencies.

Through the investigation of owned or leased sites for renewable energy production, IDNR should also identify available renewable resources at sites, such as hydropower or wind, and map those opportunities. For example, the potential for micro- (5kW to 100kW) and pico-scale (<5kW) hydropower at IDNR-operated reservoirs, locks, and other waterways should be studied and evaluated. While these opportunities will need further study from stakeholders across the agency, outside collaborations with agencies such as the Army Corps of Engineers could be developed to further investigate site renewable resources.

To achieve 100% renewable procurement by 2050, it will be necessary for IDNR to generate or procure this remaining energy with large scale renewable energy projects at offsite locations or through renewable energy contracts. As IDNR procures electrical energy contracts going forward, the Agency should work with Central Management Services (CMS), and other affected agencies, to include requirements that a percentage of the electricity procured is generated by non-fossil fuel sources (known as the renewable energy ratio).

Goal 4: Reduce use of potable water through water-efficient services and fixtures.

Objective 1: Complete a water infrastructure services inventory to reduce potable water consumption.			
<i>Build an inventory of IDNR-managed wells and their condition.</i>	<i>Conduct water main leakage surveys for each IDNR site with city water service.</i>	<i>Conduct surveys of IDNR sites served by municipal water for water main leaks and conduct repairs.</i>	<i>Develop a prioritized list of project sites for water conservation.</i>
Timeline: By 2025, update every 3-5 years.	Timeline: By 2025, update every 3-5 years.	Timeline: By 2030, with on-going updates every few years.	Timeline: By 2025, update every 3-5 years.

To better understand the uses of potable water at each site, IDNR should develop an inventory of water infrastructure services for each site. Water use from city water mains is fundamentally different from water use from local groundwater wells. City water must meet consistent standards for quality, while well water sites can vary in water quality depending on local run-off, pollution sources, and climate factors. Maintaining a running inventory of site city water connections and well sites will help with planning for future infrastructure improvements, understanding differing risks to those water resources, and tracking the consumption of water at each site.

IDNR should also invest in identifying water main leaks at its sites. Water utility tracking can reveal multiple sites with leaks and the magnitude of that leakage through historic utility data analysis. Site surveys would need to be conducted to identify the source of these leaks and the needed repairs. Not only do water main leaks waste a valuable resource, but they can also contribute to erosion and site damage that requires future repairs.

To accomplish this goal, IDNR must track water utility consumption and set up a tracking system, as listed in Goal 1 above. To then gain a better understanding of water use at un-metered wells, IDNR should implement metering of all non-city water wells, or estimate use based on park visitor counts and typical water use values. Metering or calculating energy and water use based on visitors will provide a baseline of utility use and will help staff prioritize projects, identify abnormal consumption, and assist in tracking water use reductions over time.

Additionally, IDNR should build an inventory of IDNR-managed wells and their condition to best manage water services across IDNR sites. Project managers and/or site supervisors should track well specific energy consumption in terms of kWh/thousand gallons and develop a list of high specific energy wells used to prioritize projects to replace well pumps and motors or replace wells with city water infrastructure. On top of prioritizing sites for improvements, tracking specific energy also allows tracking of IDNR well performance over time. These strategies will not only help IDNR use water more efficiently, but they prioritize projects that both maintain and increase the resilience of agency-wide water services.

Objective 2: Implement a policy to reduce potable water consumption at all DNR sites.

<i>Implement an DNR-wide policy that during any facility renovation, repair, or construction project, water fixtures for the site will be updated to WaterSense® labeled fixtures.</i>	<i>Ensure water fixtures have an auto-off function appropriate for the site and usage: push button, motion sensor, or other method to limit water waste.</i>
Timeline: Short term (immediate)	Timeline: Short term (immediate)

The southern regions of IDNR have greater impacts from seasonal droughts, and many have already implemented policies that all new water fixtures will meet standards for high performance, such as the WaterSense® label. However, sites in the northeast have been less impacted by drought conditions and have not yet implemented similar water conservation policies. To improve equality across IDNR, high-performance water fixture policies should be standardized across all regions.

Many sites across IDNR already have water-conserving equipment in place. A policy can be immediately implemented to state that during any facility renovation, repair, or construction project, water fixtures for the site will be updated to WaterSense® labeled fixtures. Standards for fixture types could include:

- 0.5 gallons per minute (GPM) requirement for faucet aerators on all hand-washing sinks
- 1.5 GPM shower heads for shower houses
- Dual mode option or 1.6 gallons per flush (GPF) or less toilets
- 1.0 GPF or less urinals

At a minimum, IDNR should ensure that water fixtures have an auto-off function appropriate for the site and usage, such as push button, motion sensor, or other methods, to limit water waste.

As site staff, engineers, and architects conduct a fixture inventory of IDNR buildings, opportunities for water-efficient equipment replacement and installation can be identified. Additionally, water capture and reuse strategies can be structured to further minimize water use. (For more on these strategies, see the Sustainable Site Operations section.)

Finally, internal education around water-efficient fixtures and best practices should be developed. Public signage and education can also be implemented to highlight IDNR’s leadership in water conservation. IDNR should work with the Education & Engagement Working Group to develop an engagement, signage, and education program around water-efficient fixtures and best practices.

Goal 5: Develop utility-reducing best management practices and efficient design standards for new construction and renovation projects.

Objective 1: Identify LEED standards that are applicable and ensure that they are incorporated into existing facilities and future construction projects as appropriate.

Objective 2: Prioritize passive or natural design strategies into existing and future projects.

Objective 3: Incorporate energy-efficient designs and strategies from the best management practices (BMP) list into design plans for new infrastructure.

Objective 4: Develop a policy where renewable energy infrastructure is incorporated and built alongside other new projects.

Timeline: Short to medium term

To continue driving efficiency across the agency, IDNR must put policies and best practice standards in place for new construction and renovation projects. This would also include standards for evaluating and incorporating carbon-free energy generation opportunities in capital projects. Developing guidance and policies for net-zero design will ensure that the agency will not increase its carbon footprint over time and maintain its net-zero goals. Using assessments and infrastructure inventories, IDNR can also build best management practice guides that IDNR staff and any external partners or agencies can follow to maintain net-zero carbon impacts. As needed, the Equity & Inclusion Working Group will be engaged to collaborate with environmental justice or community-based organizations.

To lay a foundation towards reaching net-zero across facilities, IDNR should implement a policy where new construction and renovation projects are designed to meet net-zero criteria. This will allow IDNR to minimize its carbon footprint going forward, without requiring expensive reconstruction or retrofit projects down the road.

A net-zero infrastructure policy can be built on the foundation of standards such as LEED, Passive House, ASHRAE 189, or other advanced design strategies. A process to identify standards that are applicable should be developed and then incorporated into the policy. Site staff, landscape architects, management and other staff should host discussions to determine net-zero strategies and their impacts on operations to maintain their efficiency and resilience. Neighboring communities could also be brought into discussions to provide input and feedback on net-zero strategies for IDNR facilities and sites. The Education & Engagement team, as well as the Equity & Inclusion team can facilitate this engagement. Discussions should lay the foundation for policy development. Then, a policy can be developed and enacted across the agency to incorporate into projects as appropriate.

An additional policy could be created where onsite renewable energy infrastructure is evaluated for new construction and renovation projects. Then, when feasible, incorporate and build renewable energy systems alongside these projects. If renewable energy is not able to be installed, ensure all new energy consumption is offset by renewable or carbon-free energy procurement.

Education should be central to inform IDNR staff about the new policy and how to achieve it. A series of internal workshops or webinars should also be available for staff to learn about net-zero and renewable

strategies that can meet the policy’s goals. The policy also is an opportunity to educate the public about the benefits of net-zero design and construction. The Education & Engagement Working Group should be solicited to create materials, events, and other education opportunities around net-zero design, how IDNR is approaching it, and how visitors can achieve net-zero at their own homes. The Equity & Inclusion Working Group should also be consulted if projects will impact or benefit surrounding environmental justice communities, or those disproportionalities affected by climate change.

Alongside policy, best management practices should be developed to manage utilities (energy and water particularly) across sites, based on assessments, inventories, and baselining work. Practices can detail specifics of enabled policies for new construction and renovation projects, as well as best practices for operating existing buildings. This will increase the health, resilience, and efficiency of IDNR buildings as well as reduce utility costs. It is critical to make this information widely available to all staff that design, evaluate, and implement capital projects and maintain IDNR facilities.

Objective 5: Coordinate with CDB to ensure renewable energy and energy-efficient design is incorporated into capital projects.		
<i>Develop a “DNR Project Requirements” document for use by CDB and project engineers. A net-zero policy should be included in Customers Project Requirements.</i>	<i>Quantify renewable energy potential for project locations</i>	<i>Use DNR-developed best practices guide to guide project design.</i>
Timeline: Short to medium term		

To achieve and maintain net-zero carbon emissions, it will be critical for the agency to develop a coordinated strategy for the development of new sites and infrastructure with the Capital Development Board (CDB). Requiring energy efficiency and sustainability in the planning phase of new construction will ensure proper budgeting of projects and increase the success of these projects.

To achieve this goal, IDNR should develop a “Net-Zero Project Requirements” document for use by CDB and project engineers. This document should mirror the policies described above, requiring CDB to design new construction and renovations to net-zero standards. There should also be considerations that include natural design into projects and quantify renewable energy potential for each project. Additionally, CDB should be required to use IDNR-developed best management and design practices outlined above to guide and achieve net-zero project design.

3.1.2 Sustainable Site Operations

Become a state agency model for operating and managing sites sustainably, while making climate neutral infrastructure decisions.

IDNR manages over 400 state parks, historic sites, state fish and wildlife areas, and more. To maintain IDNR lands, it takes fuel and materials that both create carbon emissions and waste. Emissions associated with site operations will never disappear, but there are significant opportunities to operate and manage sites with sustainability in mind. Site managers and staff play a critical role in decision-making, material use and landscape decisions that impact the agency’s climate impacts. This section

highlights existing and new opportunities for IDNR to lead in evaluating internal operations and procedures to reduce erosion, water use, mowing, waste, and fuel use.

Climate Action Plan Working Groups that developed climate strategies highlighted in this section include the Energy & Renewables, Water & Wastewater, Transportation & Fuel Use, and Solid Waste working Groups. Full working group summaries for all strategies below can be found in the Energy & Renewables Working Group Summary, Transportation & Fuel Use Working Group Summary, the Solid Waste Working Group Summary and the Water & Wastewater Working Group Summary in Appendix B: Climate Working Group Summaries.

Goal 1: Adopt sustainable groundskeeping practices.

IDNR manages significant acreage that is maintained as fields, gardens or lawns. This would include sites like the Illinois State Museum and IDNR headquarters. These are different from the natural areas, nature preserves and working forests that IDNR manages. Groundskeeping practices on these sites can have significant climate impacts that include fuel use for mowers, water consumed for irrigation for manicured sites, air pollution from gas-powered equipment, water and nutrient runoff and more. These sites can also provide benefits, including habitat, water infiltration, shade, buffers around high-quality natural areas and air quality improvements. The difference between net-benefit and net-harm comes down to groundskeeping decisions. In this section, several goals and strategies guide IDNR towards receiving more benefits from sustainable groundskeeping practices.

Landscaping Strategies

Each working group emphasized the opportunity to increase native vegetation, reduce maintenance, and engage the public around sustainable landscapes that are not dependent on frequent mowing. Based on conversations in these working groups, we uncovered that some sites are already making this transition. Over the years, mowing practices have varied. In some cases, mowing has sometimes been reduced to areas such as campgrounds where the desired groundcover is mowed lawn. In other cases, existing areas with natural cover have been mowed unnecessarily. However, there are significant opportunities to adopt a more systematic and statewide goal to replace mowed grass with more sustainable, naturalized landscapes. In addition, there is a need and an opportunity to share success stories, encourage coordination across IDNR sites, and develop signage and education materials around transitioning lands from grass to native habitat. This strategy compiles work across the Water & Wastewater, Natural Resources, and Transportation & Fuel Use Working Groups.

Objective 1: Use landscaping or native plant restoration to minimize mowing.

<i>Conduct a mowing assessment of priority sites to identify where lawns are appropriate and where alternative landscaping or natural restoration would be preferred.</i>	<i>Establish pilot sites to implement landscaping or natural habitat strategies and share successes and challenges through field days for site staff.</i>	<i>Develop standards for lawn care to conserve resources and maintain healthy lawn and soil conditions, where lawns are appropriate.</i>	<i>Develop standards for maintaining grounds to conserve resources and maintain healthy landscapes, where native plantings are appropriate.</i>	<i>Develop standards for mowing and maintaining grassy walking trails, to provide trails that are wide enough to meet needs, without compromising areas in natural cover or habitat.</i>
Timeline: Begin pilot sites by 2023, ongoing	Timeline: Immediate, Short term			

Site managers have a significant opportunity to reduce irrigation and water consumption, as well as fuel use, by transitioning grassy areas to native habitat. By using landscaping strategies or native plant restoration practices, sites can reduce maintenance time and fuel costs, as well as increase the amount of native habitat at sites. Reduced mowing will not eliminate jobs, as there is no shortage of work to maintain sites, although the allocation of time to different tasks would change. This strategy will also reduce the need for irrigation in landscape designs by planting drought-resistant native plants in landscaping features to conserve water. By using landscaping to reduce mowing needs, IDNR will decrease fuel costs and emissions, while increasing native landscaping that can sequester more carbon over time. The implementation of this objective should start immediately, and pilot sites can be identified in early 2023.

This strategy encourages more support, resources, and the creation of pilot sites to encourage more sites to identify land that can be transitioned. Coordination with the Natural Resources Working Group will be critical for success across all strategies under this objective. Mowing assessments are a critical first step to identify areas that can be transitioned and not take away from the visitor experience, while identifying transition costs and emissions reduction potential at a site. The assessments should identify the acreage of lawn and garden areas, flooding issues, management practices and species selection. Assessments should be completed in collaboration with biologists, landscape architects, and external partners. IDNR should set a goal to conduct mowing assessments at a certain volume of sites within each region over 5 to 10 years to identify mowing reduction opportunities and identify landscaping methods and approaches for these areas. Criteria should be developed to identify where turfgrass is the best groundcover.

After mowing assessments are complete, IDNR should begin to establish pilot sites to implement landscaping or natural habitat strategies and share successes and challenges. Several pilot sites should be created where excess lawn is converted to more biodiverse landscape features that provide more

water infiltration, habitat, and other ecosystem services. These landscapes should include native plant species and pollinator-friendly plantings. Examples of beneficial landscapes could include rain gardens, bioswales, pollinator gardens, prairie- or savanna-like settings, shrubs, forests and more.

We recommend that a goal for establishment of landscaping pilot sites should be about 10% of each region's landscape footprint, or maybe 10 sites the first year, 15 the second year, etc. By bundling transitions into a pilot, sites can work together through challenges and find partnerships with external organizations, such as the University of Illinois Extension Master Naturalist programs, that can provide support to projects, such as providing plant material or seeds, establishment support or ongoing maintenance support.

Where lawns are appropriate, they should be maintained using natural lawn care practices. IDNR should develop a protocol for lawn care that emphasizes maintaining long-term soil and turf conditions, while reducing energy use, waste, water use and chemical inputs. The best seed mix for lawns should be identified for regions and site types throughout the state. In some areas, paths are mowed to maintain a low vegetated cover that people can easily walk on. Guidelines and training should also be developed to ensure that these paths are maintained at a width that is wide enough to provide a good path, with minimal impact on the surrounding landscape, to ensure that mowed paths don't get too wide over time.

Once pilot sites are established, field days, educational sessions, and case studies should be shared with site staff to highlight the successes and challenges of pilot sites. Staff will need to learn new skills and rationales to successfully implement this strategy. Engagement and training about mowing and other groundskeeping practices will be essential to find common ground amid different approaches, skills, and expertise. Education and engagement sessions for all site staff will build connections across sites, share best practices, and spark ideas for landscape transitions at sites that have not participated in the pilot. Resources used, as well as ongoing maintenance needs, should also be shared so that site staff understand all aspects of establishing and managing an alternative landscape site.

Pilot sites will provide valuable, visible learning opportunities for IDNR staff, as well as other state agencies and partner organizations. Case studies and educational session recordings should be available to all staff to replicate successful projects in the future. All internal education and engagement should be done in collaboration with the Education & Engagement Working Group. Ongoing support should be provided to assist interested sites.

A critical attribute to the success of this strategy is public education and engagement around transitioning landscape sites. Sites will need assistance with the development of public education materials without which, the strategy might fail. Bringing the public into the fold is both an important educational opportunity around landscape restoration and necessary for the success of landscape transitions. The Education & Engagement Working Group will be a key partner in developing these public-facing materials and information campaigns.

Objective 2: Develop guidelines for tree selection, planting, and care in landscapes around buildings and facilities.

<i>Recommend species that are expected to do well in future climate conditions.</i>	<i>Recommend species for different conditions found throughout the state and at different types of sites.</i>	<i>Develop guidelines for tree planting and care in developed settings on DNR sites.</i>
Timeline: Immediate		

Trees are valuable elements of landscapes throughout the state. Trees that function well in more developed settings face different conditions than trees living in forests, savannas, and floodplains. IDNR should develop guidelines for selecting tree species that will survive and thrive in different developed settings throughout the state, including parking areas, roadways, camp sites, urban areas, and others. These trees can provide multiple benefits, while the conditions can vary significantly. Tree placement recommendations should consider site conditions, climate change models and expertise from the Division of Forestry and other biologists. Invasive species should be prohibited and food-bearing trees, such as pecan and pawpaw, should be considered for appropriate locations.

Tree care is essential to successful tree-planting programs. This is a long-term commitment that requires attention to tree care and site conditions for decades. IDNR should establish tree care guidelines for all stages, from planting onwards. Possible partnerships with organizations, like University of Illinois Extension Master Gardener programs, should be explored to help with tree care and community engagement. We recommend that these strategies be developed within a few years.

Objective 3: Implement irrigation management practices.

<i>Establish an IDNR-wide policy stating sites that use of water for irrigation of plants will employ soil moisture sensors or other technology to limit over-irrigation and water waste.</i>	<i>Reduce the need for irrigation by planting drought-resistant native plants in landscaping features. Also, replace turf grass with prairie plantings and hardier plant species wherever feasible.</i>
Timeline: By 2030	Timeline: Set goals over time; Short to medium term

Some IDNR sites have planters, landscape features, and green spaces that require irrigation to maintain appearances for the public. These might include the IDNR headquarters, resort, and lodge facilities. Plant nurseries also use irrigation. Irrigation is often conducted manually based on the knowledge of IDNR staff or a regular schedule, which can often lead to over-irrigation and water waste. Strategies under this objective will ensure that water is only used for irrigation when natural water sources will not be enough to maintain the health of landscape plantings or nursery plants. Recommendations should discuss priorities for irrigation during drought conditions, for example, allowing lawns to go dormant while ensuring that trees, shrubs, and new plantings have enough water to survive.

To reduce water use, IDNR should establish an agency-wide policy stating sites that use water for plant irrigation will employ soil moisture sensors or other technology to limit over-irrigation and water waste.

The policy should also prioritize plantings that do not require irrigation, although some perennial plantings will require additional water in their first few years as they become established. An IDNR-wide policy can be implemented immediately, with phased implementation at sites based on irrigation water use. An initial inventory of irrigation uses should be completed by 2030 to identify use cases and any additional strategies.

Goal 2: Install green infrastructure to decrease runoff, capture gray and rainwater, and minimize energy consumption.

One of IDNR’s core missions is to maintain the natural environment for the enjoyment and education of residents and visitors to the state of Illinois. Part of that involves IDNR sites being designed and managed to reduce erosion of soils and maintain the natural environment for local wildlife and residents. To achieve this, IDNR should employ the following strategies to reduce site run-off, restore natural floodplains, and maintain native habitats that support soil stability and run-off nutrient removal. Many strategies overlap with water use reduction strategies noted in other sections of this report. Emphasized here are strategies that affect site operations and maintenance and should be undertaken in partnership with the Natural Resources and Water & Wastewater Working Groups.

Reducing run-off from IDNR lands and building sites helps slow the run-off of fertilizers into local waterways, thus reducing eutrophication downstream in rivers and lakes. Reducing run-off also maintains topsoils in place, promoting the growth of native plants and maintaining habitats that support local wildlife. IDNR should actively identify areas that can become sites for rain gardens, bioswales, native plants, etc. over time through research, assessments, and planning to enhance the ecosystem function of IDNR’s variety of cultural landscapes.

Across all the strategies below, site managers will need to be engaged, along with landscape architects and biologists or naturalists that can identify the proper plantings, designs, and ecosystem functions for each situation. Site managers will also need to be educated and engaged on the proper maintenance of these green areas to ensure their continued function, particularly if the green spaces are used to capture rainwater for site use.

Objective 1: Employ permeable paving at DNR parking lots and along paved pathways to allow rainwater to percolate into soils and groundwater.

Permeable pavers should be employed along pathways where DNR notes the pathway is allowing or causing excessive erosion of the path or surrounding soils.

Permeable paving in lots may also be paired with underground storage of rainwater and used to reduce the consumption of potable water at DNR sites.

Objective 2: Convert DNR parking islands and perimeter turf into bioswales or rain gardens with specialized plantings that help filter and remove road grit, winter salting, and fuel and oil leaks that may occur in the parking areas.

<i>Identify areas that can become sites for rain gardens, bioswales, native plants, etc. in consultation with biologists, landscape architects and site managers and technicians.</i>	<i>Develop standards for maintaining bioswales and rain gardens, in consultation with biologists, landscape architects and site managers and technicians.</i>	<i>Provide training for site technicians who will maintain bioswales, rain gardens and parking lots.</i>
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To minimize IDNR impacts on runoff, permeable paving at IDNR parking lots and along paved pathways will allow rainwater to percolate into soils and groundwater. Permeable paving in lots may also be paired with underground storage of rainwater and used to reduce the consumption of potable water at IDNR sites. Such stored rainwater is usually used for non-potable purposes such as toilet flushing, cleaning, and irrigation. Permeable pavers should be employed along pathways where IDNR notes the pathway is allowing or causing excessive erosion of the path or surrounding soils to disrupt and slow water flow causing erosion. IDNR can also convert parking islands and perimeter turf into bioswales or rain gardens with specialized plantings that help filter and remove road grit, winter salting, and fuel and oil leaks that may occur in the parking areas. This strategy should be completed in partnership with the Water & Wastewater and Natural Resources Working Groups to ensure that ecosystem services will be maintained or enhanced with the addition of permeable pavement and parking lot islands.

Objective 3: Install green roofs and/or walls on new and renovated DNR facilities to reduce downspout run-off and make better use of rainwater at DNR building sites wherever feasible.

To reduce downspout runoff at sites and make better use of rainwater, IDNR should study, plan, and install green roofs and/or walls on new and renovated IDNR facilities. The addition of green roofs and/or walls not only reduces runoff from building downspouts, but it can also reduce stormwater surges to municipal wastewater treatment facilities in communities with combined sewers. It can also expand natural habitat for flora and fauna and build more ecosystem services into existing or new infrastructure. An additional consideration for sustainable infrastructure at sites could also be the addition of shade trees near buildings to reduce the need for summer air conditioning and add more opportunities for rainwater absorption near and around IDNR infrastructure. This strategy should be completed in partnership with the Water & Wastewater and Natural Resources Working Groups to ensure that the green roof will serve the intended ecosystem functions.

Objective 4: Implement a policy to recover water used for handwashing, laundry, and other uses that do not contain hazardous materials for non-potable uses.

Piloting of recovery systems may be needed at public use sites to determine if maintenance is feasible.

Timeline: By 2035

Objective 5: Assess DNR sites for rainwater capture and use to replace potable water for non-potable uses.

Recommend pilot projects to identify issues and set up procedures for maintenance concerns and identify suitable sites.

Timeline: By 2035

IDNR sites should be assessed for opportunities to recover site rain and gray water to supplement potable water use for non-potable purposes such as toilet flushing, irrigation, and equipment cleaning. Capturing run-off for use in facilities not only reduces potable water consumption, but it also lessens the impact of run-off on local waterways and assists in erosion control.

To institute this best practice across all IDNR sites, the agency should implement a policy to recover water used for handwashing, laundry, and other uses that do not contain hazardous materials for non-potable uses. To inform the policy, initial education should be provided to IDNR staff on the differences between gray water and black water to determine which water uses can be recovered and from where at IDNR sites. Gray water recovery systems should also be reviewed for ease of maintenance and costs of any treatment chemicals or filters to determine applicability to differing situations. Then, IDNR should assess sites for rainwater capture to replace potable water for non-potable uses. Based on site assessments, IDNR should develop pilot projects and recovery systems to determine if maintenance is feasible for site staff, identify issues and set up procedures for maintenance concerns. As pilot projects are evaluated and success is shared, policies can be developed, and more water recovery projects can be implemented across the agency.

Goal 3: Minimize waste and create a sustainable purchasing policy.

Waste reduction, reuse, and recycling strategies should be applied across IDNR. With so many solid waste management practices available, IDNR’s intention is to implement pilot projects to test assumptions on a small scale before deploying specific practices agency-wide. Additionally, we want to ensure our recommended strategies are responsive to the unique characteristics of each site in the IDNR portfolio. This goal will reduce overall resource consumption and decrease waste and associated costs.

Objective 1: Develop a strategy for waste reduction, reuse, and recycling.

Examine general agency operations and collect data.

Pilot a waste reduction, reuse, and recycling program at a few different types of sites.

Propose new practices and perform cost benefit analysis.

Create incentives to help motivate staff engagement.

Timeline: Medium term

To understand solid waste practices and infrastructure across IDNR, the agency must examine general agency operations & collect data. While there are many instances of sustainable solid waste practices occurring, due to a lack of data being collected, it is not possible to adequately assess current practices or make fully informed policy recommendations. The data that is collected is not centralized or uniformly reported in a way that can give necessary context to IDNR’s total waste production. In addition to the variety of sites and activities that occur in each location, the availability of options for

recycling and reducing waste are highly dependent on the local area and available resources. Analyzing the internal and external factors related to solid waste performance will enable us to make targeted and adaptive recommendations.

After a waste assessment and study is completed and the results are analyzed, IDNR should pilot a waste reduction, reuse and recycling program at select sites. New solid waste programs will need to be tested at a variety of site types to determine what works in a particular location and setting. It is acknowledged that each site is going to be different, so a one-size-fits-all approach will likely not be effective. Testing potential practices and then tailoring programs to fit each site (or type of site) will increase participation and trust. Site metrics gathered before and updated after the pilot program begins will help evaluate success.

Once pilot programs are completed, IDNR can then develop and propose new practices and perform a cost-benefit analysis of waste reduction strategies. By utilizing the findings from the analysis of IDNR operations and the results of the pilot programs, IDNR can distill the best solid waste practices to propose for adoption. Advice will be solicited from the Senior Management Team (SMT) regarding best ways to operationalize these recommendations. A cost-benefit analysis will be undertaken to quantify the impact of each practice.

Once the benefits and core strategies have been determined, IDNR should create incentives to motivate staff engagement in IDNR’s waste reduction efforts. Adding new solid waste practices or responsibilities on top of existing staff duties could be a heavy lift. Designing the right kinds of incentives for participation will improve buy-in and adoption of new practices. Collaboration with the Education & Engagement Working Group to create a program and promote incentives internally will increase the success of this strategy. These incentives and the recognition of accomplishment will increase staff outreach that also extends outside the workplace.

Create a Sustainable Purchasing Policy

What an organization purchases, who it purchases from, and how it uses the goods and services once procured reflects that organization's values. Energy is required during each step of a product’s life – from raw material extraction, manufacturing, transportation, purchase, use and finally to disposal. This means solid waste is directly connected to climate change due to the energy used to produce all the materials we consume and discard. In this goal, the creation of a sustainable purchasing policy will further demonstrate IDNR’s commitment to reducing environmental, social, and economic impacts related to procurement.

Objective 2: Create a sustainable purchasing policy.			
<i>Assess current procurement practices and performance.</i>	<i>Analyze the current status of the recycling industry to determine what materials should be purchased.</i>	<i>Pilot a sustainable purchasing program at the DNR café and a few concessionaires.</i>	<i>Connect DNR purchasing practices to the larger picture of environmental impact.</i>
Timeline: Short term			

This goal starts with assessing internal procurement practices across IDNR and extends outward to vendors, contractors, and concessionaires. This analysis will drive tactical recommendations and determine pilot programs needed to test new ideas. The impacts of these sustainable purchasing efforts will be quantified and shared internally and externally to connect IDNR actions to the larger picture environmentally. This purchasing data will be critical in setting a benchmark and developing goals for future performance and guidance for purchasing contracts.

Switching to sustainable products and services will require some trial and error as new substitutes are considered. This strategy is designed to help IDNR find and test innovative products and services, which help lessen environmental impacts. High staff confidence that IDNR’s new sustainable solid waste practices will lead to meaningful results will improve participation. Therefore, it is critical to analyze the current status of the recycling industry to determine what materials should be purchased. Establishing a plan to periodically analyze the recycling industry and adapt procurement practices accordingly will inspire trust and encourage participation in recycling programs.

Using assessment information, IDNR should then pilot a sustainable purchasing program at the IDNR Café and select concessionaires that wish to participate. A successful sustainable purchasing pilot program will test sustainable purchasing options at multiple locations to provide a more representative perspective of IDNR operations. The Education & Engagement Working Group should be a collaborator to develop signage and awareness regarding available eco-friendly options at pilot locations. The results of the pilot programs will be analyzed and shared to help communicate the purpose of these newly vetted purchasing practices. The aim is to set an example that will inspire concessionaires to adopt these practices at their other locations and educate guests at the same time. If the public understands why we employ these practices, they may incorporate the practices into their daily lives.

Finally, as sustainable purchasing programs and waste actions are being implemented across the agency, IDNR should connect these practices to the larger picture of environmental impact. Messaging should be developed in partnership with the Education & Engagement Working Group to convey the impacts of IDNR purchasing decisions in relatable ways that demonstrate the purpose of sustainable changes and the resulting positive benefits. This messaging will supplement training for vendors and procurement staff who interface with any new purchasing procedures. Additionally, the messaging will be useful for taking in feedback and explaining the reasoning behind new practices and products to address possible concerns or complaints by visitors.

Objective 3: Engage the public to participate in waste reduction strategies.		
<i>Study how guests utilize waste management infrastructure and identify opportunities for improvement and how to reduce dumping.</i>	<i>Research successful strategies implemented at other parks and sites.</i>	<i>Pilot a “Pack-In, Pack-Out” program at a few sites.</i>
Timeline: Medium term	Timeline: Short term	Timeline: Medium term

Based on a survey provided to site managers across the agency, it was estimated that about 95% of waste comes from visitors at IDNR sites. To successfully understand how to reduce visitor waste, IDNR must study how their guests utilize waste infrastructure and identify opportunities for improvement and

how to reduce dumping. Creating a dialog with the members of the public who visit IDNR sites is critical to developing an understanding of IDNR's sustainable solid waste programs. The decisions made by the public, both 'upstream' with what they choose to purchase and 'downstream' with how they dispose of it, affects all sites, and has implications for how IDNR staff must use their time and resources. Making an intervention before visitors make their purchases or before they dispose of it can greatly impact IDNR's costs for dealing with solid waste issues. Successfully engaging the public in these waste reduction strategies will make all solid waste practices more effective and inspire people to incorporate these practices at home and work.

While the visitor study is occurring, IDNR should also research successful waste reduction strategies implemented at leading parks and natural areas around the world to glean ideas that could be adopted at IDNR sites. IDNR is not alone in its efforts to address littering and dumping at natural areas. Connecting with and learning from other leading organizations will expand our toolkit of possible solutions and build relationships.

For example, Pack-In, Pack-Out is a movement being implemented by parks across the country to keep our natural spaces free of litter. Additionally, these actions help increase the sustainability and viability of recyclables, protect wildlife and the environment, help save on maintenance costs so that resources more directly benefit site users, and eliminate human-made trash cans to provide more scenic views.

Every IDNR site is unique and has different needs and capacities for implementing Pack-In, Pack-Out programs. For this reason, the Working Group recommends piloting Pack-In, Pack-Out programs at select IDNR sites to get a sense of what works and what site attributes are ideal for these programs. A small-scale pilot that identifies and works through issues will make it easier for additional sites to consider adopting these programs. All materials, signage, and promotion should be completed in partnership with the Education & Engagement Working Group.

Goal 4: Electrify IDNR's vehicle fleet and outdoor equipment.

Fuel use is central to IDNR operations. It is a necessary resource to accomplish the mission to preserve its natural resources and further the public's understanding and appreciation of those resources. It is also necessary to manage natural resources and historic sites to preserve those for present and future generations. Even though fuel use generates greenhouse gas, IDNR has significant opportunities to reduce the emissions related to IDNR's fleet, staff transportation, and fuel use at IDNR sites.

This goal and strategy were developed both by the Energy & Renewables and Transportation & Fuel Use Working Groups.

Electrify IDNR's Vehicle Fleet

Objective 1: Evaluate vehicle procurement contracts and standards to increase fuel efficiency.

<i>Evaluate procurement options to increase availability of electric vehicles.</i>	<i>Continue investigating options for fuel-efficient heavy-duty vehicles.</i>
Timeline: Short to medium term	Timeline: Short term, ongoing

The primary strategy that IDNR can implement to reduce fuel emissions is to increase the procurement of vehicles that are more efficient and meet certain efficiency standards. By procuring vehicles that are more fuel-efficient or electric, IDNR can reduce emissions and air pollution without interrupting necessary operations. This objective will also reduce fuel use and costs for all IDNR departments. An electric vehicle pilot program will be important to gain buy-in and support for an all-electric light duty vehicle fleet. A pilot can be launched in the next year (2023).

An electric vehicle procurement pilot would be an important strategy to gain buy-in and adoption of fuel-efficient vehicles. Even if electric vehicles are not available through CMS, the agency can still go out to bid for electric vehicles and conduct a voluntary pilot with interested IDNR staff. Vehicles that are 10 years or older or that have 150,000 miles or higher could be prioritized for replacement with an electric vehicle. Charging station needs should also be considered for this pilot and activities should coincide with the strategy below. Educational programming and materials should be developed in partnership with the Education & Engagement Working Group to provide information to site superintendents regarding the benefits of electric vehicles and comparable options to the vehicles they currently use on-site.

We also acknowledge that technology and innovation for heavy-duty vehicles is still emerging. We encourage IDNR to research available heavy-duty vehicles, evaluate the current climate impacts of different vehicle classes, and monitor technology as it develops. We believe this can be an ongoing task but can start in the short-term to monitor opportunities for IDNR to lead in piloting fuel-efficient heavy-duty equipment and vehicles with vendors and, as successful, phasing them in over time.

Objective 2: Install charging infrastructure for IDNR light-duty electric vehicles and for public use.

Timeline: Medium to long term

As more electric vehicles are procured, the agency must also increase the number of EV charging stations to encourage the procurement of more light-duty electric vehicles, as well as support staff that have electric vehicles (EVs) or those that are considering the purchase of EVs. Some staff already have vehicles that are capable of charging at IDNR, but do not have charging stations accessible to them. This objective will increase the availability of charging infrastructure while encouraging the reduction of emissions and fuel costs by transitioning to electric vehicles.

Coordination between existing IDNR charging station efforts, the Transportation & Fuel Use Working Group and the Energy & Renewables Working Group should occur for implementation of this objective.

Additionally, EV charging stations should also be made available for public use at IDNR sites and could be completed in partnership with the Illinois Department of Transportation. IDNR can demonstrate sustainable transportation leadership in communities across Illinois and promote the use of electric vehicles for residents, businesses, and municipalities.

Implementation of this objective should be voluntary and launched in the short-term but expanded over time across the entire agency. Education about EVs and charging stations are critical to gaining buy-in from staff that make vehicle purchasing decisions. Opportunities to learn about installation, maintenance and the amount of power used by charging stations is important to drive adoption. Providing fact sheets, as well as webinars or in-person training opportunities, on EV charging stations will increase awareness and support. Any sites with existing charging infrastructure should be documented and a case study should be developed to share widely across the agency. Education about EVs could also be made available for all staff to inform them of the economic and environmental benefits of EVs. All educational activities should be done in partnership with the Education & Engagement Working Group.

Electrify Site Maintenance Tools

Objective 3: When practical, outdoor gas-powered equipment should be replaced with battery, electric, or other renewable power sources.			
<i>Identify small equipment that can easily be switched to electric.</i>	<i>Establish pilot sites to test electric equipment; share experiences across sites.</i>	<i>Phase implementation of electric equipment over time across all sites; Encourage staff to share successes and challenges.</i>	<i>Continue to investigate electric opportunities for larger site equipment (e.g. mowers)</i>
Timeline: Short term, ongoing	Timeline: Short term, ongoing	Timeline: Medium to long term	Timeline: Ongoing

Multiple staff across IDNR are already successfully using electric maintenance tools, such as string trimmers or chainsaws, at their sites. This strategy would share success stories and identify electric equipment that can replace traditional gas-powered maintenance equipment to increase the use and transition to more electric site maintenance tools. Supplier and/or manufacturer collaborations, education, and training, as well as staff engagement and education are all critical to this objective’s success. As IDNR expands adoption over time, sites will reduce fuel use and costs, equipment maintenance needs and make it easier for site staff to maintain IDNR lands.

Small site equipment was selected as a target for this objective (e.g., string trimmers, chain saws) over equipment such as lawn mowers or ATVs. After comparing common gas-powered site equipment with electric equivalents, we found that more advances in battery storage and equipment longevity need to evolve before IDNR should invest in widespread replacements of all site equipment with electric counterparts. Implementation of this objective will be IDNR-wide, with adoption starting small and voluntarily. Equipment types, lessons learned, and best practices should be collected and shared to help identify current equipment that can be transitioned immediately to electric.

Once electric equipment has been identified and case examples have been developed, an educational session or field day should be held to inform IDNR staff of electric maintenance equipment options and opportunities. Staff should have the opportunity to volunteer and pilot this equipment at their sites. Suppliers and/or manufacturers can also be invited to demonstrate equipment at a field day to allow staff to try out equipment before investing or committing to transitioning. Funding availability to purchase electric equipment is a concern, but sites can plan for this transition over time. As sites transition to electric equipment, success stories and lessons learned should be shared across all staff.

IDNR should continue to investigate larger site equipment electrical models for equipment such as lawn mowers, ATVs, golf carts and leaf blowers. As technology and battery capacity evolves, it may make sense for IDNR to replace these equipment types with electric models as well. Continuing relationships with suppliers and manufacturers can provide IDNR with the ability to test the latest equipment models and continue to make transitions as they see fit. * A working group or task force could be formed amongst staff to maintain this activity over time. This work group could be facilitated between the Transportation & Fuel Use and Energy & Renewables Working Groups.

*Work groups should be aware that state procurement rules might limit interactions with vendors. Consult with fiscal and procurement before proceeding.

Goal 5: Increase vehicle efficiency and operation.

While fuel is necessary to accomplish IDNR’s mission and manage its lands, there are opportunities for staff to use fuel more efficiently across the agency. This objective is meant to inform staff of practices that reduce fuel use through reducing idling times and fuel-efficient driving practices. Staff commuting also contributes to IDNR’s footprint, but it is difficult to reduce or influence. Promoting ride sharing and carpooling, along with exploring remote work and meeting opportunities, will help reduce emissions related to staff commuting.

Objective 1: Evaluate vehicle procurement contracts and standards to increase fuel efficiency.		
<i>Evaluate procurement options to increase availability of fuel-efficient vehicles.</i>	<i>Set fuel efficiency standards that all IDNR vehicles must meet.</i>	<i>Continually investigate future options for fuel-efficient and electric heavy-duty vehicles.</i>
Timeline: Short to medium term	Timeline: Medium term	Timeline: Long term

Like the strategies above regarding electrification of IDNR’s fleet, IDNR can also modify the state CMS contract to not only increase the availability of fuel-efficient vehicles but set standards that all vehicles must meet. IDNR should consider efficiency standards for light-duty vehicles first and expand its purview as technology becomes more efficient. Fact sheets on available fuel-efficient vehicles and their benefits should be developed and provided to site superintendents to support fuel-efficient vehicle procurement

options. Materials should share both the economic and climate benefits of more fuel-efficient vehicles and options available through the CMS state contract.

Objective 2: Encourage staff to use fuel efficiently at their sites.

<i>Promote an anti-idling policy to reduce fuel use in vehicles and machinery.</i>	<i>Share efficient fuel use best practices for IDNR vehicles.</i>
Timeline: Short term	Timeline: Short term

Standards that detail fuel-efficient operation should be considered for light-duty vehicles primarily and should be shared IDNR-wide. We do not recommend that these practices be made policy at the agency initially. Voluntary participation should be encouraged. Listening sessions to both share practices and collect concerns or feedback before sharing best practices widely across the agency should be hosted with all interested IDNR staff.

To increase engagement and participation in these best practices, a competition amongst departments or within departments could be held, or staff could commit by signing a pledge. Games and friendly challenges will encourage more staff participation and engagement. It could be an opportunity to build comradery amongst departments, sites, and staff across the agency.

Objective 3: Incorporate remote work and meeting options, when applicable.

<i>Collect feedback from staff around concerns or benefits of remote meetings or work options.</i>	<i>Identify situations where remote meetings or work to reduce fuel emissions, while not disrupting normal workflow.</i>	<i>Provide guidance to staff for remote meetings or work options.</i>	<i>Identify technology needs to support remote meetings or work and provide as needed and when applicable.</i>
Timeline: Short to Medium term			

This objective encourages flexibility of remote work where available, as well as encouraging remote meeting options for all staff. Guidance on these two topics will reduce staff travel, fuel use and costs, and overall staff emissions. While this strategy reduces climate impacts, it may not be an option that all staff can utilize. Listening to all voices across the agency before policies, best practices and/or programs in place will be critical to this strategy’s success.

Understanding technology upgrades and equipment needs and phasing this in over time will allow for all employees equally to participate in remote meetings or work environments. Remote meeting or work guidance should be put into place once technological needs are met equitably across the agency.

Objective 4: Encourage staff ridesharing and carpooling, when applicable.

Assess opportunities for DNR regions to offer ridesharing and/or carpooling and support the coordination of pathways for participation.

Timeline: Short term

This objective may not be an option for all IDNR offices. Tips on how to set up a carpool or ride sharing program should be available for offices interested. Pilots should be encouraged, and results of ride sharing savings should be promoted across the agency. Engaging offices that work in dense regions of the state may yield the best results.

3.1.3 Climate-Smart Lands

Climate Action Plan Working Groups that developed climate strategies highlighted in this section include Natural Resources, Energy & Renewables, Equity & Inclusion, and Water & Wastewater Working Groups. Full working group summaries for all strategies below can be found in Appendix B. Climate Working Group Summaries.

Climate change poses a significant threat to the native biodiversity of Illinois. Natural communities and native species face serious challenges from developmental pressure, land degradation and fragmentation, native and non-native invasive species proliferation, and non-sustainable exploitation of natural resources. To mitigate against climate change effects on lands in IDNR ownership, we must manage our resources for resiliency. This entails managing natural systems holistically, responsibly, and with special consideration for the most sensitive and rare resources under our ownership. This strategy directly contributes to the agency’s goal of mitigating GHG emissions through carbon storage, responsible resource use, and clean energy production. In many instances, efforts to reach one goal will also have impacts, both positive and negative, towards other efforts.

This approach will further assert the leadership of the IDNR as a land management agency and provide the public with a clear example of conscientious land stewardship. As most of the land in Illinois is privately owned, much of the potential for climate change mitigation lies with the state’s constituents. Although it is not our primary purpose for this plan, we recognize the great importance of engaging with other landowners and outline several pathways and opportunities to employ our management recommendations and practices across other types of landholdings. Providing guidance, outreach, education, assistance, and resources to these private landowners as well as to partner groups and other government agencies can thereby affect conservation on a landscape or ecosystem scale.

Natural areas provide benefits to all Illinoisans– recreation, flood mitigation, carbon sequestration, and more.

The Natural Resources Working Group has identified three primary goals for Climate-Smart Natural Areas:

1. Enhance resilience of natural systems and species, especially on IDNR lands
2. Analyze carbon sequestration and storage on IDNR properties and increase it, when possible while also protecting biodiversity and other ecological values
3. Enhance connections and partnerships with other programs

The Natural Resources Working Group added additional strategies in other sections:

4. Sustainable Site Operations
5. Learning & Engagement
6. Equity & Inclusion

Goal 1: Enhance resilience of natural systems and species, especially on IDNR lands.

The resilience of terrestrial and aquatic systems is key to IDNR’s mission and to resource management especially in the changing climate. Resilience is important amidst the variety of threats to natural systems and species, including climate change and habitat fragmentation. Planning for resilience is complex and should consider natural community type, native wildlife and plant species, habitat connectivity, vulnerable species, etc. Planning should also consider threats, including invasive species, changes to the water cycle, temperature changes, etc. Habitat connectivity is essential for species migration to adapt to changing conditions brought on by climate change and habitat loss. Resilient ecosystems provide ecosystem services, such as flood mitigation, recreation, water quality and carbon sequestration and storage.

Objective 1: Create management recommendations and guidelines for management of DNR sites.		
<i>Initiate updates to site plans in the next Plan of Work cycle.</i>	<i>Conduct more complete inventories of the natural communities and species present on state lands.</i>	<i>Review literature for updates on fire impacts and strategies.</i>
Timeline: Immediate, Ongoing	Timeline: Short term, Ongoing	

Site plans are important guides for IDNR’s work; however, many of the plans need updating. IDNR should initiate updates to the site plans in the next Plan of Work cycle. The updated site plans should draw on the Climate Action Plan and the expertise of diverse teams of IDNR staff to ensure that the plans enhance the resilience of natural systems and species on each site, while incorporating the relevant objectives and strategies of this Plan, with reference to other IDNR plans such as the IWAP Implementation Guide.

Inventories of natural communities and species are, of course, vital to the work of IDNR. These inventories become even more important when facing the challenge of climate change. IDNR should conduct more complete inventories of IDNR sites to facilitate well-informed site planning.

Climate change introduces new conditions related to prescribed fire and wildfire. IDNR should keep up to date on impacts and strategies that could affect fire management and site management in a changing climate.

Objective 2: Develop recommendations and guidance for DNR nurseries and ag-lease land.	
<i>Evaluate and develop recommendations for ag-lease land.</i>	<i>Evaluate and develop recommendations for how nurseries are used.</i>
Timeline: Immediate	

Within IDNR and the Working Groups, there was a lot of discussion about agricultural land owned by IDNR. There are a range of ideas about the best uses of that land, including habitat restoration, solar farm installations and demonstration sites for good agricultural practices. The Working Group recommends further exploration of these ideas and the development of recommendations for how to manage these and other lands IDNR manages in the future. IDNR’s updated agricultural lease policy and current Regional Conservation Partnership Program Grant should provide a blueprint for expanding efforts to adopt best agricultural practices.

IDNR’s Mason State Nursery is a unique type of facility. The nursery provides valuable services that are needed in the state now and the need is likely to increase. Public and private restoration, reforestation and conservation programs need more plant material, seed banking, and availability of new species that are adapted to the changing climate of Illinois. A variety of plant material is needed, including tree seedlings, pollinator plants, shrubs, and native plants. The Working Group recommends that IDNR explore opportunities to expand the role and capacity of the nursery program, by increasing the capacity of the Mason State Nursery and perhaps reopening the Union County Tree Nursery. IDNR could enhance partnerships with other agencies and partners by building on its expertise to provide trees and other plants that are needed for restoration, conservation, and nature-based climate action statewide.

As the site planning process (in Objective 1) continues, it would be useful to identify other types of sites that would benefit from more detailed evaluation and guidance.

Objective 3: Increase DNR’s capacity to acquire critical land parcels.		
<i>Develop and clarify the process to identify critical land parcels.</i>	<i>Identify possible partnerships and funding for acquisitions.</i>	<i>Expand acquisition of critical land parcels.</i>
Timeline: Immediate	Timeline: Immediate, Ongoing	

Acquisition of critical land parcels can help IDNR enhance the resilience of species and natural communities. IDNR should focus on acquiring potential habitat. Large and small parcels can be

significant, depending on specific site conditions and location. Land acquisition should emphasize habitat connectivity because linear habitats that connect otherwise isolated patches can serve as travel corridors for species that are affected by climate change. Parcels that can act as buffers around high-quality natural areas offer important opportunities to protect these sites.

Proposals and commitments to conserve 30% of nature by 2030 have been gaining momentum. In Illinois about 4% of the land is publicly owned and more than two-thirds is agricultural related production. The focus on 30x30 can open funding and partnership opportunities for acquisition of land parcels to increase the proportion of protected land in the state. There is the potential for new partnerships and funding to increase the agency's capacity to acquire critical land parcels. The 30 x 30 Task Force Report can be found here:

<https://www2.illinois.gov/IDNR/programs/30by30/Pages/default.aspx>

Recently, IDNR has been operating in a more strategic fashion when pursuing land acquisition. Several factors are considered including: preserve design (enlarging or enhancing a current site), reducing inholdings, identifying opportunities for cooperative management agreements with other entities, hunting opportunities, endangered species protection and others. Increased communication within IDNR would ensure that priorities are understood by IDNR staff and the public.

Goal 2: Analyze carbon sequestration and storage on IDNR properties and increase it, when possible, while also protecting biodiversity and other ecological values.

Nature-based climate action has emerged as an important approach to addressing climate change because natural systems sequester and store carbon from the atmosphere. This makes nature conservation more important than ever. There is the potential for nature conservation to mitigate climate change while also protecting biodiversity, enhancing the resilience of natural communities, and providing ecosystem services.

IDNR is in a unique position to implement and promote carbon sequestration and storage in nature: IDNR has significant landholdings that can sequester carbon and IDNR manages programs that encourage nature conservation on private land.

However, there are several important considerations when looking at carbon sequestration and storage in nature. First, natural systems cannot solve the climate crisis without substantial cuts in emissions. Second, nature is valuable for reasons beyond its ability to capture emissions; nature provides other ecosystem benefits and has value on its own.

IDNR has significant landholdings that include resilient and intact natural communities, such as old growth upland forest, northern bogs, and remnant prairies that are uniquely capable of storing carbon, in addition to providing valuable habitat for native species, including the majority of those listed under the Illinois Endangered Species Act. IDNR is mandated to steward IDNR-owned lands for resiliency of natural communities and native species, but there are opportunities to enhance resiliency, biodiversity,

and carbon sequestration at the same time. These opportunities also exist on private land and IDNR can promote carbon sequestration and storage alongside other conservation goals to private landowners.

The first step in developing a plan to sequester carbon is to understand the potential. Therefore, we recommend further study of current sequestration and modeling of future opportunities.

Objective 1: Estimate current carbon sequestration and storage on DNR properties.	
<i>Estimate carbon sequestration and storage on DNR properties.</i>	<i>Conduct carbon sequestration and storage analyses at the site scale.</i>
Timeline: Immediate	Timeline: Short term

Determine and increase carbon sequestration and storage on IDNR properties, when possible, while also meeting the site plan objectives for biodiversity and other ecological values.

Objective 2: Analyze the potential for carbon sequestration and storage on DNR properties.
<i>Develop and analyze scenarios for carbon sequestration under different restoration and management scenarios.</i>
Timeline: Immediate

Agency biologists should guide appropriate use for these sites.

Within that mission, there are opportunities to increase sequestration and storage in natural communities. For example, degraded early successional communities can be restored to native prairie plantings. Forests and wetlands offer opportunities for large amounts of carbon storage when appropriately managed.

Goal 3: Enhance connections and partnerships to achieve climate and conservation goals

Objective 1: Build connections and partnerships with other DNR plans and programs.

Identify pathways for intra-agency opportunities for collaboration.

Promote programs that encourage habitat creation, restoration, and management on private and public lands.

Timeline: Immediate, Ongoing

Objective 2: Build connections and partnerships with other government agencies.

Identify pathways for interagency opportunities for collaboration.

Promote programs that encourage habitat creation, restoration, and management on private and public lands.

Timeline: Immediate, Ongoing

Objective 3: Build connections and partnerships with community organizations.

Identify pathways for collaboration.

Seek out opportunities to connect with groups who are not typically part of conservation decisions.

Promote programs that encourage habitat creation, restoration, and management on private and public lands

Timeline: Immediate, Ongoing

Most property in Illinois is privately held. Natural resources statewide are affected by activities on private land. IDNR properties are affected by activities on neighboring parcels.

There are already excellent programs that engage with private landowners and assist them in conserving the properties under their care. Effective stewardship on these properties is a boon and a complement to IDNR’s conservation work. By working with partners to expand these programs, IDNR can leverage the relationships and expertise for a bigger impact.

3.1.4 Equity & Inclusion

Furthering the public's understanding of the rich, diverse history and culture of the state while building a more inclusive organization and equitably supporting communities disproportionately impacted by our changing climate.

Climate change writ large impacts people in a host of ways, from their health to their housing, from how they get around to their enjoyment of natural spaces. Moreover, though climate change affects everyone, it does not impact them all equally. Communities already suffering from historic oppression and systemic discrimination bear the brunt of the adverse effects of a changing climate, whether that is drought, flooding, deforestation, pollution, or a lack of accessible outdoor recreation. Additionally, these same underserved communities do not receive the same resources as more affluent, privileged places when it comes to mitigating the effects of climate change. The Equity & Inclusion Working Group sought holistic solutions to address the interrelated challenges of inequity and climate change. These strategies occur both internally and externally to IDNR, but they rely on a foundation of best practices in community empowerment. Principal among these are sustained engagement, trust-building, investment, and partnership.

The following goals require reconciliation of efforts between the great work of the DEAI Strategic Planning Committee and the Equity & Inclusion Working Group, outline further internal engagement with IDNR sections to increase equity and inclusion within IDNR, and call for explicit and intentional external engagement to empower communities hit hardest by the compounding complexities of systemic inequity and climate change. These goals challenge IDNR to:

1. Ensure that all Illinois Department of Natural Resources climate action strategies and implementation take place equitably and connect holistically with existing and planned diversity, equity, accessibility, and inclusion (DEAI) activities.
2. Identify, prioritize, and engage communities who have been both disproportionately impacted by climate change and systemically disadvantaged in the allocation of resources (e.g., government funding, activities, and beneficial supports).
3. Recognize members of these communities as experts in their own lives and empower them to:
1) call out and undo disparities in the negative impacts of climate change on their communities, and 2) reveal and eliminate the inequitable allocation of public funds to IDNR projects where they result in disparate effects on these communities.
4. Emphasizing IDNR's need to become a diverse, equitable, accessible, and inclusive organization that reflects the considerable diversity of the state of Illinois, endeavor that all new and existing personnel who work to implement climate action strategies understand and uphold these values.
5. Ensure equitable access to IDNR sites and resources by these identified communities.
6. Increase public participation and outreach within Illinois' climate change efforts.

Since a Diversity, Equity, Accessibility, and Inclusion (DEAI) committee exists within IDNR, we kept this section in its entirety as developed by the Equity & Inclusion Working Group to increase access to critical equity and inclusion strategies by this group. While SEDAC worked to reduce replication throughout the

plan, we felt this section needed to be kept in its original form and emphasized in other areas of the report. Goals, objectives, and strategies in this section can also be found in multiple places throughout the report to underline the importance of equity and inclusion in climate change while also aligning these strategies with complementary climate mitigation strategies as well as learning and engagement opportunities. Overlap will be cited throughout various areas of the Climate Action Plan.

This report section was developed by the Equity & Inclusion Working Group. The full Working Group summary can be found in Appendix B: Climate Working Group Summaries.

Goal 1: Ensure that all Illinois Department of Natural Resources climate action strategies and implementation take place equitably and connect holistically with existing and planned diversity, equity, accessibility, and inclusion (DEAI) activities.

<p>Objective 1: Comprehensively address issues of discrimination and systemic injustice by seeking to understand their complexity, officially recognize their interconnectedness, and unite to overcome their disproportionately negative effects on disadvantaged and underserved people and communities—e.g., in the climate change-related realms of public health, housing, and environmental degradation.</p>		
<p><i>Continue IDNR’s DEAI strategic planning committee and incorporate these Climate Action Plan Equity & Inclusion goals, objectives, and strategies into the department’s broader strategic planning process.</i></p>	<p><i>Continue IDNR’s DEAI training for new and existing departmental hires, especially for new and existing positions related to Climate Action Plan implementation.</i></p>	<p><i>Seek input on DEAI strategies and activities, especially those relating to climate change and departmental climate change mitigation, from diverse organizations and experts involved in environmental and social justice advocacy (Ref. Goal 3.1.a – 3.3.a).</i></p>
<p>Objective 2: Ascertain and assess the past, ongoing, and planned equity and inclusion activities of the department and how they potentially complement or contend with recommended climate action strategies within this plan.</p>		
<p><i>Inventory IDNR goals, objectives, strategies, and activities related to equity, inclusion, and outreach to underserved and disadvantaged communities (Ref. Goal 3.1.a – 3.3.a).</i></p>		
<p>Timeline: Immediate to 1 year – Start by 2023-2024 and achieve ongoing programmatic sustainability by 2025.</p>		

The Climate Action Plan must consider existing departmental activities, especially within the DEAI committee to the strategic plan, and incorporate progress towards DEAI goals. A big part of this must be organizational integration—either one or multiple staff serving on both groups. Additionally, DEAI training must be integrated into new and existing hires to ensure that all staff understand DEAI goals and targets for the agency. Other strategies that reference the incorporated DEAI objectives into hiring practices are listed under Goal 4 in Objectives 1 and 2.

These strategies will also require a survey of other sectional activities such as DEAI training completion rates and personnel rolls, strength of contacts and partnerships (past, present, and planned) with outside climate equity-related community-based organizations, and grants awarded to or provided for the support of underserved people and communities regarding climate change. In conjunction with the Education & Engagement Working Group, a small team of support personnel can create a survey/questionnaire that will help inventory and categorize existing activities, organize, and place requests for information for each departmental division or section towards this goal.

Although these activities will be ongoing and potentially long-term to achieve significant success, they are foundational and must take place before other work can begin. As work on the Climate Action Plan proceeds, these goals should be considered sequential and strategies ongoing unless otherwise stated.

Goal 2: Identify, prioritize, and engage communities who have been both disproportionately impacted by climate change and systemically disadvantaged in the allocation of resources (e.g., government funding, activities, and beneficial supports).

<p>Objective 1: Using a variety of available mapping tools and data resources, develop equitable criteria for identifying these communities and opportunities for partnership and building with the department.</p>		
<p><i>Define “disadvantaged community”, “environmental justice community”, “underserved community”, “stressed”, “underrepresented”, “frontline”, etc. and craft language that achieves the most empowering and accurate description of the climate challenges facing these communities in Illinois.</i></p>	<p><i>Identify where DNR lands and properties intersect with these communities and prioritize projects that simultaneously address climate change AND enable inclusion and accessibility to community members within those spaces.</i></p>	<p><i>Consider both where these communities are disproportionately exposed to environmental harms AND where they are lacking environmental assets (such as access to green spaces). Identify these gaps to then prioritize future grants and allocation of other resources (Ref. Goal 5.1.a – 5.1.c).</i></p>
<p>Objective 2: Conduct regular, systematic internal reviews/audits of these activities to ensure programs are achieving goals and meeting community and departmental needs (regularity to be determined – perhaps on a 1- to 3-year cycle).</p>		
<p>Timeline: Begin by 2025 and achieve ongoing programmatic sustainability by 2030.</p>		

Similar to Goal 1, information requests, project tracking, and community engagement are central to Goal 2. Without a foundation to define and describe disadvantaged or underserved communities, for example, it will be challenging for the agency to communicate goals, focus efforts, and understand the barriers facing these communities in Illinois. Though comprehensive definition and identification could prove elusive, establishing a framework will enable the agency to use mapping tools, develop more concrete criteria for identification, and explore opportunities for partnership with these communities.

Using available local, state, and/or federal social vulnerability data coupled with existing mapping tools like EPA’s EJSCREEN and the CDC’s Agency for Toxic Substances and Disease Registry (ATSDR) Social Vulnerability Index, IDNR can discover vulnerable communities and populations in proximity to its own managed lands and facilities. Mapping these communities in relation to IDNR lands will facilitate better, more robust engagement. Another example is the USFS Community Accomplishment Reporting System. Coupled with metrics already used by the Urban and Community Forestry Program to measure a community’s capacity for tree coverage, planting, and care, IDNR can determine which communities may be at greater risk from the impacts of climate change and prioritize and plan engagement accordingly.

As IDNR identifies communities using existing mapping tools, tracking, and emphasizing proper community scale and attributes—such as neighborhood name, zip code, city and/or self-defined social community—becomes increasingly important. This will help IDNR better understand a community’s identity and the historic challenges they may face. Providing careful and thoughtful interpretation of the map will be critical to grounding and contextualizing communities for IDNR staff who may be engaging members of those communities as part of the goals, objectives, and strategies below. As regular, systematic internal reviews/audits occur for these objectives, implementation personnel should create files pertaining to subject communities—contacts, communications, partnerships, grants, or other types of outreach—and assess gaps within the state given the definitions of disadvantaged areas outlined in the stated resources.

Goal 2 strategies require significant investments in staff time and resources not only to ascertain existing projects and partnerships, define communities, and identify gaps, but also to plan and execute engagement processes that achieve sustainability and build trust. In this regard, partial or nominal investments could end up doing more harm and wasting more resources than either doing nothing or fully funding a robust community engagement program.

Goal 3: Recognize members of these communities as experts in their own lives and empower them to 1) call out and undo disparities in the negative impacts of climate change on their communities, and 2) reveal and eliminate the inequitable allocation of public funds to IDNR projects where they result in disparate effects on these communities. (Ref. Goal 5.2)

<p>Objective 1: Work directly with community members and gain their trust; prioritize support, empathy, attentiveness, sensitivity, and context in public engagement and outreach.</p>	
<p><i>Promote this approach in all the department’s new and existing partnerships, but especially with schools, libraries, and other community organizations centered around IDNR’s climate action.</i></p>	
<p>Objective 2: Develop empowering partnerships with environmental justice organizations that are already engaged in equitable climate mitigation work within these communities; DNR must assume a supportive, mutually beneficial learning role that centers community-driven solutions.</p>	
<p><i>Identify, reach out to, and collaborate with nonprofits and other organizations that are leaders in the environmental justice movement and that exemplify the climate action and equity and inclusion goals of DNR.</i></p>	<p><i>Promote positive and successful examples where DNR worked to support and benefit these communities.</i></p>
<p>Objective 3: Affirming the necessity that all of DNR’s grant writing, NOFOs, and award processes take place equitably, ensure that the department’s external funding processes specifically related to climate action take place equitably.</p>	
<p><i>Develop recommendations—eventually codified quotas—for DNR’s climate action-based grants that must be awarded to projects within the identified communities and/or to organizations which are minority- or women-led.</i></p>	<p><i>Link new partners, organizations, and identified communities with grant-funding opportunities.</i></p>
<p>Timeline: Begin by 2025 and achieve ongoing programmatic sustainability by 2030.</p>	

Following from the cataloging and engagement groundwork of Goals 1 and 2, Goal 3 details the kind of engagement process IDNR should cultivate for its staff and its potential partnering communities. As such, personnel may need skills or training beyond the existing DEAI modules that IDNR provides internally. Climate equity advocates, organizations, or even other state agencies could help supplement, especially once partnerships have been established. Program management needs could also be intensive, requiring effective staff with sufficient knowledge and resources, and active coordination with communications staff and the Education & Engagement Working Group must take place to promote and amplify success stories that champion DEAI values without devolving into tokenism.

Once training is in place and staff begin to build trust within communities, participating IDNR staff should promote this approach broadly across the agency, especially to IDNR personnel with existing school, library, or other community-based partnerships centered around climate action. Eventually successful approaches should also be promoted to departments seeking to create new relationships with community members and organizations. IDNR’s Greenways and Trails Program serves as a prime model of this approach. IDNR project managers and partners should promote and distribute this model, and IDNR should provide training to reinforce similarly successful engagement strategies. One way to

test efforts before addressing multiple areas or regions at once would be initiating a scalable pilot program involving one, two, or three communities within a five- to ten-year period and concentrating community engagement activities and resources in those areas alone for that timeframe. Depending on levels of success, goals achieved, and available resources, the program could expand.

As strategy implementation continues, project leads should develop case studies to highlight partnership programs, infrastructure projects, and events where IDNR worked to support and benefit these communities to further replicate successful partnerships and engagement across the agency. The IDNR Urban and Community Forestry program illustrates engagement with community-based nonprofits to increase access to and grow green spaces. To learn more about the program's success and initiatives, please refer to Appendix B: Climate Working Group Summaries, 5. Equity & Inclusion Working Group Summary.

Grant and funding programs should also take place equitably, and IDNR must likewise ensure that its investments in climate action mitigation take place equitably and inclusively in the state. The Equity & Inclusion Working Group advises *recommending* rather than prescribing a certain level of funding for identified disadvantaged communities and minority- or women-led organizations to gauge the relative success of such efforts. Recommendations are more flexibly applied and do not have the potentially punitive aspect of codified quotas. If recommendations prove effective, IDNR can reassess and codify them. Nonetheless, these recommendations underline the necessity to support disadvantaged communities financially.

Though some aspects of this engagement approach can and should be developed immediately, fulfillment of this level and type of process takes considerable time and resources. Building trust does not happen overnight, and funding worthwhile community projects requires extensive staff and vetting. The Equity & Inclusion Working Group envisions these engagement goals taking place successively and incrementally following, in many respects, from one goal to another.

Goal 4: Emphasizing IDNR’s need to become a diverse, equitable, accessible, and inclusive organization that reflects the considerable diversity of the state of Illinois, endeavor that all new and existing personnel who work to implement climate action strategies understand and uphold these values.

Objective 1: Address the hiring process to attract and diversify workforce talent for all personnel involved in climate action strategies.					
<i>Market and promote positions to diverse candidates through social media and other channels.</i>	<i>Incentivize direct communication and referrals between current diverse staff and prospective diverse candidates.</i>	<i>Reduce barriers to obtaining DNR jobs.</i>	<i>Even the playing field for positions.</i>	<i>Implement a guideline akin to the NFL’s “Rooney Rule” for DNR climate-related personnel when diverse candidates apply.</i>	
Objective 2: Acknowledging the department’s current lack of diversity, promote a culture of inclusiveness within all divisions working to implement the Climate Action Plan.					
<i>Engender a culture of difference and diversity through marketing materials and promotion of climate events and projects (Ref. Goal 3.2.b and 6.1.a).</i>	<i>Improve interdepartmental communication by focusing conversations on climate change, diversity, and representation (Ref. Goal 6.1.a).</i>	<i>Start an IDNR-sponsored climate change campaign for equity and inclusion on social media.</i>	<i>Engage young professionals to contribute to IDNR’s climate change goals and attract diverse candidates to DNR’s hiring pool.</i>	<i>Partner with workforce development groups to add diversity and value to DNR’s climate change projects.</i>	<i>Organize affinity groups for staff to encourage mentorship, bonding, camaraderie, and solidarity.</i>
Timeline: Begin by 2025 and achieve ongoing programmatic sustainability by 2030.					

In drafting Goal 4, the Equity & Inclusion Working Group discussed the relative difficulty and seeming paradox of trying to build trust in disadvantaged communities when IDNR itself lacks much diversity, on the one hand, and trying to attract diverse candidates and ensure a supportive and inclusive work environment when recruitment of BIPOC candidates can itself be difficult in an organization that lacks trust within disadvantaged communities, on the other hand. The two objectives are mutually reinforcing. Thus, following Goals 1-3, IDNR must similarly inventory its hiring and recruitment practices to determine how to achieve a diverse workforce. Though these strategies may require more time and effort from personnel conducting the inventory and cataloging of DEAI activities where they overlap with climate action projects, e.g., in Human Resources, they will be a boon to both outreach and hiring if implemented.

Hiring diverse candidates within IDNR's Climate Action Plan implementation would be a real stride in becoming a more diverse, equitable, accessible, and inclusive organization overall. To do this, we recommend that IDNR lower the barriers to employment at IDNR and even the playing field for positions, provide competitive salaries, increase the accessibility of its application process, provide assistance to applicants in navigating job qualifications, and provide flexible job schedule opportunities. Some hiring processes may even benefit from greater communication and information sharing with all potential candidates. Whereas internal candidates may receive interview questions and typical responses ahead of time, outside applicants generally do not. They should be given an equal opportunity to demonstrate their suitability for positions. Provide these outside applicants with interview questions ahead of time to help them better prepare.

The "Rooney Rule" was created by the National Football League (NFL) in 2003 by the Workplace Diversity Committee to encourage a greater number of positions held by diverse individuals across NFL Clubs. The Equity & Inclusion Working Group recommends instituting a similar rule at IDNR that the agency must interview a certain minimum percentage of diverse candidates for open departmental positions, assuming they apply. In collaboration with strategies under Objective 1, IDNR can attract a more diverse workforce talent to the agency.

However, to make any progress, the agency must first acknowledge its lack of diversity and promote a culture of inclusion to attract and retain diverse talent, especially across implementation of the Plan. Strategies under Objective 2 help diverse candidates better see themselves as having a place in the agency where they will be supported, respected, and able to contribute their skills and expertise. External marketing materials and promotion of climate events and projects that pursue equity, diversity, inclusion, and accessibility can begin to engender a culture that champions those values. Highlighting diversity within a department and promoting successful climate projects that involve diverse communities and partners can foster this culture across the agency.

Social media presents unique opportunities for external engagement and hosting a climate change campaign for equity and inclusion across multiple platforms would similarly encourage involvement from diverse groups. IDNR can engage with diverse professionals through a variety of social media channels (LinkedIn, YouTube, TikTok, etc.) through videos and other visual media to inspire future IDNR professionals to join the agency or join the climate and natural protection movement. IDNR should also use social media platforms to engage with diverse college student groups and organizations. Outreach should also be conducted at job fairs and on high school campuses to promote IDNR employment and engagement opportunities.

Internally, organizing agency-sponsored lunch-and-learns with DEAI committee members, hosting departmental trainings, and inviting guest speakers to lecture on these topics can improve communication at the intersection of climate change, equity, and representation. Different divisions must also speak with each other on these topics to break down silos and cross-cultural and locational boundaries, such as urban versus rural sites and staff within different sections. In addition, IDNR should consider partnering with workforce development groups to add diversity and value to IDNR's Climate

Action Plan projects. The training and education nonprofit OAI partnered with Green Corps. IDNR could enhance that collaboration to develop a more diverse workforce for green infrastructure maintenance, benefitting strategies under the Sustainable Site Operations and Climate-Smart Natural Areas as well.

The Learning & Engagement section highlights alignment with this goal and other aspects of equity and inclusion. Many strategies in both sections complement and overlap with each other, and plan implementers should integrate them into overall internal and external communications approaches.

The Equity & Inclusion Working Group acknowledges the considerable barriers to implementation of Goal 4. In addition to the inventory and information requests, these comprehensive strategies require extensive buy-in and coordination: from HR, marketing, and communications divisions to the Education & Engagement Working Group and personnel implementing the Climate Action Plan. The CMS system itself may prove challenging to work with if it restricts any of these provisions. Social media messaging also requires a certain level of competency to properly execute these strategies, necessitating training or additional hires. Again, IDNR can take an incremental approach and apply these recommendations in certain instances, perhaps when it comes to hiring outreach and communications personnel who will be instrumental to the Climate Action Plan. Comprising a diverse workforce and reaching out to diverse communities will ultimately help IDNR to make Illinoisans of all backgrounds across the state feel included and valued. When that happens, IDNR will see the difference in its climate action.

Much of the coordination of these objectives and strategies can begin immediately, but the guidelines likely will not become effective until the divisions listed above lay the groundwork for recruitment of diverse candidates within Climate Action Plan tasks. Moreover, achieving a more diverse IDNR will be an ongoing endeavor inclusive of climate-related work.

Goal 5: Ensure equitable access to IDNR sites and resources by these identified communities.

Objective 1: Address impact disparities for climate change AND for DNR-implemented climate mitigation measures (Ref. Goal 1 – 2).		
<i>Ensure that the DNR Climate Action Plan and working groups take into account systemic disparities in the allocation of resources to these communities.</i>	<i>Conduct climate risk assessments to identify which communities in Illinois will be most impacted by climate change.</i>	<i>Equitably apportion and allocate DNR resources—especially those related to climate mitigation and infrastructure projects—to underrepresented communities; prioritize implementation of mitigation measures that will benefit those most impacted.</i>
Objective 2: Develop a public engagement plan to capture and prioritize experiences, perspectives, ideas, and strategies most important to community members disproportionately impacted by climate change.		
Objective 3: Create a language accessibility plan for all of DNR’s public-facing climate change material/signage.		
Objective 4: Create an adaptable site accessibility template for use at all of DNR’s public sites to engage members of the identified communities.		
Objective 5: Increase public and active transportation options to IDNR parks and lands to and from the identified communities.		
<i>Create and make widely available resources to increase IDNR site use by visitors from these communities.</i>		
Timeline: Begin by 2030 and achieve ongoing programmatic sustainability by 2040.		

The inventory outlined in Goals 1-2 will serve as a roadmap to act on Goal 5 and address impact disparities for climate change and for IDNR-implemented climate measures in this action plan. Determination of past and historic levels and allocation of funding for identified communities is vitally important to help set the stage for a pilot or full-scale, statewide engagement plan with identified communities.

Some of this work has already begun at IDNR through the Climate Action Planning process and within agency departments and sections. As other working groups prepared their goals and strategies, Equity & Inclusion drafted questions and guidelines for use by each other working group to assess the potential impact on disadvantaged communities and to plan for alternatives that mitigated or eliminated foreseen disproportionate or other negative impacts. The International Association of Public Participation (IAP2) provides a good framework for assessing equity, and the full question list can be found in Appendix B. Climate Working Group Summaries, 5. Equity & Inclusion Working Group Summary.

Depending on past investments and assessed needs, execution of community climate assessments presents further opportunities from the community engagement approaches listed in Goals 2-4. IDNR can partner with communities and/or organizations to assess climate risk in one to three communities as part of a pilot, then scale accordingly. Site accessibility and transportation plans may then develop

organically, with community support and municipal and IDNR partnership, and operate on the local level as responses to individual community climate risk assessments. Maps, transit schedule pamphlets, and online applications can increase access to resources and engage communities in visiting IDNR sites. As equitable access is explored, there is an opportunity to consider opportunities for accessible trails that can be used by people with different abilities.

The Equity & Inclusion Working Group and DEAI committee must coordinate closely with the Education & Engagement Working Group to ensure that any public engagement plan champions equity and all the values of IDNR. Centering disadvantaged communities in this plan should help, and one way to promote inclusion and accessibility is through language and communications. Non-English-speaking immigrants and people with disabilities will not have opportunities to engage unless resources and published materials, like educational handouts and the IDNR website, are provided in native languages, e.g., Spanish and Hindi, or text-to-speech-enabled formats. IDNR should strive to follow best practices for state agencies and large cities across the country.

Much of the work outlined in Goal 5 will take place immediately, but the climate risk assessments, engagement plan, and site plans will involve considerable time, resources, and effort. Aiming for completion of the work—or scaling and ramping up of ongoing projects—by the next decade creates a realistic timeline for success.

Goal 6: Increase public participation and outreach within climate change efforts. (Ref. Goal 3, 5)

Objective 1: Develop educational and interpretive programs that serve to elucidate the links between the natural environment, human society, culture, history, and climate change.

Create public-facing resource materials, exhibits, and events that interpret the climate history of Illinois and place past climate change in context with current events for the public.

Timeline: Immediate to 1 year – Start by 2023-2024 and achieve ongoing programmatic sustainability by 2025.

Much of the work outlined in Goal 6 currently exists for some IDNR divisions, e.g., the Illinois State Museum in Springfield and many of the historic grounds. These divisions may lead the charge on materials development for the Plan, along with the Education & Engagement Working Group. However, it is also important to expand these educational and outreach opportunities to divisions and sites that have not traditionally been involved in education, especially surrounding climate change.

Internal IDNR entities could develop climate engagement materials that speak both to the historical and current climate impacts for the public. Visitor sites could develop exhibits and materials with interpretations of cultural history, placing emphasis on indigenous land ownership and how past environmental management decisions impact contemporary communities and lands. Departments and sections could also emphasize and highlight diverse stories that reflect Illinois’ rich and diverse cultures and histories, such as the African American Heritage Water Trail.

Departments should also think about going beyond IDNR lands and spaces, bringing resources, stories, and histories of Illinois lands to communities through existing events. Hosting bike tours, mobile history lessons, working with schools to schedule field trips, or hosting classroom lessons at schools and libraries could more dynamically bring abstract concepts of history and climate change into communities. As previously mentioned, IDNR should leverage social media channels (YouTube, TikTok, Facebook, etc.) to create and post educational content that promotes and explains IDNR's developed climate change materials and historical projects.

Investments to inventory existing DEAI and climate activities, community engagement, and hiring and recruitment called for throughout this Equity & Inclusion summary will benefit public participation in Goal 6 and vice versa. Likewise, efforts called for in the Education & Engagement summary to survey divisions about these activities complement efforts within Equity & Inclusion.

Some of the tasks under Goal 6 will require more lead time, i.e., developing partnerships with community organizations representative of and knowledgeable about diverse cultural and indigenous histories, but much of the work should begin immediately, such as the exhibit and materials inventory and subsequent development of resources that highlight diversity and equity. In addition, IDNR already has some partnerships with area cultural museums and other community-based nonprofit organizations. Not all these partnerships address climate change, but potential exists.

3.1.5 Learning & Engagement

Empowering IDNR staff, partners, and the public to support the agency's climate action goals, while inspiring people to bring sustainability home to their communities.

Sharing the Climate Action Plan goals and successes will be important to build partnerships, maintain excitement around implementation, and demonstrate IDNR's leadership in climate action. Communication both internally and externally is also critical to the success of implementing the strategies outlined in this Plan. The strategies in the Learning & Engagement section address opportunities and needs for internal and external climate change education, communication, and engagement with visitors and the broader public. The foundation of this section was built by the Education & Engagement Working Group, but all working groups had strategies that suggested opportunities for internal and external learning, as well as engagement. This section is meant to encompass examples of the many learning and engagement opportunities related to climate strategies shared across all sections of the Plan.

The goals of this section include:

1. Empower IDNR staff to implement solutions outlined in the Climate Action Plan.
2. Ensure that climate action implementation takes place equitably and connects holistically with existing and planned diversity, equity, accessibility, and inclusion (DEAI) activities.
3. Increase transparency and buy-in for proposed climate actions among external IDNR audiences.
4. Increase public participation in Illinois' climate change efforts through robust educational resources and programming.
5. Through IDNR's climate actions, inspire the public to join Illinois' climate change efforts.

6. Broadly communicate agency progress in reducing carbon emissions as implementation progresses.

Information and engagement needs related to specific climate actions are described in other sections of the report, but we’ve developed many connections to these strategies in the section below. The Education & Engagement Working Group summary (Appendix B: Climate Working Group Summaries) also provides detailed examples of how other organizations have successfully implemented its strategies. For brevity, we have outlined these strategies below.

All Climate Action Plan Working Groups developed climate strategies for this section. Find more details in each Working Group summary in Appendix B: Climate Working Group Summaries.

Goal 1: Empower IDNR staff to implement solutions outlined in the Climate Action Plan.

Objective 1: Increase transparency and buy-in for proposed climate actions among internal audiences.
<i>Share highlights of the proposed climate action plan with internal audiences.</i>
Timeline: Immediate; Q1 2023

Over 45 members of the Climate Implementation Team and Working Groups developed the Climate Action Plan; this represents a variety of departments and job roles across the agency. While this planning group represents many facets of the agency, most staff are not aware of the Plan and its goals. It is critical to inform staff of the short- and long-term CAP goals, as well as review developed strategies that may relate or impact their jobs or roles in the agency. By providing presentations and informational materials, IDNR can begin to engage all staff in the CAP and start to generate buy-in for climate goals across the agency.

This goal is immediate and will start in Q1 of 2023. Internal fact sheets, presentations, and a webpage, all developed by the Education & Engagement Working Group, will broadly summarize the climate actions and concomitant outcomes that IDNR proposes through the Plan. Dedicated staffing will be required to develop and maintain the website and manage social media engagement.

Objective 2: Solicit feedback from DNR staff about proposed climate actions and implementation.

<i>Distribute a questionnaire to solicit input from DNR staff.</i>	<i>Facilitate input sessions with DNR staff and key administrative groups about climate actions, with a focus on the specific actions that DNR staff will implement or be impacted by.</i>	<i>Analyze staff feedback and create a staff engagement report with recommendations for how the climate action plan should be modified to respond to staff feedback.</i>	<i>Develop a formal climate action recommendation process for staff to recommend new climate initiatives or provide feedback on existing or proposed initiatives.</i>
Timeline: Immediate; Q1 2023			

In tandem with presenting the CAP to IDNR staff to increase transparency and buy-in, project staff should collect feedback about proposed climate actions and implementation ideas. They should distribute a questionnaire to other IDNR staff to collect information about:

1. Current climate actions of staff
2. Level of support for future actions
3. Implementation considerations for proposed climate actions

This questionnaire will ask broad questions regarding CAP goals and targets, as well as questions for different offices and departments. Some measures require significant staff input, such as the proposal to explore permanent remote work and meeting options for staff. IDNR could use the process above to gather concerns and ideas around this proposed strategy. For more information regarding this proposed strategy, please refer to Appendix B: Climate Working Group Summaries, 3. Transportation & Fuel Use Working Group Summary.

To aid in collecting feedback from staff, input sessions will focus on the specific actions that IDNR staff will implement or be impacted by. The input sessions will allow staff to voice concerns, discuss implementation considerations, and offer general feedback. Since initial CAP ideas are already spreading through the agency, management needs to become aware of climate strategies developed, raise concerns, and come together around how they can support their staff through implementation. Hosting an input session with various management branches is a priority, since these staff members could greatly assist with early Climate Action Plan wins, produce broad ideas for regional implementation, and engage field staff.

The Education & Engagement team will analyze staff feedback and create a staff engagement report with recommendations for how the Climate Action Plan should be modified to respond to staff feedback. To collect ongoing feedback and ideas, the Education & Engagement team will develop a formal climate action recommendation process for staff to recommend new climate initiatives or provide feedback on existing or proposed initiatives.

This is one of the most important early tasks and should take place before implementation begins in earnest. We propose that a project lead conduct the staff engagement process during the first quarter of 2023. Developing communication materials, conducting input sessions and focus groups, distributing questionnaires, and creating a report to summarize this input will take substantial staff hours. A dedicated staff member will increase the likelihood of success in accomplishing this objective.

Objective 3: Provide education and professional development training to staff who will be implementing climate actions.			
<i>Provide staff training about landscaping and mowing practices- how to do it and why these strategies matter.</i>	<i>Conduct training at pilot sites where climate action strategies have been implemented.</i>	<i>Improve interdepartmental communication around DEAI strategies and activities by focusing conversations on climate change, diversity, and representation.</i>	<i>Conduct a survey to understand staff knowledge, interests, opinions, and attitudes about climate change and identify training topics.</i>
Timeline: Ongoing			

The strategies within this climate plan will require IDNR to do some things differently, such as using new tools, strategies, or practices. It is important to provide training on new climate action tasks, practices, and tools to set everyone up for success and help create shared experiences as new techniques and equipment are used. More professional development opportunities will help IDNR staff better execute their on-site jobs in alignment with IDNR’s mission and to keep IDNR staff up to date on the latest advances and ideas in the field. Therefore, education will be critical to encourage and support staff who will be implementing climate actions.

We anticipate that staff education and material development will be needed throughout the implementation of the Climate Action Plan. Staff training can take many forms including workshops, field days, online training, lunch-and-learns, manuals, demonstrations, fact sheets, etc. Staff training, especially in person, allows people to get to know each other and to visit sites around the state. Pilot sites offer valuable opportunities to share successes and challenges through field days for site staff. These pilot sites include sites where energy efficiency, renewable energy, solid waste, landscaping, or natural habitat strategies have been implemented. New staff can be introduced to the climate plan and climate-smart strategies with updated onboarding and training.

This education will largely be the responsibility of the working groups and staff who are implementing the actions. However, the Education & Engagement team can provide guidance and assistance as needed. IDNR biologists and other experts can serve as trainers. Other agencies and partners may also be able to provide training, for example, through a cooperative weed management area. Training should be offered for staff throughout IDNR, including site technicians, wildlife biologists, site managers, educators, and administrative support staff.

A survey of all IDNR staff can help to prioritize training topics based on an understanding of staff knowledge, interests, opinions, and attitudes about climate change. This anonymous survey should seek to understand what people know about the causes of climate change, the role of human activity in the increase in greenhouse gas emissions, and the role of nature in mitigating climate change. The survey should ask what climate issues people would like to know more about to help them in their professional and personal lives. This survey would provide valuable insights for creating training programs that are useful and relevant for IDNR staff.

Professional development training opportunities have been identified across the Climate Action Plan and within Working Group summaries. Priorities and timing for training topics can be established by the climate working groups in consultation with IDNR staff. Some examples of training topics include:

1. Reducing Fuel Use:
 - a. Landscaping and mowing practices – how to transition landscapes from grass to restored habitat and why this strategy matters, sharing case studies of success.
 - b. Demonstrations of electric site equipment, sharing successes and challenges.
 - c. Electric vehicles and charging, sharing success stories from pilots and site staff.
2. Green Infrastructure & Erosion Control:
 - a. Site technician training for maintaining and installing bioswales, rain gardens, and permeable paved areas (green infrastructure).
 - b. Soil management, erosion control.
 - c. Natural lawn care.
 - d. Differences between gray water and black water for water recovery and reuse systems.
3. Energy Efficiency:
 - a. Best management practices for energy and water efficient building management and renovation projects.
 - b. Renewable energy education and maintenance for site-installed renewables.
 - c. Net-zero strategies and their impact on operations.
4. Solid Waste Management & Reduction:
 - a. How waste management and purchasing decisions at IDNR connect to the agency's mission and environmental impact.
 - b. New waste reduction, reuse, and recycling practices for sites, based on pilot results and cost benefit analysis.
5. Natural Resources:
 - a. Invasive species management and issues.
 - b. Restoration practices.
 - c. Impacts of climate change on natural resources in Illinois.
 - d. Selecting native species for specific purposes, i.e., low maintenance, water filtration, display, etc.
6. General climate change education:
 - a. Impacts of climate change on communities and natural resources in Illinois.

- b. Disproportionate impacts of climate change on diverse, environmental justice communities.
- b. Recent science of climate change, impacts, and projections of future impacts.
- c. Recent strategies for mitigation, adaptation, and communication.

Objective 4: Inspire staff to take voluntary actions to reduce emissions.

Create incentives, events, and competitions to motivate staff engagement in Climate Action Plan implementation.

Timeline: Immediate; ongoing

It is important to both educate and inspire staff to act on reducing climate emissions. After CAP goals are shared and feedback is collected for CAP modifications, IDNR staff will want to understand how to get involved and take action. To inspire staff to take voluntary action, programs that gamify strategies and build community around the CAP can increase collaborative action.

To inspire staff to take voluntary actions to reduce emissions, the Education & Engagement Working Group will host two events per year, such as climate lunch-and-learns or bike-to-work days, where staff can share climate actions with others, encouraging other individuals or sites to adopt similar practices. Additionally, the Education & Engagement group can host one competition or challenge per year that can be rolled out across different IDNR groups (offices, buildings, parks, etc.). The Education & Engagement team will also create communication systems as needed to facilitate voluntary actions.

One example of a voluntary action is the Solid Waste Working Group’s strategy to create incentives to help motivate staff engagement in waste reduction, reuse, and recycling. Adding new solid waste practices or responsibilities on top of existing staff duties can be a heavy lift, but staff are motivated by incentives to achieve waste reduction goals. Designing the right kinds of incentives for participation will improve buy-in and adoption of new practices. Some potential incentives could be hats, shirts, or even free lunches. These incentives and recognitions will increase staff participation.

IDNR’s workplace diversity may also benefit from incentives and increased recognition. By incentivizing direct communication and referrals between current diverse staff and prospective diverse candidates, IDNR can attract more applicants from a greater range of backgrounds and ultimately become more diverse. Offices could receive incentives or recognition for increasing diversity.

Other examples of competitions or challenges could include:

1. A competition to “green certify” offices and offer prizes or incentives to offices in the winning group.
2. An office carpooling challenge for a month to reduce fuel use emissions, offering a prize to the winning carpool team.

3. A site staff energy and water efficiency treasure hunt, awarding recognition to the site team that identified the most energy or water saving opportunities.

Feedback from IDNR staff and other working groups can help to determine the nature of these events and challenges.

Objective 5: Expand staff participation in climate action plan implementation.	
<i>Facilitate coordination across working groups and departments to implement climate strategies across the agency.</i>	<i>Recruit new members to CAP Working Groups.</i>
Timeline: Immediate; Q1 2023	

A robust team of individuals from across IDNR departments and offices developed the Climate Action Plan, but IDNR and the Plan will benefit from more widespread contributions. The implementation phase provides an opportunity for new staff to get involved and for others to support the CAP within their existing roles. New expertise, departmental engagement, and ideas are needed to successfully build implementation work plans and execute strategies. Therefore, IDNR should expand staff participation in Climate Action Plan implementation broadly across the agency by inviting participation through engagement and education events.

Beyond sharing and gathering feedback about the Plan, this objective focuses on recruiting staff to directly support the implementation of CAP goals. Coordination is also needed between CAP working groups and departments to facilitate cohesive and inclusive agency implementation. In 2023, many of the resource-focused and cross-cutting working groups will be regrouping, coming together around the implementation of focused strategies (see section 4, Turning Strategies into Action). More people can be added to these implementation work groups to increase departmental coordination for strategy implementation. This objective should be accomplished immediately, within Q1 of 2023.

Goal 2: Ensure that all climate action strategies and implementation take place equitably and connect holistically with existing and planned diversity, equity, accessibility, and inclusion (DEAI) activities.

Objective 1: Comprehensively address issues of discrimination and systemic injustice by seeking to understand their complexity, officially recognize their interconnectedness, and unite to overcome their disproportionately negative effects on disadvantaged and underserved people and communities.

Continue DNR’s DEAI strategic planning committee and incorporate these Climate Action Plan Equity & Inclusion goals, objectives, and strategies into the department’s broader strategic planning process.

Continue DNR’s DEAI training for new and existing departmental hires, especially for new and existing positions related to Climate Action Plan implementation.

Seek input on DEAI strategies and activities, especially those relating to climate change and departmental climate change mitigation, from diverse organizations and experts involved in environmental and social justice advocacy.

Timeline: Immediate; 2023-2024

This strategy is repeated from the Equity & Inclusion section (specifically Goal 1, Objective 1.1) because it is critical for IDNR to link together the current strategic plan and DEAI committee objectives with the Climate Action Plan to ensure the centrality of equity across all agency activities. At the same time, it is essential to link internal engagement around the Climate Action Plan and activities with existing DEAI work and strategies. For more information on this Goal, please visit the report in Appendix B: Climate Working Group Summaries.

Goal 3: Increase transparency and buy-in for proposed climate actions among external IDNR audiences.

Objective 1: Share highlights of the proposed Climate Action Plan with external DNR audiences.

Develop general factsheets and a webpage that broadly summarize the climate actions that DNR proposes taking through this Climate Action Plan, and the impact of those actions.

Develop presentations to summarize the proposed Climate Action Plan for specific audiences, including the Governor’s Office, legislators, state agencies, DNR staff, advisory and friend groups.

Create social media posts detailing DNR efforts.

Timeline: Immediate, ongoing

Strategies under this objective are very similar to Goal 1, Objective 1 above, but focus on sharing and promoting the proposed Climate Action Plan with external audiences. As fact sheets and a webpage are built for internal staff, public-facing materials can also be developed.

Factsheets will be developed for specific external audiences as needed, including the Governor’s Office, legislators, state agencies, advisory and friend groups, and the public. Fact sheets will be shared through listservs, social media, and e-newsletters, and on the IDNR website. The Plan summary presentation will be shared with these important staff stakeholders.

To promote the CAP to the public, social media channels should also be utilized. The Equity & Inclusion Working Group also recommended starting a IDNR-sponsored climate change campaign for equity and inclusion on social media to amplify IDNR’s DEAI initiatives and their connections to the Climate Action Plan.

We recommend that IDNR work with communications staff to develop and disseminate high-level summaries of the CAP during the first quarter of 2023. Dedicated staffing will be required to develop and maintain the website and develop social media updates. Please visit the Education & Engagement Working Group’s summary for examples of how other entities highlight their climate action work (Appendix B. Climate Working Group Summaries).

Objective 2: Solicit feedback from external audiences, including advisory boards, friends of parks groups, environmental justice groups and the general public about DNR’s proposed climate actions.		
<i>Host in-person and virtual input sessions to collect external input on the climate action plan.</i>	<i>Develop a questionnaire about DNR’s proposed climate actions for the general public.</i>	<i>Analyze feedback and create a stakeholder engagement report with recommendations.</i>
Timeline: Immediate, Q3 & Q4 of 2023		

A public engagement and feedback process is critical to frame CAP goals and refine key strategies with audiences and disadvantaged communities who may be grappling with climate change challenges that are impacted by IDNR’s climate actions. It is crucial to involve community members and key stakeholders in the planning process. It also will help to develop partnerships around implementation and engage communities across Illinois to tackle the climate crisis together.

The Education & Engagement Working Group recommends hosting input sessions with the following audiences:

1. The Natural Resources Advisory Board
2. The Endangered Species Protection Board
3. The Illinois Nature Preserves Commission
4. Friends of Parks groups
5. Environmental justice advocates and organizations
6. Other key partners and stakeholders

Attendees will be invited to voice concerns, discuss implementation and collaboration considerations, and offer feedback. Virtual and in-person options will ensure a wider reach.

To solicit feedback from the public, a questionnaire will be developed regarding IDNR’s proposed climate actions. The questionnaire will be shared at the state fair (or other large-scale events) and on the IDNR website. The Solid Waste Working Group could also collaborate with the Education & Engagement Working Group to collect responses from the public as they study how guests utilize waste management infrastructure (see Appendix B. Climate Working Group Summaries, 4. Solid Waste Working Group Summary.)

All feedback will be analyzed by the Education & Engagement Working Group and a stakeholder engagement report will be created with guidance on how the Climate Action Plan should be modified to respond to stakeholder feedback. This will incorporate many voices into a publicly created Climate Action Plan for the agency. We propose that external engagement take place in the third and fourth quarters of 2023. Again, engagement is time- and staff-intensive and will be difficult at existing staffing levels.

Objective 3: Develop empowering partnerships with environmental justice organizations that are already engaged in equitable climate mitigation work within diverse or underserved communities.		
<i>Identify, reach out to, and collaborate with nonprofits and other organizations that are leaders in the environmental justice movement and that exemplify the climate action and equity and inclusion goals of DNR.</i>	<i>Work directly with community members and gain their trust; prioritize support, empathy, attentiveness, sensitivity, and context in public engagement and outreach.</i>	<i>Promote positive and successful examples (case studies, partnerships, programs, infrastructure projects, events) where DNR worked to support and benefit these communities.</i>
Timeline: Begin 2025 - 2030		

This strategy is repeated from the Equity & Inclusion section (specifically Goal 3, Objective 3.2) because IDNR must recognize that members of underserved or diverse communities can help identify disparities in the negative impacts of climate change in their communities.

Just as organizations in Objective 2 above are solicited for feedback and input, communities disproportionately affected by climate change should be included in that outreach, engagement, and feedback process. Environmental justice organizations that are engaged in equitable climate mitigation work in these communities should be engaged and funded to be a conduit to communities to develop community-driven solutions. Input sessions, questionnaires and tools should also be built and provided to these communities, but it should be done in partnership with nonprofits and other organizations that already lead environmental justice movements. This will increase trust, connection, and support for these communities.

Additionally, Goal 3, Objective 3.1 from the Equity & Inclusion section has been repeated here to emphasize the importance of gaining community trust. Successful partnerships and engagement

processes should be promoted across IDNR, but especially with departments engaged with schools, libraries, and other community organizations centered around IDNR’s climate action. IDNR’s Urban and Community Forestry Program exemplifies this work. Lessons gleaned from their process should be shared to demonstrate successful engagement and applied to solicit feedback for the Climate Action Plan from diverse and disproportionately affected communities.

For more information on the Equity & Inclusion Working Group’s strategies, please visit the Equity & Inclusion section of this report in Appendix B: Climate Working Group Summaries.

Objective 4: Acknowledging the department’s current lack of diversity, promote a culture of inclusiveness within all divisions working to implement the Climate Action Plan.

Partner with workforce development groups to add diversity and value to DNR’s climate change projects.

Timeline: Begin by 2025 - 2030

This strategy is repeated from the Equity & Inclusion section (specifically Goal 4, Objective 4.2) which focuses on emphasizing IDNR’s need to become a diverse, equitable, accessible, and inclusive organization that reflects the considerable diversity of the state of Illinois. Particularly, this strategy addresses lack of diversity and promotes an internal culture of inclusiveness toward implementation of the Climate Action Plan.

Much of this strategy focuses on building interdepartmental communication and culture, but this objective was specifically highlighted to increase engagement with workforce development groups as partners to add diversity to projects and develop a workforce that can support the Climate Action Plan’s goals. While it is critical to build internal culture, external partners can support IDNR in adding diverse individuals to implement IDNR’s Climate Action Plan goals. For more information on this Goal and Objective, please visit Appendix B: Climate Working Group Summaries.

Goal 4: Increase public participation in Illinois' climate change efforts through robust educational resources and programming.

Objective 1: Make existing educational resources about climate change easier to access, share, and use through a special DNR climate change webpage.			
<i>Inventory existing DNR publications and educational resources related to climate change impacts and solutions and identify areas where resources could be shared with the public more effectively or updated to address climate change.</i>	<i>Gather and inventory educational resources about climate change from external organizations and partners.</i>	<i>Identify communication guidelines and resources that can help staff (and others) better engage the public about climate change and post these guidelines on the website.</i>	<i>Develop a special climate change webpage on DNR's main website to become an information center for climate impacts and solutions.</i>
Timeline: Immediate; 2023 and ongoing			

IDNR is a hub for all resources and topics around natural resources for the state of Illinois. Now that the agency has made a commitment to lead climate action in Illinois, the agency must become an information center for climate impacts and solutions as they relate to the state's natural resources. The first step of publicly demonstrating this leadership is to make educational resources easily accessible, shareable, and highly visible through an IDNR climate change website.

To develop a resource hub for climate change impacts and solutions, IDNR must inventory and organize existing educational resources, posters, exhibits, and training programs related to climate change impacts and solutions. Then, these resources can be adapted to include information about climate change and the effects on IDNR lands and sites and the benefits of nature conservation as a meaningful climate action. One example could include revamping educational materials on wetlands to address their ability to sequester carbon and mitigate the impacts of a changing climate. The existing webpage about prescribed fire is an example of an educational material that has already been developed, but it can be integrated into a broader climate communication strategy by publicizing and linking to the page from a central climate change webpage. An inventory should log what materials are available, where they are located, and what was modified.

This inventory will help IDNR identify resources to collect from external organizations. Resources can be gathered from organizations such as Illinois Extension or Wisconsin IDNR, or other organizations similar in purpose to IDNR. The Education & Engagement Working Group plans to make recommendations about which resources could be used by education staff or shared on IDNR's website.

For education staff, IDNR can identify and develop communication guidelines and resources that can help staff better engage the public about climate change and post these guidelines on the website. Importantly, IDNR must be able to reference the same climate change materials and definitions across sites or natural areas. By providing communication guidance and a resource hub for staff, communication to the public can be uniform and clear regarding IDNR's position and goals for mitigating climate change.

Once resources are identified and cataloged, the Education & Engagement Working Group will make recommendations about building a special climate change webpage on IDNR's main website that includes high-impact resources on the following topics:

1. Illinois climate history
2. Impact of climate change on Illinois natural resources
3. Benefits of essential climate actions, including nature conservation
4. Mitigating climate change through conservation, efficiency, carbon sequestration, and renewables
5. Mitigating the negative impact of climate change on Illinois natural resources (increasing resilience)
6. IDNR's Climate Action Plan
7. Climate justice

Once a central website for climate change has been built, this strategy could also connect to Goal 6 in this section, which focuses on creating a webpage to highlight climate successes. Other working groups also recommended educational webpages for topics such as landscape transition sites, erosion control and water management, and a variety of other topics. Specific web engagement strategies can be found in Appendix B: Climate and Working Group Summaries.

IDNR marketing materials and resources around the Climate Action Plan should also engender a culture of diversity and inclusion. The creation of effective branding for IDNR as an organization that desires and pursues diversity, equity, accessibility, and inclusion will encourage engagement of diverse organizations, communities, and individuals to pursue climate action education or actively participate in strategies and reinforce inclusion. For more information on this objective and strategy, see Appendix B: Climate and Working Group Summaries, 5. Equity & Inclusion Working Group Summary.

We recommend that the climate change webpage be built within the 2023 calendar year and populated with existing external or internal resources. This will require close coordination with IDNR's communications team and webmaster and a thorough inventory of what already exists. In subsequent years, IDNR may want to update old resources or create new ones.

Objective 2: Develop or enhance educational and interpretive programs to educate the public about climate impacts and solutions related to Illinois natural resources, wildlife, and Illinois’ rich and diverse cultures.

<i>Explore the feasibility of creating new educational curriculum and programs to address climate change’s impact on Illinois natural resources, climate action strategies and link programming to human history, society, culture.</i>	<i>Partner with other organizations to invite youth to create educational materials that feature the impacts of climate change on Illinois’ natural resources, or that showcase solutions that mitigate climate change or its impacts.</i>	<i>Support staff and external organizations who are developing citizen science initiatives and educational programming to research the impact of climate change on Illinois natural resources and wildlife.</i>	<i>Look for federal, state, or foundation funding to support DNR’s educational efforts and encourage partnerships with other organizations.</i>
Timeline: As time is available, implement with partners.			

Educational and interpretive programs can engage the public in a variety of aspects of climate change as well as IDNR’s strategies to mitigate emissions impacts. The Education & Engagement team will explore how to best create new curricula and programs to address climate change impacts on Illinois natural resources. This could include ENTICE curricula, field trip curricula, or a climate change focused trunk for educational staff to take to locations across the state. Additionally, the team will work with museum staff to build or enhance existing exhibits that interpret the climate history of Illinois and place past climate change in context with current events for the public. Improvements for exhibits could include more recent climate history information or displays or rainfall impacts on natural habitats in Illinois. IDNR will also host discussions with naturalists and other IDNR educators to explore how to interpret the meaning and value of Illinois’ natural resources to foster appreciation for these natural resources, in the context of the threats posed by climate change.

Educational materials can emphasize how climate actions can make a difference. Programs and materials can highlight solutions that people can take at home. IDNR’s demonstration sites that employ energy conservation, renewable energy, sustainable landscaping and habitat creation offer fun, inspiring and real-world opportunities for people to learn about solutions. The climate action strategies also present an opportunity to describe the work of IDNR staff and diverse careers.

As educational curricula and interpretive programs are developed or enhanced, IDNR should also develop programs that elucidate links among the natural environment, human society, culture, history, and climate change. Public-facing resource materials, exhibits, and events that interpret the climate history of Illinois and place past climate change in context with current events for the public will be critical to help demonstrate the links between cultural history, how environmental decisions have impacted certain communities and share stories that reflect Illinois’s rich and diverse cultures and histories, such as the African American Heritage Water Trail. More information on this strategy can be

found in Appendix B. Climate Working Group Summaries, 5. Equity & Inclusion Working Group Summary.

Many working groups have listed opportunities for public education related to climate strategies. Educational curriculum or interpretive programs could be built around engaging the public in **waste reduction strategies at sites and** communicating the connection between litter, wildlife, and the value of protecting nature in waste systems. Highlighting the effects of littering and dumping on wildlife and the experience of visitors can illustrate the need for public participation in keeping sites clean. Raising awareness about the quantity of litter, wildlife impacts, disposal costs, and staff time will demonstrate the relevance of waste reduction pilot projects. More information on this goal, its objectives and strategies can be found in the Sustainable Site Operations section of this report (section 3.1.2: Sustainable Site Operations).

- The **Water & Wastewater** Working Group discussed the need for education and outreach to municipalities and businesses around IDNR sites to implement similar water runoff mitigation strategies to reduce erosion of soils and maintain the natural environment for local wildlife and residents. This would expand IDNR's influence and educational outreach into surrounding communities. This is just one example of how the public can be engaged in water reduction and management strategies. More information on this objective and strategy can be found in Appendix B. Climate Working Group Summaries, 2. Water & Wastewater Working Group Summary.
- The **Water & Wastewater** Working Group also discussed the need to educate visitors to IDNR sites on water use reduction strategies such as high-performance water fixtures and gray water reuse. Coordination with local water conservation groups, schools, and youth associations to educate surrounding communities can help expand implementation of conservation technologies beyond IDNR parks. More information on this objective and strategy can be found in Appendix B. Climate Working Group Summaries, 2. Water & Wastewater Working Group Summary.
- The **Energy & Renewables** Working Group has a goal to procure 100% renewable energy for all IDNR sites by 2050. Educational materials could be used to communicate how renewable energy is produced, showing where sites are and communicating IDNR's increasing renewable procurement. Public education could also be developed around the differences in efficiency or cost of operation per hour of equipment. natural gas vs. heat pump electric, net-zero construction, and other energy efficiency technologies. More information on educational opportunities from this working group can be found in Appendix B. Climate Working Group Summaries, 1. Energy & Renewables Working Group Summary.
- The **Transportation & Fuel Use** Working Group set a goal to use landscaping or native plant restoration to minimize mowing. It will be critical to educate the public about why these transitions are occurring and how they reduce fuel use, increase native habitat and are good for wildlife. More ideas can be found in Appendix B. Climate Working Group Summaries, 3. Transportation & Fuel Use Working Group Summary.
- The **Natural Resources** Working Group recommends developing educational material on the benefits of nature conservation as essential climate action that sequesters and stores carbon,

mitigates flood risk, protects biodiversity, and increases the resilience of communities and ecosystems in Illinois. IDNR demonstration sites also provide opportunities for public education on groundskeeping and habitat management. Education about the benefits and joys of landscapes other than lawns will be essential for the success of sustainable landscaping strategies at IDNR sites.

Additionally, IDNR should partner with organizations to invite youth to create educational materials (such as posters, videos, or blog posts) that feature the impacts of climate change on Illinois’ natural resources, or that showcase solutions that mitigate climate change or its impacts. Schools, communities, and other youth organizations that already partner with IDNR should be engaged to develop materials. The Education & Engagement Working Group will select content to display on our website, social media channels, or at IDNR sites.

To support the development of new educational curriculum or interpretive programs, funding will be needed. The Education & Engagement Working Group will apply for federal, state, or foundation funding to support IDNR’s educational efforts and encourage partnerships with other organizations. Support for programming around climate change could include advertising, developing materials, or bringing staff for presentations.

Education staff are currently stretched very thin. Developing new programming is not feasible unless IDNR can hire more people and get more funding. We recommend that early efforts be focused on enhancing existing educational programs and exhibits, rather than building new ones, and exploring partnerships with other organizations, such as Illinois Extension and the Morton Arboretum.

Objective 3: Ensure equitable access to DNR sites, educational programming, and resources by identified communities.

<i>Develop a public engagement plan to capture and prioritize experiences, perspectives, ideas, and strategies most important to community members disproportionately impacted by climate change.</i>	<i>Create a language accessibility plan for all of DNR’s public-facing climate change material/signage.</i>	<i>Create an adaptable site accessibility template for use at all of DNR’s public sites to engage members of the identified communities.</i>	<i>Create and make widely available resources (maps, transit schedules, apps) to increase DNR site use by visitors from these communities.</i>
Timeline: 2030 - 2040			

Special attention must be made to increase public participation in Illinois' climate change efforts in underserved or disproportionately affected communities across the state. This objective can also be found in Appendix B. Climate Working Group Summaries, 5. Equity & Inclusion Working Group

Summary, but we wanted to emphasize the importance of increasing access broadly across all communities, developing strategies to meet communities and individuals where they are.

The Equity & Inclusion Working Group and DEAI committee must coordinate closely with the Education & Engagement Working Group to ensure that any public engagement plan champions equity and all the values of IDNR. Centering disadvantaged communities in this plan should help. One way to promote inclusion and accessibility is through language and communications. Non-English-speaking immigrants and people with disabilities will not have opportunities to engage unless resources and published materials, like educational handouts and the IDNR website, are provided in native languages, e.g., Spanish and Hindi, or text-to-speech-enabled formats. IDNR should strive to follow best practices for state agencies and large cities across the country.

Much of this work will take place right away, but the climate risk assessments (Appendix B. Climate Working Group Summaries, 5. Equity & Inclusion Working Group Summary), engagement plan, and site plans will involve considerable time, resources, and effort. Aiming for completion of the work—or scaling and ramping up of ongoing projects—by the next decade creates a realistic timeline for success.

Goal 5: Through IDNR’s climate actions, inspire the public to join Illinois’ climate change efforts.

Below, we broadly describe the strategies that will be used to educate and inspire external audiences to take actions to reduce carbon emissions. Specific education strategies from multiple working groups are included. Guiding questions for this section included: *Who will be inspired by IDNR’s climate actions? How can IDNR’s climate actions be leveraged to educate and inspire the public to take similar actions?*

Objective 1: Showcase DNR’s climate actions to educate and inspire the public to take positive climate actions.				
<i>Establish demonstration sites that feature effective climate actions and DNR strategies to inspire the public.</i>	<i>Develop signage, educational brochures, newsletters, social media, pamphlets, and QR codes to educate and inspire people to similarly engage in positive climate actions.</i>	<i>Provide educational events at demonstration sites to inspire the public to take positive climate actions.</i>	<i>At demonstration sites, leverage existing materials developed by DNR and other partners (such as Illinois Extension) to educate people about how to reduce emissions at their homes or places of work or recreation.</i>	<i>On the DNR website and in social media posts, feature examples of DNR’s climate actions to inspire people to reduce emissions.</i>
Timeline: Ongoing				

Across working groups, demonstration sites that highlight and feature effective climate actions were prevalent. These sites offer real-world examples of pollinator-friendly habitats, energy conservation,

renewable energy, and sustainable landscapes that can inspire and inform people. It is important to show climate strategies in action and demonstrate positive climate actions that people can implement on their own. Education about the benefits and maintenance of landscapes other than lawns will be essential for the successful sustainable landscaping strategies at IDNR sites. Demonstration sites can exemplify IDNR's leadership in climate action and its mission to further the public's understanding and appreciation of its natural, recreational, and cultural resources. Creating pilot and demonstration sites offers opportunities for public education about natural history, ecosystem services, and climate action. They can also inspire people to adopt strategies in their yards, parks, and schoolyards. Further, the demonstration sites can showcase and describe diverse careers in conservation.

At demonstration sites, the Education & Engagement team will collaborate with other working groups and site managers to leverage existing materials developed by IDNR and other partners (such as Illinois Extension) to educate people about how to reduce emissions in their homes or places of work or recreation. They will also work with staff to host workshops at demonstration sites or other educational events where people can see what IDNR has done and learn about how to take similar actions at home. On the IDNR website and in social media posts, the team will feature examples of IDNR's climate actions to inspire people to reduce emissions.

Examples of demonstration sites noted by working groups include:

1. Construct at least one renewable energy generation facility in a visible location at each IDNR site as feasible to engage the public in renewable energy education.
2. Pack-In, Pack-Out demonstrations at various sites.
3. Green infrastructure demonstrations (parking lot bioswales, green roofs, permeable pavement, etc.).
4. Drought-resistant plantings and natural habitat restoration sites (reduces mowing and irrigation).
5. Constructed wetland wastewater and runoff treatment at IDNR wastewater plants and leased agricultural lands.

The Education & Engagement team will work with other working groups, site managers, and communications staff to showcase IDNR's implemented climate actions at specific sites. Educational signage at demonstration sites will be critical to both inform the public and to highlight effective climate actions. Signage, educational brochures, newsletters, social media, pamphlets, and QR codes can all be strategies used to educate and inspire people to similarly engage in positive climate actions.

Examples of strategies across the document that could benefit from educational signage and communication strategies listed above include:

1. Areas where landscape transitions are occurring, moving away from mowed areas to restored natural habitats.
2. Demonstration sites or buildings where water conservation and erosion control efforts are located.
3. On-site renewable energy installation, possibly even a map that can identify sites that are powered by renewable energy.

4. Green infrastructure features (bioswales, rain gardens, etc.).
5. Types of water that can go down certain drains in gray and rainwater systems (internal and public facing).
6. Energy improvement opportunities and how they could be implemented by the public.
7. New recycling or waste management practices at sites, offices, and labs.

We anticipate that external education and material development will be needed throughout the implementation of the Climate Action Plan. This education will largely be the responsibility of the working groups and staff who are implementing the actions. However, the Education & Engagement team can provide guidance and assistance as needed.

Goal 6: Broadly communicate agency progress in reducing carbon emissions as actions are implemented.

Objective 1: Develop and share metrics so progress can be reported to staff, partners, and the public.				
<i>Share progress with the public through a special climate action webpage on the DNR website.</i>	<i>Work with communications staff to provide periodic updates on progress, as well as success stories, using e-mail, internal newsletters, and social media.</i>	<i>Promote positive and successful examples where DNR worked to support and benefit trusted environmental justice organizations working locally in communities.</i>	<i>Deliver presentations sharing agency progress to the Governor's Office, Legislators, State Agencies, DNR staff, the Natural Resources Advisory Board, Endangered Species Protection Board, the Illinois Nature Preserves Commission, and other key partners.</i>	<i>Develop short annual reports that highlight the agency's progress on achieving their climate action goals.</i>
Timeline: Start in 2023, begin showing progress by 2024; ongoing				

To continue excitement and engagement around the IDNR’s Climate Action Plan, it is critical to share updates internally and publicly on IDNR’s progress towards its climate goals. This will help maintain transparency in IDNR’s climate action work and maintain support for implementing future climate action strategies and goals both internally and with the public. Communication of successful initiatives, partnerships, and agency reductions of emissions along stated climate goals will maintain vested interest in agency progress from both internal and external audiences. Reporting progress will lead to recognition for IDNR’s ongoing leadership in climate change mitigation in Illinois.

A system for developing and sharing metrics must be created to report progress to staff, partners, and the public. IDNR must continue to develop a utility tracking system to calculate and track building energy reductions and associated emission reductions over time. A broader system is needed to track overall climate-related projects and log impacts. A working group will be developed in 2023 to start developing both the utilities tracking system and the overall Climate Action Plan tracking system.

The Education & Engagement team will be a critical partner in connecting climate projects and success internally across IDNR and with the public. They will interface with the newly formed Tracking & Evaluation Working Group to access reporting systems and share results. The team will work with communications staff to provide periodic updates on progress, as well as success stories, using e-mail, internal newsletters, and social media. The team will share progress with the public through a special climate action webpage on the IDNR website. Metrics demonstrating IDNR’s carbon emissions reductions, as well as success stories and fact sheets, will be prominently displayed on the website and shared through social media.

Many working groups have recommended opportunities to highlight goals and progress towards emission reductions. For example, the Water & Wastewater Working Group would like to build a water conservation webpage to highlight projects, document progress toward conservation goals, and reward/highlight staff who contribute major successes or innovations. The Education & Engagement Working Group will collaborate with these groups to highlight their accomplishments.

The Climate Implementation Team will also deliver presentations sharing agency progress to the Governor's Office, Legislators, State Agencies, IDNR staff, the Natural Resources Advisory Board, Endangered Species Protection Board, the Illinois Nature Preserves Commission, and other key partners on Climate Action Plan progress. A short annual report that highlights the agency's progress on achieving their climate action goals will also be created and shared both with key agencies and the public through the website and broad outreach.

During 2023, we recommend that the Education & Engagement team collaborate with IDNR's website manager to develop a webpage that can highlight IDNR's climate actions and work with other communications staff to determine how to regularly share progress through newsletters, social media, and at events and meetings. The goal will be to have the communication plan in place to begin sharing IDNR's climate action progress by the start of 2024.

4. Turning Climate Strategies into Action

IDNR is the caretaker for natural, recreational, and cultural resources in our state and continues to lead in their protection through its mission. Through this Climate Action Plan, IDNR will provide leadership in mitigating climate change in Illinois. External partnerships, paired with agency-wide support and resources, will drive successful implementation, and meet IDNR's climate goals. Integrating strategies in this Climate Action Plan with existing operations, funding and work processes will mobilize internal resources and staff to accomplish climate strategies. External partnerships and funding will accelerate the agency's goals and support staff in implementation throughout the duration of the plan.

As IDNR begins to develop implementation plans for climate strategies, there are key steps that should be taken first to generate enthusiasm, buy-in and support for the Climate Action Plan and its goals:

Communicating CAP Goals and Strategies Internally

It is critical to inform staff of the short and long-term CAP goals, as well as review developed strategies that may relate or impact their jobs or roles in the agency. Through providing presentations and materials, IDNR can begin to engage all staff in the CAP, increasing transparency as well as generate buy-in for climate goals across the agency. Ongoing and coordinated communication across climate working groups, departments, and agency leadership will also be critical to advance climate goals. For example, identifying how climate goals fit with existing DEAI strategies will yield equitable implementation across the agency.

Internal training will be crucial to mobilize strategies across sites and departments and generate buy-in at the site-level. The Education & Engagement group will also engage with and support other working groups with communication and engagement strategies, as well as begin internal education and training around climate strategies that will be implemented. Consistency around how implementation priorities and progress are communicated will be important to maintain support internally for agency climate goals. These activities, along with events and education, will inspire voluntary climate action in the agency.

Expanding CAP Working Groups

Continuing Climate Implementation Team working groups is paramount to the agency's success with this plan. The IDNR Climate Action Plan was developed with a robust number of individuals from across departments and offices in the agency. Transitioning this effort to implementation of climate action goals and strategies will provide an opportunity for new staff to get involved, as well as allow for others to support the CAP within their existing roles. New expertise, departmental engagement, and ideas are needed to successfully build implementation work plans and execute strategies. Therefore, IDNR should expand staff participation in Climate Action Plan implementation broadly across the agency by inviting participation through engagement and education events.

Engage External Stakeholders and the Public

A public engagement and feedback process is critical for the framing of CAP goals and strategies with key audiences and involving community members and key stakeholders in the planning process. It also will help develop and solicit partnership and collaboration around implementation from these key stakeholders. Hosting input sessions with external audiences, including advisory boards, friends of parks groups and the public about IDNR's proposed climate actions will allow partners and the public to voice

concerns, discuss implementation and collaboration considerations, and offer feedback. It is important for IDNR to understand how external organizations and the public can support the IDNR Climate Action Plan and how the plan could be modified, including their feedback and priorities.

Develop External Partnerships

External partnerships are vital to the Climate Action Plan's success. Identifying and developing meaningful and funded partnerships with organizations will support staff in implementing climate strategies and meeting net-zero goals. Throughout the plan, working groups have identified potential organizations that could support and accelerate IDNR's climate goals and reduce emissions. Partnerships could include local governments, national nonprofits, or agencies (Illinois Audubon Society, U.S. Army Corps of Engineers), educational institutions (University of Illinois Extension), conservation foundations and nonprofits (Illinois Sustainable Ag Partnership, Environment Illinois), youth organizations like Boy Scouts of America, Future Farmers of America (FFA), environmental justice organizations, and local Friends groups. Empowering partnerships with environmental justice and community-based organizations that are already engaged in equitable climate mitigation work should be developed to amplify communications across diverse and disproportionately impacted communities across Illinois. Bringing partners into the fold will amplify IDNR's work across the state and encourage other organizations and regions to follow IDNR's lead.

Seek Funding to Support Climate Goals

Additional funding support from outside the agency will further the agency's existing resources to accomplish the goals outlined in this plan. National, regional, and local grants, foundations, and incentives should be researched and pursued to provide required resources needed to implement climate goals. Communication and coordination amongst working group teams, leadership and the grants management department are needed to examine available opportunities and connect climate goals to funding opportunities.

Adequate Staffing to Achieve Climate Goals

Staffing is critical to achieving the goals of the Climate Action Plan. Current staff at IDNR are already stretched thin and it will be a challenge to incorporate all climate actions without additional staffing. IDNR should evaluate and increase staffing levels to achieve the goals of the Climate Action Plan. As IDNR makes staffing decisions, we encourage IDNR to hire more field staff. Some new positions would help to achieve the goals of the Plan, for example a climate liaison to build partnerships with other agencies and more nursery staff to expand the work of the nurseries. Team approaches and partnerships with other agencies can help leverage the time and expertise of IDNR staff. For existing staff and new staff, training will be important to help them learn new skills, understand the recommended climate actions and communicate with the public about the climate and conservation work of IDNR.

Track Ongoing Climate Successes

Tracking ongoing projects, successes, and emissions reductions will increase the agency's transparency towards its net-zero goals, motivating staff and the public to continue contributing to IDNR's success. Sharing successes broadly will promote successful partnerships and strategies that can be replicated across the state and demonstrate the agency's commitment to reducing Illinois' climate impacts and

goals. Developing a website and tracking dashboard with educational and engagement opportunities will further the public's awareness of successful strategies and support of the agency's work.

4.1 Priority Climate Strategies for 2023

After Climate Action Working Groups developed summaries of their work, the SEDAC team facilitated a discussion to identify the top climate strategy priorities for the 2023 calendar year. Based on this conversation, the following priorities emerged to successfully launch climate action strategies internally and publicly. Following the goal of reaching net-zero by 2050 and using the "conserve and load" strategy to reach this goal, the priorities outlined below will set a foundation for the agency and generate early successes in reducing climate emissions.

Climate Action Working Groups have more strategies that can begin implementation in 2023 than what are listed here. Our intention is to highlight the major priorities that IDNR will take to start taking climate action, based on discussions amongst working groups at the end of 2022. For more information on short-term strategy implementation priorities, please visit Appendix A: Index of IDNR Climate Strategies.

Priority: Building Energy Conservation & Electrification

Minimizing IDNR's energy footprint will be the first step in reducing emissions and achieving its goal of utilizing only renewable and carbon free energy sources. IDNR should aim to reduce energy consumption by 35% by 2035 through energy efficiency and electrification. Individual sites may be able to achieve more or less than this target, but all sites' contributions will be important for IDNR to achieve their goal. Benefits of reducing energy consumption will reduce IDNR's utility costs, while increasing the resiliency of its buildings and infrastructure. Reducing electricity use will also reduce the need for renewable energy loading, further saving the agency costs associated with developing or procuring renewable energy.

Using electrification technologies to reduce emissions associated with energy sources that use fossil fuels (coal, oil, natural gas) will increase IDNR's electric use, but can be offset by renewable energy sources. By converting heating and cooling systems, water heating, and other building functions to electric heat pump technology, IDNR will reduce emissions, increase building efficiency, and increase resilience across the agency.

Assessments and investigations of the agency's top energy users will yield significant energy savings opportunities and early wins towards the agency's goal (see section 3.1.1: Utilities & Buildings). While energy efficiency and electrification projects are identified, there are two key steps to setting the agency up for success towards its energy efficiency goals: launching a utility data tracking program and developing renovation design standards and best management practices.

Launch a Utility Data Tracking Program

The Energy & Renewables and Water & Wastewater Working Groups agreed that creating a database for tracking IDNR utilities (electricity, gas, water, etc.) is a critical first step towards creating strategic plans for utility reduction. Knowing that our emissions inventory for electric, gas and water only accounted for facilities using utilities through CMS and a sample of facility types, a deeper understanding of use will be beneficial to identify utility use issues, aid in assessments for energy and water reduction opportunities, and track progress of climate strategies over time.

Develop Renovation Design Standards and Best Management Practices

Developing best management practices for building maintenance, renovations and new construction will help the agency minimize its carbon footprint over time while bringing IDNR departments together around a master plan for facilities and sites. Design standards could also be developed for other site features like accessibility and wellbeing for visitors, such as creating cooling centers or open water and lakes, to mitigate climate impacts while keeping our net-zero goals in mind. Guidance and standards are important to keep efficient and climate smart strategies front of mind, as well as encourage uniform implementation across the agency.

Priority: Solar Development

To achieve net-zero emissions, IDNR must load its energy profile with renewables, specifically solar. IDNR is in the process of finalizing an RFP for 5.8 MW of solar development at up to two IDNR sites. However, investigation of available renewable resources at sites and additional site selection is needed to develop more solar on IDNR lands. IDNR should also consider installing at least one renewable energy source on each site, where feasible, to increase the visibility of IDNR's commitment to renewable energy. It is also an opportunity to educate and engage the public about the feasibility and viability of renewable energy projects.

While it is not feasible to generate all of IDNR's energy from on-site renewable energy infrastructure, it will be necessary for IDNR to procure this remaining energy either through developing large-scale renewable energy projects offsite through power purchase agreements or through renewable energy procurement. SEDAC has supported the IDNR in this process and will continue to provide site selection and proposal development support.

Priority: Develop a IDNR Fleet Electrification Pilot

The Transportation & Fuel Use Working Group will collaborate with the Energy & Renewables Working Group to develop an electric vehicle procurement pilot. Vehicles that are 10 years or older or that have 150,000 miles or higher could be prioritized for replacement with an electric vehicle. Charging station needs should also be installed at sites where electric vehicles are being piloted. By piloting and testing electric vehicles with volunteers, it will help full-fleet electrification gain buy-in and adoption across the agency.

Communication will increase the likelihood of adoption across IDNR. Case studies and demonstrations can be scheduled to highlight electric vehicle performance and durability to meet IDNR staff needs. Educational webinars would be an effective way to share information about electric vehicles and gain buy-in from staff. Fact sheets focused on electric, or hybrid vehicle technology compared to current

vehicles used at IDNR would help staff understand both the economic and climate opportunities of fuel-efficient light-duty vehicles.

Priority: Pilot Restoration and Landscaping Projects to Reduce Mowing

By using landscaping strategies or native plant restoration practices, sites can reduce maintenance time and fuel costs, as well as increase the amount of native habitat at sites. Some sites are already making this transition but working towards launching a pilot will encourage more agency support, increase successful transition case studies, and grow best practices and resources to encourage more sites to identify land that can be transitioned. It will be critical to work with members of the Education & Engagement Working Group to develop site signage and educational materials to increase public awareness around why IDNR is transitioning landscapes and build educational signage for sites.

To successfully launch landscape transition pilots across the agency, internal IDNR engagement and training around landscape transition strategies is necessary. Based on the results of early pilots and compiling of successful implementation strategies and resources, training can be provided broadly to share successes, how challenges were overcome, successful partnerships, and pilot results. This will provide other staff support in navigating transition planning and connect interested sites with mentors.

Priority: Establish Pilot Sites to Test Small Electric Equipment

Multiple staff across IDNR are already successfully using electric maintenance tools, such as string trimmers or chainsaws, at their sites. The Transportation & Fuel Use Working Group will build a work plan to establish more electric equipment pilot sites across the agency and plan educational events to encourage other site staff to transition to small electric site equipment. Equipment types, lessons learned, and best practices will be collected and shared to help identify current equipment that can be transitioned immediately to electric. Once electric equipment has been identified and case examples have been developed, an educational session or field day will be held to inform IDNR staff of electric maintenance equipment options and opportunities and recruit site volunteers. This will begin IDNR's transition to electric site maintenance equipment and reducing fuel use-related emissions across the agency.

Priority: Implement Landscape Demonstration Sites

Sustainable landscapes and demonstration sites were common themes in several working groups. The first step in creating these demonstration sites is to identify potential demonstration sites in different regions of the state where staff and visitors can visit sites with sustainable groundskeeping design and practices that conserve water, reduce mowing, and provide habitat. Working groups and local site staff should be involved in identifying these sites and developing details about how to showcase the sites. These sites should represent an array of landscape features and groundskeeping practices, for example reduced mowed areas, rain gardens, native plantings, or green roofs. There are several sites where these features or practices have already been adopted and they are good candidates for demonstration sites. Supporting educational material, including signage and website case studies should be developed before launching these as demonstration sites. A staff training workshop/field day would be a good way to inaugurate these sites.

Priority: Work in partnership with IDNR staff on the update to the Illinois Wildlife Action Plan

The Illinois Wildlife Action Plan (IWAP) is due for renewal and the revision will incorporate climate mitigation and resilience. The Climate Action Team should work closely with the IWAP group to identify areas of overlap and to highlight priorities for research and implementation.

Priority: Evaluate carbon sequestration and storage potential on IDNR properties

As nature-based climate action gains increasing attention, IDNR should develop a better understanding of the carbon sequestration and storage on IDNR lands now and into the future. Detailed analysis can provide better estimates of carbon sequestration and storage in different systems, including forests, bogs, recreation areas and agricultural lease lands.

Priority: Study Solid Waste and Purchasing Infrastructure and Operations

Solid waste practices and infrastructure, as well as purchasing practices, need to be better understood across IDNR operations and sites. While there are a lot of wonderful initiatives already happening, such as the Pack-In Pack-Out program at Volo Bog SNA, not many are known and cannot be adequately assessed due to a lack of knowledge. Additionally, waste management is variable based on location and available resources. Therefore, it will be critical to first assess agency waste and purchasing operations and collect information internally. By engaging staff to gather data, as well as understanding challenges and opportunities, buy-in for future policies and directives can be fostered.

To understand a visitor's experiences and behaviors with waste management systems, a study will be developed to understand how they use these systems and identify opportunities for improvement. This information will enable us to compare sites and find patterns to identify successful waste management strategies that can be shared and implemented at other sites. Through this investigation, the agency will be able to develop pilot programs to reduce waste and increase sustainable purchasing, as well as ensure compliance with the current single-use plastics elimination law. There is not a one-size-fits-all approach for purchasing and waste reduction programs, so a variety of programs and testing will be needed and then tailored to fit site types.

IDNR can truly lead the State of Illinois in mitigating and reducing the impacts of climate change. Through this Climate Action Plan, IDNR can lay the foundation for IDNRs nationwide to take action, develop partnerships, and tangibly reduce climate emissions, reaching net-zero by 2050.

5. Appendices:

Appendix A. Index of IDNR Climate Strategies

Report Section	Working Group Category	Goal	Objective	Strategy	Immediate (1-2 years)	Short-term (2023 - 2030)	Medium-term (2030-2040)	Long-term (2040 - 2050)	Policy	Pilot	Education	Working Group Overlap
Learning & Engagement	Education & Engagement	Broadly communicate agency progress in reducing carbon emissions as actions are implemented.	Develop and share metrics so progress can be reported to staff, partners, and the public.		x	x					x	All working groups
Learning & Engagement	Education & Engagement	Increase public participation in Illinois' climate change efforts through robust educational resources and programming.	Develop or enhance educational and interpretive programs to educate the public about climate impacts and solutions related to Illinois natural resources and wildlife.		x	x	x	x			x	All working groups
Learning & Engagement	Education & Engagement	Empower IDNR staff to implement solutions outlined in the Climate Action Plan.	Inspire staff to take voluntary actions to reduce emissions.		x	x	x	x			x	SW
Learning & Engagement	Education & Engagement	Increase public participation in Illinois' climate change efforts through robust educational resources and programming.	Make existing educational resources about climate change easier to access, share, and use through a special IDNR climate change webpage.		x	x	x	x			x	NR
Learning & Engagement	Education & Engagement	Empower IDNR staff to implement solutions outlined in the Climate Action Plan.	Provide education to staff who will be implementing climate actions.		x	x	x	x			x	All working groups
Learning & Engagement	Education & Engagement	Through IDNR's climate actions, inspire the public to join Illinois' climate change efforts.	Provide educational events at demonstration sites to inspire the public to take positive climate actions.		x	x	x	x			x	All working groups
Report Section	Working Group Category	Goal	Objective	Strategy	Immediate (1-2 years)	Short-term (2023 - 2030)	Medium-term (2030-2040)	Long-term (2040 - 2050)	Policy	Pilot	Education	Working Group Overlap

Learning & Engagement	Education & Engagement	Increase transparency and buy-in for proposed climate actions among internal and external IDNR audiences.	Share highlights of the proposed climate action plan with internal and external IDNR audiences.		x	x					x	All working groups
Learning & Engagement	Education & Engagement	Through IDNR's climate actions, inspire the public to join Illinois' climate change efforts.	Showcase IDNR's climate actions to educate and inspire the public to take positive climate actions.		x	x	x	x			x	All working groups
Learning & Engagement	Education & Engagement	Increase transparency and buy-in for proposed climate actions among internal and external IDNR audiences.	Solicit feedback from external audiences, including advisory boards, friends of parks groups and the public about DNR's proposed climate actions.		x	x						All working groups
Learning & Engagement	Education & Engagement	Increase transparency and buy-in for proposed climate actions among internal and external IDNR audiences.	Solicit feedback from IDNR staff about proposed climate actions and implementation.		x	x						All working groups
Sustainable Site Operations	Energy & Renewables	Transition away from fossil fuels to renewable energy sources.	Electrify vehicles and outdoor equipment.	Install EV charging locations at IDNR sites including stations for public and departmental use.			x				x	TF
Sustainable Site Operations	Energy & Renewables	Transition away from fossil fuels to renewable energy sources.	Electrify vehicles and outdoor equipment.	When practical, outdoor power tools gas powered equipment should be replaced with battery, electric, or other renewable power sources.			x				x	TF
Utilities & Buildings	Energy & Renewables	Minimize energy consumption through energy efficiency and conservation strategies.	Aim to reduce energy consumption by 35% by 2035.	Develop a best management practices list of energy consumption reducing projects. Make this list accessible to site superintendents and others to implement best management practices at applicable times.	x	x					x	EE, WW
Report Section	Working Group Category	Goal	Objective	Strategy	Immediate (1-2 years)	Short-term (2023 - 2030)	Medium-term (2030-2040)	Long-term (2040 - 2050)	Policy	Pilot	Education	Working Group Overlap

Utilities & Buildings	Energy & Renewables	Minimize energy consumption through energy efficiency and conservation strategies.	Aim to reduce energy consumption by 35% by 2035.	Identify LEED standards that are applicable and ensure that they are incorporated into existing facilities and future construction projects as appropriate.		x						x	EE
Utilities & Buildings	Energy & Renewables	Minimize energy consumption through energy efficiency and conservation strategies.	Aim to reduce energy consumption by 35% by 2035.	On existing infrastructure, implement a plan to perform energy assessments at IDNR sites to prioritize projects.		x							WW
Utilities & Buildings	Energy & Renewables	Minimize energy consumption through energy efficiency and conservation strategies.	Aim to reduce energy consumption by 35% by 2035.	Prioritize passive or natural design strategies into existing and future projects.		x						x	EE
Utilities & Buildings	Energy & Renewables	Secure dedicated funding sources for energy efficiency and renewable energy projects.	Coordinate with CDB to ensure renewable energy and energy efficient design is incorporated into capital projects.	Develop Customers Project Requirements document for use by CDB and project engineers. The "NetZero" policy should be included in Customers Project Requirements.	x	x							WW
Utilities & Buildings	Energy & Renewables	Secure dedicated funding sources for energy efficiency and renewable energy projects.	Coordinate with CDB to ensure renewable energy and energy efficient design is incorporated into capital projects.	Incorporate natural design including landscape architects.		x						x	EE, NR
Utilities & Buildings	Energy & Renewables	Secure dedicated funding sources for energy efficiency and renewable energy projects.	Coordinate with CDB to ensure renewable energy and energy efficient design is incorporated into capital projects.	Quantify renewable energy potential for project locations.			x						
Utilities & Buildings	Energy & Renewables	Secure dedicated funding sources for energy efficiency and renewable energy projects.	Coordinate with CDB to ensure renewable energy and energy efficient design is incorporated into capital projects.	Use Best Practices guide to guide project design.	x	x						x	EE
Report Section	Working Group Category	Goal	Objective	Strategy	Immediate (1-2 years)	Short-term (2023 - 2030)	Medium-term (2030-2040)	Long-term (2040 - 2050)	Policy	Pilot	Education	Working Group Overlap	

Utilities & Buildings	Energy & Renewables	Secure dedicated funding sources for energy efficiency and renewable energy projects.	Create a dedicated fund/account for appropriation consideration within IDNR that can be used to implement small scale energy efficiency projects, upgrades or equipment.	Identify funding source for annual appropriation to fund energy efficiency.		x						x	
Utilities & Buildings	Energy & Renewables	Minimize energy consumption through energy efficiency and conservation strategies.	Determine baseline energy/utility consumption.	Develop a method for tracking energy consumption.	x	x							WW
Utilities & Buildings	Energy & Renewables	Minimize energy consumption through energy efficiency and conservation strategies.	Determine baseline energy/utility consumption.	Develop process to track consumption reductions from energy improvements.	x	x							WW, EE
Utilities & Buildings	Energy & Renewables	Transition away from fossil fuels to renewable energy sources.	Develop a policy where new construction is "net zero", where all new energy consumption is offset by renewable or carbon free energy generation.	Develop a policy where renewable energy infrastructure is incorporated and built alongside other new projects.			x		x			x	
Utilities & Buildings	Energy & Renewables	Transition away from fossil fuels to renewable energy sources.	Develop a policy where new construction is "net zero", where all new energy consumption is offset by renewable or carbon free energy generation.	Incorporate energy efficient designs and strategies from the best management practices (BMP) list into design plans for new infrastructure.		x						x	EE
Utilities & Buildings	Energy & Renewables	Procure renewable energy for all DNR sites to reach 100% renewable by 2050.	Increase procurement of renewable energy over time to reach 100% renewable by 2050.	Evaluate IDNR sites or leased properties for the potential of installing and using energy storage systems.		x							NR
Utilities & Buildings	Energy & Renewables	Procure renewable energy for all DNR sites to reach 100% renewable by 2050	Increase procurement of renewable energy over time to reach 100% renewable by 2050.	Include renewable energy ratio in electricity procurement contracts.			x		x				
Report Section	Working Group Category	Goal	Objective	Strategy	Immediate (1-2 years)	Short-term (2023 - 2030)	Medium-term (2030-2040)	Long-term (2040 - 2050)	Policy	Pilot	Education	Working Group Overlap	

Utilities & Buildings	Energy & Renewables	Procure renewable energy for all DNR sites to reach 100% renewable by 2050	Increase procurement of renewable energy over time to reach 100% renewable by 2050.	Sites where IDNR has agricultural leases in place should be evaluated for the feasibility of solar, wind or other renewable infrastructure that may be installed.		x							NR
Utilities & Buildings	Energy & Renewables	Install onsite renewable energy to market and promote use of renewable energy by DNR facilities.	Install at least 1 solar array, wind turbine, or other renewable source in a visible location at each DNR site as feasible.	Identify existing renewable generation occurring on IDNR lands.	x	x							
Utilities & Buildings	Energy & Renewables	Install onsite renewable energy to market and promote use of renewable energy by DNR facilities.	Install at least 1 solar array, wind turbine, or other renewable source in a visible location at each DNR site as feasible.	Identify available renewable resources at sites.		x					x		NR
Utilities & Buildings	Energy & Renewables	Install onsite renewable energy to market and promote use of renewable energy by DNR facilities.	Install at least 1 solar array, wind turbine, or other renewable source in a visible location at each DNR site as feasible.	Select sites that could be developed internally or through a power purchase agreement.		x							
Utilities & Buildings	Energy & Renewables	Install onsite renewable energy to market and promote use of renewable energy by DNR facilities.	Install at least 1 solar array, wind turbine, or other renewable source in a visible location at each DNR site as feasible.	Strive to achieve 100% renewable generation at sites where feasible.				x	x				
Utilities & Buildings	Energy & Renewables	Transition away from fossil fuels to renewable energy sources.	Use heat pump technology where available to minimize energy consumption and ongoing cost impacts.	As equipment needs to be replaced and rehabilitation projects are implemented, natural gas and propane appliances and infrastructure should be evaluated for conversion to electric equipment.		x						x	
Report Section	Working Group Category	Goal	Objective	Strategy	Immediate (1-2 years)	Short-term (2023 - 2030)	Medium-term (2030-2040)	Long-term (2040 - 2050)	Policy	Pilot	Education	Working Group Overlap	

Utilities & Buildings	Energy & Renewables	Transition away from fossil fuels to renewable energy sources.	Use heat pump technology where available to minimize energy consumption and ongoing cost impacts.	As equipment needs to be replaced and rehabilitation projects are implemented, upgrade existing electric appliances to utilize heat pumps or other higher efficiency products.		x					x	
Equity & Inclusion	Equity & Inclusion	Emphasizing IDNR's need to become a diverse, equitable, accessible, and inclusive organization that reflects the considerable diversity of the state of Illinois, endeavor that all new and existing personnel who work to implement climate action strategies understand and uphold these values.	Acknowledging IDNR's current lack of diversity, promote a culture of inclusiveness within all divisions working to implement the Climate Action Plan.	Engage young professionals to contribute to IDNR's climate change goals and attract diverse candidates to IDNR's hiring pool.		x						EE
Equity & Inclusion	Equity & Inclusion	Emphasizing IDNR's need to become a diverse, equitable, accessible, and inclusive organization that reflects the considerable diversity of the state of Illinois, endeavor that all new and existing personnel who work to implement climate action strategies understand and uphold these values.	Acknowledging IDNR's current lack of diversity, promote a culture of inclusiveness within all divisions working to implement the Climate Action Plan.	Engender a culture of difference and diversity through marketing materials and promotion of climate events and projects.		x						EE
Report Section	Working Group Category	Goal	Objective	Strategy	Immediate (1-2 years)	Short-term (2023 - 2030)	Medium-term (2030-2040)	Long-term (2040 - 2050)	Policy	Pilot	Education	Working Group Overlap

Equity & Inclusion	Equity & Inclusion	Emphasizing IDNR's need to become a diverse, equitable, accessible, and inclusive organization that reflects the considerable diversity of the state of Illinois, endeavor that all new and existing personnel who work to implement climate action strategies understand and uphold these values.	Acknowledging IDNR's current lack of diversity, promote a culture of inclusiveness within all divisions working to implement the Climate Action Plan.	Improve interdepartmental communication by focusing conversations on climate change, diversity, and representation (coordinate planned lunch and learns with the DEAL committee, departmental trainings, guest speakers).		x					x	EE
Equity & Inclusion	Equity & Inclusion	Emphasizing IDNR's need to become a diverse, equitable, accessible, and inclusive organization that reflects the considerable diversity of the state of Illinois, endeavor that all new and existing personnel who work to implement climate action strategies understand and uphold these values.	Acknowledging IDNR's current lack of diversity, promote a culture of inclusiveness within all divisions working to implement the Climate Action Plan.	Organize affinity groups for staff to encourage mentorship, bonding, camaraderie, and solidarity		x						EE
Equity & Inclusion	Equity & Inclusion	Emphasizing IDNR's need to become a diverse, equitable, accessible, and inclusive organization that reflects the considerable diversity of the state of Illinois, endeavor that all new and existing personnel who work to implement climate action strategies understand and uphold these values.	Acknowledging IDNR's current lack of diversity, promote a culture of inclusiveness within all divisions working to implement the Climate Action Plan.	Partner with workforce development groups to add diversity and value to IDNR's climate change projects.		x						EE
Report Section	Working Group Category	Goal	Objective	Strategy	Immediate (1-2 years)	Short-term (2023 - 2030)	Medium-term (2030-2040)	Long-term (2040 - 2050)	Policy	Pilot	Education	Working Group Overlap

Equity & Inclusion	Equity & Inclusion	Emphasizing IDNR's need to become a diverse, equitable, accessible, and inclusive organization that reflects the considerable diversity of the state of Illinois, endeavor that all new and existing personnel who work to implement climate action strategies understand and uphold these values.	Acknowledging IDNR's current lack of diversity, promote a culture of inclusiveness within all divisions working to implement the Climate Action Plan.	Start an IDNR-sponsored climate change campaign for equity and inclusion on social media.		x					x	x	EE
Equity & Inclusion	Equity & Inclusion	Ensure equitable access to IDNR sites and resources by these identified communities.	Address impact disparities for climate change AND for IDNR-implemented climate mitigation measures.	Conduct climate risk assessments to identify which communities in Illinois will be most impacted by climate change.			x						NR
Equity & Inclusion	Equity & Inclusion	Ensure equitable access to IDNR sites and resources by these identified communities.	Address impact disparities for climate change AND for IDNR-implemented climate mitigation measures.	Ensure that the IDNR Climate Action Plan and working groups consider systemic disparities in the allocation of resources to these communities.			x						All working groups
Equity & Inclusion	Equity & Inclusion	Ensure equitable access to IDNR sites and resources by these identified communities.	Address impact disparities for climate change AND for IDNR-implemented climate mitigation measures.	Equitably apportion and allocate IDNR resources—especially those related to climate mitigation and infrastructure projects—to underrepresented communities; prioritize implementation of mitigation measures that will benefit those most impacted.			x						All working groups
Report Section	Working Group Category	Goal	Objective	Strategy	Immediate (1-2 years)	Short-term (2023 - 2030)	Medium-term (2030-2040)	Long-term (2040 - 2050)	Policy	Pilot	Education	Working Group Overlap	

Equity & Inclusion	Equity & Inclusion	Emphasizing IDNR's need to become a diverse, equitable, accessible, and inclusive organization that reflects the considerable diversity of the state of Illinois, endeavor that all new and existing personnel who work to implement climate action strategies understand and uphold these values.	Address the hiring process to attract and diversify workforce talent for all personnel involved in climate action strategies.	Even the playing field for positions (consider outside applicants in addition to interdepartmental hires).		x						
Equity & Inclusion	Equity & Inclusion	Emphasizing IDNR's need to become a diverse, equitable, accessible, and inclusive organization that reflects the considerable diversity of the state of Illinois, endeavor that all new and existing personnel who work to implement climate action strategies understand and uphold these values.	Address the hiring process to attract and diversify workforce talent for all personnel involved in climate action strategies.	Implement a guideline akin to the NFL's "Rooney Rule" for IDNR climate-related personnel when diverse candidates apply (department must interview a certain minimum percentage of diverse candidates for open positions).		x						
Equity & Inclusion	Equity & Inclusion	Emphasizing IDNR's need to become a diverse, equitable, accessible, and inclusive organization that reflects the considerable diversity of the state of Illinois, endeavor that all new and existing personnel who work to implement climate action strategies understand and uphold these values.	Address the hiring process to attract and diversify workforce talent for all personnel involved in climate action strategies.	Incentivize direct communication and referrals between current diverse staff and prospective diverse candidates.		x						EE
Report Section	Working Group Category	Goal	Objective	Strategy	Immediate (1-2 years)	Short-term (2023 - 2030)	Medium-term (2030-2040)	Long-term (2040 - 2050)	Policy	Pilot	Education	Working Group Overlap

Equity & Inclusion	Equity & Inclusion	Emphasizing IDNR's need to become a diverse, equitable, accessible, and inclusive organization that reflects the considerable diversity of the state of Illinois, endeavor that all new and existing personnel who work to implement climate action strategies understand and uphold these values.	Address the hiring process to attract and diversify workforce talent for all personnel involved in climate action strategies.	Market and promote positions to diverse candidates through social media and other channels.		x							EE
Equity & Inclusion	Equity & Inclusion	Emphasizing IDNR's need to become a diverse, equitable, accessible, and inclusive organization that reflects the considerable diversity of the state of Illinois, endeavor that all new and existing personnel who work to implement climate action strategies understand and uphold these values.	Address the hiring process to attract and diversify workforce talent for all personnel involved in climate action strategies.	Reduce barriers to obtaining IDNR jobs (ensure competitive salaries, create accessible application process, provide help navigating qualifications, allow for remote and flexible schedule opportunities).		x							
Equity & Inclusion	Equity & Inclusion	Recognize members of these communities as experts in their own lives and empower them to 1) call out and undo disparities in the negative impacts of climate change on their communities, and 2) reveal and eliminate the inequitable allocation of public funds to IDNR projects where they result in disparate effects on these communities.	Affirming the necessity that all of IDNR's grant writing, NOFOs, and award processes take place equitably, ensure that IDNR's external funding processes specifically related to climate action take place equitably.	Affirming the necessity that all of IDNR's grant writing, NOFOs, and award processes take place equitably, ensure that IDNR's external funding processes specifically related to climate action take place equitably.		x							
Report Section	Working Group Category	Goal	Objective	Strategy	Immediate (1-2 years)	Short-term (2023 - 2030)	Medium-term (2030-2040)	Long-term (2040 - 2050)	Policy	Pilot	Education	Working Group Overlap	

Equity & Inclusion	Equity & Inclusion	Recognize members of these communities as experts in their own lives and empower them to 1) call out and undo disparities in the negative impacts of climate change on their communities, and 2) reveal and eliminate the inequitable allocation of public funds to IDNR projects where they result in disparate effects on these communities.	Affirming the necessity that all of IDNR's grant writing, NOFOs, and award processes take place equitably, ensure that IDNR's external funding processes specifically related to climate action take place equitably.	Link new partners, organizations, and identified communities with grant-funding opportunities.		x							EE
Equity & Inclusion	Equity & Inclusion	Ensure that all Illinois Department of Natural Resources climate action strategies and implementation take place equitably and connect holistically with existing and planned diversity, equity, accessibility, and inclusion (DEAI) activities.	Ascertain and assess the past, ongoing, and planned activities of IDNR and how they potentially complement or contend with recommended climate action strategies within this plan.	Inventory IDNR goals, objectives, strategies, and activities related to equity, inclusion, and outreach to underserved and disadvantaged communities.	x	x							EE
Equity & Inclusion	Equity & Inclusion	Ensure that all Illinois Department of Natural Resources climate action strategies and implementation take place equitably and connect holistically with existing and planned diversity, equity, accessibility, and inclusion (DEAI) activities.	Comprehensively address issues of discrimination and systemic injustice by seeking to understand their complexity, officially recognize their interconnectedness, and unite to overcome their disproportionately negative effects on disadvantaged and underserved people and communities—e.g., in the climate change-related realms of public health, housing, and environmental degradation.	Continue IDNR's DEAI strategic planning committee and incorporate these Climate Action Plan Equity & Inclusion goals, objectives, and strategies into IDNR's broader strategic planning process.	x	x							
Report Section	Working Group Category	Goal	Objective	Strategy	Immediate (1-2 years)	Short-term (2023 - 2030)	Medium-term (2030-2040)	Long-term (2040 - 2050)	Policy	Pilot	Education	Working Group Overlap	

Equity & Inclusion	Equity & Inclusion	Ensure that all Illinois Department of Natural Resources climate action strategies and implementation take place equitably and connect holistically with existing and planned diversity, equity, accessibility, and inclusion (DEAI) activities.	Comprehensively address issues of discrimination and systemic injustice by seeking to understand their complexity, officially recognize their interconnectedness, and unite to overcome their disproportionately negative effects on disadvantaged and underserved people and communities—e.g., in the climate change-related realms of public health, housing, and environmental degradation.	Continue IDNR’s DEAI training for new and existing departmental hires, especially for new and existing positions related to Climate Action Plan implementation.	x	x					x	
Equity & Inclusion	Equity & Inclusion	Ensure that all Illinois Department of Natural Resources climate action strategies and implementation take place equitably and connect holistically with existing and planned diversity, equity, accessibility, and inclusion (DEAI) activities.	Comprehensively address issues of discrimination and systemic injustice by seeking to understand their complexity, officially recognize their interconnectedness, and unite to overcome their disproportionately negative effects on disadvantaged and underserved people and communities—e.g., in the climate change-related realms of public health, housing, and environmental degradation.	Seek input on DEAI strategies and activities, especially those relating to climate change and departmental climate change mitigation, from diverse organizations and experts involved in environmental and social justice advocacy.	x	x					x	All working groups
Equity & Inclusion	Equity & Inclusion	Identify, prioritize, and engage communities who have been both disproportionately impacted by climate change and systemically disadvantaged in the allocation of resources (e.g., government funding, activities, and beneficial supports).	Conduct regular, systematic internal reviews/audits of these activities to ensure programs are achieving goals and meeting community and departmental needs (regularity to be determined – perhaps on a 1- to 3-year cycle)			x						
Report Section	Working Group Category	Goal	Objective	Strategy	Immediate (1-2 years)	Short-term (2023 - 2030)	Medium-term (2030-2040)	Long-term (2040 - 2050)	Policy	Pilot	Education	Working Group Overlap

Equity & Inclusion	Equity & Inclusion	Ensure equitable access to IDNR sites and resources by these identified communities.	Create a language accessibility plan for all of IDNR's public-facing climate change material/signage.				x				x	EE
Equity & Inclusion	Equity & Inclusion	Ensure equitable access to IDNR sites and resources by these identified communities.	Create an adaptable site accessibility template for use at all of IDNR's public sites to engage members of the identified communities.				x				x	EE
Equity & Inclusion	Equity & Inclusion	Ensure equitable access to IDNR sites and resources by these identified communities.	Develop a public engagement plan to capture and prioritize experiences, perspectives, ideas, and strategies most important to community members disproportionately impacted by climate change.				x				x	EE
Equity & Inclusion	Equity & Inclusion	Increase public participation and outreach within Illinois' climate change efforts.	Develop educational and interpretive programs that serve to elucidate the links between the natural environment, human society, culture, history, and climate change.	Create public-facing resource materials, exhibits, and events that interpret the climate history of Illinois and place past climate change in context with current events for the public.	x	x					x	EE
Equity & Inclusion	Equity & Inclusion	Recognize members of these communities as experts in their own lives and empower them to 1) call out and undo disparities in the negative impacts of climate change on their communities, and 2) reveal and eliminate the inequitable allocation of public funds to IDNR projects where they result in disparate effects on these communities.	Develop empowering partnerships with environmental justice organizations that are already engaged in equitable climate mitigation work within these communities; IDNR must assume a supportive, mutually beneficial learning role that centers community-driven solutions.	Identify, reach out to, and collaborate with nonprofits and other organizations that are leaders in the environmental justice movement and that exemplify the climate action and equity and inclusion goals of IDNR.			x				x	EE
Report Section	Working Group Category	Goal	Objective	Strategy	Immediate (1-2 years)	Short-term (2023 - 2030)	Medium-term (2030-2040)	Long-term (2040 - 2050)	Policy	Pilot	Education	Working Group Overlap

Equity & Inclusion	Equity & Inclusion	Recognize members of these communities as experts in their own lives and empower them to 1) call out and undo disparities in the negative impacts of climate change on their communities, and 2) reveal and eliminate the inequitable allocation of public funds to IDNR projects where they result in disparate effects on these communities.	Develop empowering partnerships with environmental justice organizations that are already engaged in equitable climate mitigation work within these communities; IDNR must assume a supportive, mutually beneficial learning role that centers community-driven solutions.	Promote positive and successful examples (case studies, partnerships, programs, infrastructure projects, events) where IDNR worked to support and benefit these communities; the IDNR Urban and Community Forestry program, for instance, regularly partners with community-based nonprofits		x					x	EE
Equity & Inclusion	Equity & Inclusion	Ensure equitable access to IDNR sites and resources by these identified communities.	Increase public and active transportation options to IDNR parks and lands to and from the identified communities.				x			x		TR
Equity & Inclusion	Equity & Inclusion	Identify, prioritize, and engage communities who have been both disproportionately impacted by climate change and systemically disadvantaged in the allocation of resources (e.g., government funding, activities, and beneficial supports).	Using a variety of available mapping tools and data resources (e.g., the Federal Justice40 Initiative and EPA's EJSCREEN), develop equitable criteria for identifying these communities and opportunities for partnership and relationship building with IDNR.	Consider both where these communities are disproportionately exposed to environmental harm AND where they are lacking environmental assets (such as access to green spaces). Identify these gaps to then prioritize future grants and allocation of other resources.		x						NR
Equity & Inclusion	Equity & Inclusion	Identify, prioritize, and engage communities who have been both disproportionately impacted by climate change and systemically disadvantaged in the allocation of resources (e.g., government funding, activities, and beneficial supports).	Using a variety of available mapping tools and data resources (e.g., the Federal Justice40 Initiative and EPA's EJSCREEN), develop equitable criteria for identifying these communities and opportunities for partnership and relationship building with IDNR.	Define "disadvantaged community", "environmental justice community", "underserved community", "stressed", "underrepresented", "frontline", etc. and craft language that achieves the most empowering and accurate description of the climate challenges facing these communities in Illinois.		x					x	EE
Report Section	Working Group Category	Goal	Objective	Strategy	Immediate (1-2 years)	Short-term (2023 - 2030)	Medium-term (2030-2040)	Long-term (2040 - 2050)	Policy	Pilot	Education	Working Group Overlap

Equity & Inclusion	Equity & Inclusion	Identify, prioritize, and engage communities who have been both disproportionately impacted by climate change and systemically disadvantaged in the allocation of resources (e.g., government funding, activities, and beneficial supports).	Using a variety of available mapping tools and data resources (e.g., the Federal Justice40 Initiative and EPA's EJSCREEN), develop equitable criteria for identifying these communities and opportunities for partnership and relationship building with IDNR.	Identify where IDNR lands and properties intersect with these communities and prioritize projects that simultaneously address climate change AND enable inclusion and accessibility to community members within those spaces.		x								NR
Equity & Inclusion	Equity & Inclusion	Recognize members of these communities as experts in their own lives and empower them to 1) call out and undo disparities in the negative impacts of climate change on their communities, and 2) reveal and eliminate the inequitable allocation of public funds to IDNR projects where they result in disparate effects on these communities.	Work directly with community members and gain their trust; prioritize support, empathy, attentiveness, sensitivity, and context in public engagement and outreach.	Promote this approach in all IDNR's new and existing partnerships, but especially with schools, libraries, and other community organizations centered around IDNR's climate action.		x						x		EE
Climate-Smart Natural Areas	Natural Resources	Enhance resilience of natural systems and species, especially on IDNR lands.	Create management recommendations and guidelines for management of IDNR sites.	Initiate updates to site plans in the next Plan of Work cycle.	x	x	x	x						
Climate-Smart Natural Areas	Natural Resources	Enhance resilience of natural systems and species, especially on IDNR lands.	Create management recommendations and guidelines for management of IDNR sites.	Conduct more complete inventories of the natural communities and species present on state lands.		x	x	x						
Climate-Smart Natural Areas	Natural Resources	Enhance resilience of natural systems and species, especially on IDNR lands.	Create management recommendations and guidelines for management of IDNR sites.	Review literature for updates on fire impacts and strategies.		x	x	x						
Report Section	Working Group Category	Goal	Objective	Strategy	Immediate (1-2 years)	Short-term (2023 - 2030)	Medium-term (2030-2040)	Long-term (2040 - 2050)	Policy	Pilot	Education	Working Group Overlap		

Climate-Smart Natural Areas	Natural Resources	Enhance resilience of natural systems and species, especially on IDNR lands.	Develop recommendations and guidance for IDNR nurseries and agricultural land.	Evaluate and develop recommendations for agricultural land.	x							
Climate-Smart Natural Areas	Natural Resources	Enhance resilience of natural systems and species, especially on IDNR lands.	Develop recommendations and guidance for IDNR nurseries and agricultural land.	Evaluate and develop recommendations for how nurseries are used.	x							
Climate-Smart Natural Areas	Natural Resources	Enhance resilience of natural systems and species, especially on IDNR lands.	Increase DNR's capacity to acquire critical land parcels.	Develop and clarify the process to identify critical land parcels.	x							EI
Climate-Smart Natural Areas	Natural Resources	Enhance resilience of natural systems and species, especially on IDNR lands.	Increase DNR's capacity to acquire critical land parcels.	Identify possible partnerships and funding for acquisitions.	x	x	x	x				EI
Climate-Smart Natural Areas	Natural Resources	Enhance resilience of natural systems and species, especially on IDNR lands.	Increase DNR's capacity to acquire critical land parcels.	Expand acquisition of critical land parcels.	x	x	x	x				EI
Climate-Smart Natural Areas	Natural Resources	Enhance resilience of natural systems and species, especially on IDNR lands.	Develop list of essential and preferred metrics for describing natural resources.	Develop list of essential and preferred metrics for describing natural resources.	x							EI
Climate-Smart Natural Areas	Natural Resources	Analyze carbon sequestration and storage on IDNR properties and increase it, when possible, while also protecting biodiversity and other ecological values.	Estimate current carbon sequestration and storage on IDNR properties.	Estimate carbon sequestration and storage on IDNR properties.	x							
Climate-Smart Natural Areas	Natural Resources	Analyze carbon sequestration and storage on IDNR properties and increase it, when possible, while also protecting biodiversity and other ecological values.	Estimate current carbon sequestration and storage on IDNR properties.	Conduct carbon sequestration and storage analyses at the site scale.		x						
Report Section	Working Group Category	Goal	Objective	Strategy	Immediate (1-2 years)	Short-term (2023 - 2030)	Medium-term (2030-2040)	Long-term (2040 - 2050)	Policy	Pilot	Education	Working Group Overlap

Climate-Smart Natural Areas	Natural Resources	Analyze carbon sequestration and storage on IDNR properties and increase it, when possible, while also protecting biodiversity and other ecological values.	Analyze the potential for carbon sequestration and storage on IDNR properties.	Develop and analyze scenarios for carbon sequestration under different restoration and management scenarios.	x								
Climate-Smart Natural Areas	Natural Resources	Enhance connections and partnerships to achieve climate and conservation goals.	Build connections and partnerships with other DNR plans and programs.	Identify pathways for intra-agency opportunities for collaboration.	x	x	x	x			x		EE, EI
Climate-Smart Natural Areas	Natural Resources	Enhance connections and partnerships to achieve climate and conservation goals.	Enhance connections and partnerships to achieve climate and conservation goals.	Promote programs that encourage habitat creation, restoration, and management on private and public lands.	x	x	x	x			x		EE, EI
Climate-Smart Natural Areas	Natural Resources	Enhance connections and partnerships to achieve climate and conservation goals.	Build connections and partnerships with other government agencies.	Identify pathways for interagency opportunities for collaboration.	x	x	x	x			x		EE, EI
Climate-Smart Natural Areas	Natural Resources	Enhance connections and partnerships to achieve climate and conservation goals.	Build connections and partnerships with other government agencies.	Promote programs that encourage habitat creation, restoration, and management on private and public lands.	x	x	x	x			x		EE, EI
Climate-Smart Natural Areas	Natural Resources	Enhance connections and partnerships to achieve climate and conservation goals.	Build connections and partnerships with community organizations.	Identify pathways for collaboration.	x	x	x	x			x		EE, EI
Climate-Smart Natural Areas	Natural Resources	Enhance connections and partnerships to achieve climate and conservation goals.	Build connections and partnerships with community organizations.	Seek out opportunities to connect with groups who are not typically part of conservation decisions.	x	x	x	x			x		EE, EI
Report Section	Working Group Category	Goal	Objective	Strategy	Immediate (1-2 years)	Short-term (2023 - 2030)	Medium-term (2030-2040)	Long-term (2040 - 2050)	Policy	Pilot	Education	Working Group Overlap	

Climate-Smart Natural Areas	Natural Resources	Enhance connections and partnerships to achieve climate and conservation goals.	Build connections and partnerships with community organizations.	Promote programs that encourage habitat creation, restoration, and management on private and public lands.	x	x	x	x			x	EE, EI
Sustainable Site Operations	Solid Waste	Create a sustainable purchasing policy.		Analyze the status of the recycling industry to determine what materials should be purchased.		x					x	
Sustainable Site Operations	Solid Waste	Create a sustainable purchasing policy.		Assess current procurement practices and performance.	x	x					x	
Sustainable Site Operations	Solid Waste	Create a sustainable purchasing policy.		Connect DNR purchasing practices to the larger picture of environmental impact.		x					x	NR
Sustainable Site Operations	Solid Waste	Develop a strategy for waste reduction, reuse, and recycling.		Create incentives to help motivate staff engagement.			x				x	EE
Sustainable Site Operations	Solid Waste	Develop a strategy for waste reduction, reuse, and recycling.		Examine general agency operations and collect data.	x	x	x					
Sustainable Site Operations	Solid Waste	Engage the public to participate in waste reduction strategies.		Pilot a Pack-In, Pack-Out program at a few sites.			x			x	x	
Sustainable Site Operations	Solid Waste	Create a sustainable purchasing policy.		Pilot a sustainable purchasing program at the DNR Cafe and a few concessionaires.		x				x	x	
Sustainable Site Operations	Solid Waste	Develop a strategy for waste reduction, reuse, and recycling.		Pilot a waste reduction, reuse, and recycling program at a few different types of sites.			x			x	x	
Sustainable Site Operations	Solid Waste	Develop a strategy for waste reduction, reuse, and recycling.		Propose new practices and perform cost benefit analysis.			x				x	
Report Section	Working Group Category	Goal	Objective	Strategy	Immediate (1-2 years)	Short-term (2023 - 2030)	Medium-term (2030-2040)	Long-term (2040 - 2050)	Policy	Pilot	Education	Working Group Overlap

Sustainable Site Operations	Solid Waste	Engage the public to participate in waste reduction strategies.		Research successful strategies implemented at other parks and sites (e.g., Pack-In, Pack-Out).		x						
Sustainable Site Operations	Solid Waste	Engage the public to participate in waste reduction strategies.		Study how guests utilize waste management infrastructure and identify opportunities for improvement and how to reduce dumping.	x	x	x					
Sustainable Site Operations	Transportation & Fuel Use	Reduce fuel use across all IDNR sites.	Encourage staff to use fuel efficiently at their sites.	Promote an anti-idling practice to reduce fuel use in vehicles and machinery.	x	x			x		x	EE
Sustainable Site Operations	Transportation & Fuel Use	Reduce fuel use across all IDNR sites.	Encourage staff to use fuel efficiently at their sites.	Share efficient fuel use best practices for IDNR vehicles.	x	x					x	EE
Sustainable Site Operations	Transportation & Fuel Use	Reduce fuel use across all IDNR sites.	Encourage the use of electric site maintenance tools.	Demonstrate small electric equipment for site staff; Encourage staff to share successes and challenges.	x	x					x	ER, EE
Sustainable Site Operations	Transportation & Fuel Use	Reduce fuel use across all IDNR sites.	Encourage the use of electric site maintenance tools.	Establish pilot sites to test small electric equipment & share experiences across sites.	x	x				x	x	ER
Sustainable Site Operations	Transportation & Fuel Use	Reduce fuel use across all IDNR sites.	Encourage the use of electric site maintenance tools.	Identify small equipment that can easily be switched to electric.	x	x						ER
Sustainable Site Operations	Transportation & Fuel Use	Reduce fuel use across all IDNR sites.	Encourage the use of electric site maintenance tools.	Phased implementation of larger equipment over time, across all sites as technology improves.			x	x			x	ER
Sustainable Site Operations	Transportation & Fuel Use	Increase the fuel efficiency of IDNR's vehicle fleet.	Evaluate vehicle procurement contracts and standards to increase fuel efficiency.	Continually investigate future options for fuel-efficient and electric heavy-duty vehicles.		x	x	x			x	ER
Report Section	Working Group Category	Goal	Objective	Strategy	Immediate (1-2 years)	Short-term (2023 - 2030)	Medium-term (2030-2040)	Long-term (2040 - 2050)	Policy	Pilot	Education	Working Group Overlap

Sustainable Site Operations	Transportation & Fuel Use	Increase the fuel efficiency of IDNR's vehicle fleet.	Evaluate vehicle procurement contracts and standards to increase fuel efficiency.	Evaluate procurement options to increase availability of fuel-efficient and electric vehicles.	x	x	x			x		ER
Sustainable Site Operations	Transportation & Fuel Use	Increase the fuel efficiency of IDNR's vehicle fleet.	Evaluate vehicle procurement contracts and standards to increase fuel efficiency.	Set vehicle fuel efficiency standards by vehicle category that all new IDNR vehicles must meet.			x				x	EE
Sustainable Site Operations	Transportation & Fuel Use	Increase the fuel efficiency of IDNR's vehicle fleet.	Increase access to EV charging at IDNR sites.	Install charging infrastructure for IDNR light-duty electric vehicles.			x	x		x		ER
Sustainable Site Operations	Transportation & Fuel Use	Reduce fuel use across all IDNR sites.	Use landscaping or native plant restoration to minimize mowing.	Conduct a mowing assessment of priority sites to identify alternative landscaping or natural restoration opportunities.	x	x				x	x	NR, WW, EE
Sustainable Site Operations	Transportation & Fuel Use	Reduce fuel use across all IDNR sites.	Use landscaping or native plant restoration to minimize mowing.	Establish pilot sites to implement landscaping or natural habitat strategies and share successes and challenges.	x	x	x			x	x	NR, WW, EE
Sustainable Site Operations	Transportation & Fuel Use	Reduce fuel use across all IDNR sites.	Use landscaping or native plant restoration to minimize mowing.	Provide ongoing support to sites that are pursuing projects.		x	x	x			x	NR, WW, EE
Sustainable Site Operations	Transportation & Fuel Use	Reduce transportation impacts of IDNR staff.	Encourage staff ridesharing and carpooling, when applicable.	Assess opportunities for IDNR regions to offer ridesharing and/or carpooling and support the coordination of pathways for participation.	x	x				x		EE
Sustainable Site Operations	Transportation & Fuel Use	Reduce transportation impacts of IDNR staff.	Incorporate remote work and meeting options, when applicable.	Collect feedback from staff around concerns or benefits of remote meetings or work options.	x	x						EE
Sustainable Site Operations	Transportation & Fuel Use	Reduce transportation impacts of IDNR staff.	Incorporate remote work and meeting options, when applicable.	Identify situations where remote meetings or work to reduce fuel emissions, while not disrupting normal workflow.	x	x				x		EE
Report Section	Working Group Category	Goal	Objective	Strategy	Immediate (1-2 years)	Short-term (2023 - 2030)	Medium-term (2030-2040)	Long-term (2040 - 2050)	Policy	Pilot	Education	Working Group Overlap

Sustainable Site Operations	Transportation & Fuel Use	Reduce transportation impacts of IDNR staff.	Incorporate remote work and meeting options, when applicable.	Identify technology needs to support remote meetings or work and provide as needed and when applicable.		x	x					
Sustainable Site Operations	Transportation & Fuel Use	Reduce transportation impacts of IDNR staff.	Incorporate remote work and meeting options, when applicable.	Provide guidance to staff for remote meetings or work options.		x	x		x		x	EE
Sustainable Site Operations	Water & Wastewater	Reduce IDNR's use of potable water.	Implement a policy to reduce potable water consumption at all DNR Sites.	Assess IDNR sites for rainwater capture and use to replace potable water for non-potable uses.		x	x		x	x		NR
Sustainable Site Operations	Water & Wastewater	Reduce IDNR's use of potable water.	Implement a policy to reduce potable water consumption at all DNR Sites.	Implement a policy to recover water used for handwashing, laundry, and other uses that do not contain hazardous materials for non-potable uses.		x	x		x	x		NR
Sustainable Site Operations	Water & Wastewater	Improve IDNR Erosion Control and Floodplain Restoration.	Decrease DNR site run-off.	Convert IDNR parking islands and perimeter turf into bioswales or rain gardens with specialized plantings that help filter and remove road grit, winter salting, and fuel and oil leaks that may occur in the parking areas.		x	x			x	x	NR, EE
Sustainable Site Operations	Water & Wastewater	Improve IDNR Erosion Control and Floodplain Restoration.	Decrease DNR site run-off.	Employ permeable paving at IDNR parking lots and along paved pathways to allow rainwater to percolate into soils and groundwater.			x	x		x	x	NR, EE
Sustainable Site Operations	Water & Wastewater	Improve IDNR Erosion Control and Floodplain Restoration.	Decrease IDNR site run-off.	Install green roofs and/or walls on new and renovated IDNR facilities to reduce downspout run-off and make better use of rainwater at IDNR building sites wherever feasible.			x	x		x	x	NR, EE
Report Section	Working Group Category	Goal	Objective	Strategy	Immediate (1-2 years)	Short-term (2023 - 2030)	Medium-term (2030-2040)	Long-term (2040 - 2050)	Policy	Pilot	Education	Working Group Overlap

Sustainable Site Operations	Water & Wastewater	Reduce IDNR's use of potable water.	Implement irrigation management practices.	Establish an IDNR-wide policy stating sites that use water for irrigation of plants will employ soil moisture sensors or other technology to limit over-irrigation and water waste.	x	x	x		x		x		NR, EE
Sustainable Site Operations	Water & Wastewater	Reduce IDNR's use of potable water.	Implement irrigation management practices.	Reduce the need for irrigation by planting drought-resistant native plants in landscaping features. Also, replace turf grass with prairie plantings and hardier plant species wherever feasible.		x	x			x	x		NR, TF, EE
Utilities & Buildings	Water & Wastewater	Reduce IDNR's use of potable water.	Complete water infrastructure inventory.	Build inventory of IDNR-managed wells and their condition. Use data to prioritize improvements.	x	x			x				ER
Utilities & Buildings	Water & Wastewater	Reduce IDNR's use of potable water.	Complete water infrastructure inventory.	Implement metering of wells or estimate use based on park visitor counts and typical water use values.		x			x				ER
Utilities & Buildings	Water & Wastewater	Reduce IDNR's use of potable water.	Complete water infrastructure inventory.	Track water utility consumption in software, webtool, or central database.	x	x			x				ER
Utilities & Buildings	Water & Wastewater	Reduce IDNR's use of potable water.	Complete water infrastructure inventory.	Use strategies 1-3 to develop prioritized list of project sites for water conservation.				x	x		x		EE
Report Section	Working Group Category	Goal	Objective	Strategy	Immediate (1-2 years)	Short-term (2023 - 2030)	Medium-term (2030-2040)	Long-term (2040 - 2050)	Policy	Pilot	Education	Working Group Overlap	

Utilities & Buildings	Water & Wastewater	Reduce IDNR's use of potable water.	Implement a policy to reduce potable water consumption at all DNR Sites.	Ensure water fixtures have an auto-off function appropriate for the site and usage: push button, motion sensor, or other method to limit water waste.	x	x			x		x	ER
Utilities & Buildings	Water & Wastewater	Reduce IDNR's use of potable water.	Implement a policy to reduce potable water consumption at all DNR Sites.	Implement a IDNR-wide policy that during any facility renovation, repair, or construction project, water fixtures for the site will be updated to WaterSense® labeled fixtures.	x	x			x		x	
Utilities & Buildings	Water & Wastewater	Improve Resiliency of IDNR Water and Wastewater Treatment.	Reduce embedded energy in water use and treatment.	Convert IDNR well water sites, where feasible, to municipal water sources.			x	x				
Utilities & Buildings	Water & Wastewater	Improve Resiliency of IDNR Water and Wastewater Treatment.	Reduce embedded energy in water use and treatment.	IDNR should investigate the potential for micro- (5kW to 100kW) and pico-scale (<5kW) hydropower at IDNR-operated reservoirs, locks, and other waterways.				x		x		NR
Utilities & Buildings	Water & Wastewater	Improve Resiliency of IDNR Water and Wastewater Treatment.	Reduce embedded energy in water use and treatment.	Where well sites must be used, upgrade well pumps to the most efficient systems possible.			x					ER
Sustainable Site Operations	Natural Resources	Adopt sustainable groundskeeping practices on more developed sites.	Develop a protocol for natural lawncare that maintains healthy lawns in areas where lawns are appropriate.	Develop criteria to identify where turf grass is the best groundcover.	x	x			x			WW
Report Section	Working Group Category	Goal	Objective	Strategy	Immediate (1-2 years)	Short-term (2023 - 2030)	Medium-term (2030-2040)	Long-term (2040 - 2050)	Policy	Pilot	Education	Working Group Overlap

Sustainable Site Operations	Natural Resources	Adopt sustainable groundskeeping practices on more developed sites.	Develop a protocol for natural lawncare that maintains healthy lawns in areas where lawns are appropriate.	Identify the best seed mix for lawns for each region and site.	x	x						WW
Sustainable Site Operations	Natural Resources	Adopt sustainable groundskeeping practices on more developed sites.	Create more biodiverse, sustainable grounds that require less mowing.	Establish hierarchy for irrigation during drought.	x	x			x			WW
Sustainable Site Operations	Natural Resources	Adopt sustainable groundskeeping practices on more developed sites.	Create more biodiverse, sustainable grounds that require less mowing.	Identify areas that can become sites for rain gardens, bioswales, native plants, restoration, etc.	x	x						WW
Sustainable Site Operations	Natural Resources	Adopt sustainable groundskeeping practices on more developed sites.	Create more biodiverse, sustainable grounds that require less mowing and have enhanced ecosystem function.	Establish pilot sites where lawn and other mowed areas are converted to more sustainable and biodiverse landscapes.	x	x				x	x	EE, EI
Sustainable Site Operations	Natural Resources	Adopt sustainable groundskeeping practices on more developed sites.	Develop guidelines for tree selection, planting, and care in landscapes around buildings and facilities.	Recommend tree species that are expected to do well in future climate conditions.	x							
Sustainable Site Operations	Natural Resources	Adopt sustainable groundskeeping practices on more developed sites.	Develop guidelines for tree selection, planting, and care in landscapes around buildings and facilities.	Recommend tree species for different conditions found throughout the state and at different types of sites.	x							ER
Sustainable Site Operations	Natural Resources	Adopt sustainable groundskeeping practices on more developed sites.	Develop guidelines for tree selection, planting, and care in landscapes around buildings and facilities.	Develop guidelines for tree planting and care in developed settings on IDNR sites.	x				x			
Report Section	Working Group Category	Goal	Objective	Strategy	Immediate (1-2 years)	Short-term (2023 - 2030)	Medium-term (2030-2040)	Long-term (2040 - 2050)	Policy	Pilot	Education	Working Group Overlap

Sustainable Site Operations	Natural Resources	Adopt sustainable groundskeeping practices on more developed sites.	Create demonstration sites that show sustainable groundskeeping/landscaping practices on DNR sites and provide learning opportunities for DNR staff, partners, and the public.	Provide training for staff and partners that explains and promotes sustainable landscaping practices and teaches staff how to maintain these sites.	x	x	x	x		x	x	EE, WW, TF
Sustainable Site Operations	Natural Resources	Adopt sustainable groundskeeping practices on more developed sites.	Create demonstration sites that show sustainable groundskeeping/landscaping practices on DNR sites and provide learning opportunities for DNR staff, partners, and the public.	Encourage people to adopt sustainable landscaping practices at home by providing educational programming, including signage and tours at demonstration sites.	x	x	x	x		x	x	EE, EI, WW, TF
Sustainable Site Operations	Natural Resources	Adopt sustainable groundskeeping practices on more developed sites.	Gather information about groundskeeping practices	Collect and analyze information about current landscapes, maintenance practices, acreage of lawn and garden areas, flooding issues, species selection, irrigation practices, uses, resources required for maintenance, etc.	x							WW, TF
Learning & Engagement	Natural Resources	Public education and demonstration projects	Create a webpage about climate change and IDNR.	Describe the impacts of climate change on natural resources.	x						x	All working groups
Learning & Engagement	Natural Resources	Public education and demonstration projects	Create a webpage about climate change and IDNR.	Describe what DNR is doing with the climate action plan.	x						x	All working groups
Learning & Engagement	Natural Resources	Public education and demonstration projects	Enhance equity in education and access.	Identify opportunities for accessible trails.		x						EI
Learning & Engagement	Natural Resources	Public education and demonstration projects	Enhance equity in education and access.	Increase the use of multi-lingual signage, including signage about climate change.	x						x	EE, EI
Report Section	Working Group Category	Goal	Objective	Strategy	Immediate (1-2 years)	Short-term (2023 - 2030)	Medium-term (2030-2040)	Long-term (2040 - 2050)	Policy	Pilot	Education	Working Group Overlap

Learning & Engagement	Natural Resources	Provide staff training to help staff implement climate action plan strategies.	Expand on staff training to build on existing knowledge and create new skills and knowledge related to climate change and conservation.	Develop and deliver training that corresponds with climate action plan goals and strategies.	x	x	x	x			x	EE
Learning & Engagement	Natural Resources	Provide staff training to help staff implement climate action plan strategies.	Expand on staff training to build on existing knowledge and create new skills and knowledge related to climate change and conservation.	Conduct a survey of DNR staff to understand knowledge, opinions and attitudes about climate change.	x						x	EE
Turning Climate Strategies into Action	Natural Resources	Ensure adequate staffing to achieve the goals of the climate action plan and DNR's mission.	Increase staffing levels and set priorities for new hires.	Increase staffing levels and set priorities for new hires.	x	x						All working groups
Table Key												

Energy & Renewables	ER
Water & Wastewater	WW
Transportation & Fuel Use	TF
Solid Waste	SW
Natural Resources	NR
Equity & Inclusion	EQ
Education & Engagement	EE

Appendix B. Climate Working Group Summaries

1. Energy and Renewables Working Group Summary

To manage, conserve and protect Illinois' natural, recreational, and cultural resources, further the public's understanding and appreciation of those resources, and promote the education, science and public safety of Illinois' natural resources for present and future generations - Illinois Department of Natural Resources Mission Statement

Climate change threatens to greatly impact or destroy the natural and cultural resources of the world, Illinois included. To fulfill its mission statement to conserve and protect these resources, IDNR must be a lead agency in fighting climate change. Recent energy legislation set a goal for Illinois to have net-zero carbon emissions by 2050. The goal of the Energy Efficiency and Renewables working group is to create a strategy with concrete and measurable goals for IDNR to meet this goal of net-zero carbon emissions by 2050.

Goal #1: Minimize energy consumption through energy efficiency and conservation strategies

Objective 1.1: Determine baseline energy/utility consumption

The first step in implementing a strategic plan will be first to understand IDNR's energy and utility consumption. By understanding this baseline consumption, energy efficiency projects and plans can be targeted to have the greatest impact. Also, by continuing to track utilities and energy consumption the results of the strategic plan can be measured and documented to continuously improve the plan.

Strategy 1: (1 year) Develop a method for tracking energy consumption	Strategy 2: (1 year) Develop process to track consumption reductions from energy improvements
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Stakeholder Involvement	Community Outreach/Education
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<p>Staff who already input utility billing data to identify methods for collecting consumption data along with site staff who may wish to receive and communicate data. May also involve utility providers to determine if direct data transfer is feasible.</p>	<p>Develop a methodology to publish energy consumption trends along with advertising energy improvements and how they could be implemented at visitors' homes or other locations they visit.</p>
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Objective 1.2: Aim to reduce energy consumption by 35% by 2035

Minimizing IDNR's energy footprint will be the first step in achieving its goal of utilizing only renewable and carbon free energy sources. The added benefit of reducing energy consumption will save IDNR, and ultimately Illinois citizens money over the long-term. This 35% goal is an overall goal. Individual sites may be able to achieve more or less than this target, but all sites' contributions will be important for IDNR to achieve their goal.

<p>Strategy 1: (short-term)</p> <p>On existing infrastructure, implement a plan to perform energy assessments at IDNR sites to prioritize projects.</p>	<p>Strategy 2: (1 year)</p> <p>Develop a best management practices list of energy consumption reducing projects. Make this list accessible to site superintendents and others to implement best management practices at applicable times.</p>	<p>Strategy 3: (short-term)</p> <p>Identify LEED standards that are applicable and ensure that they are incorporated into existing facilities and future construction projects as appropriate.</p>	<p>Strategy 4: (short-term)</p> <p>Prioritize passive or natural design strategies into existing and future projects.</p>
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Stakeholder Involvement	Community Outreach/Education
Site staff would be needed to identify improvement opportunities. Project planners to identify energy improvements in proposed projects. Landscape architects to aid in passive natural design for projects.	Develop a methodology to publish energy consumption trends with a target of 35% less than the baseline along with advertising energy improvements and how they could be implemented at visitors' homes or other locations they visit.

Goal #2: Install onsite renewable energy to market and promote use of renewable energy by IDNR facilities

Objective 2.1: Install at least 1 solar array, wind turbine, or other renewable source in a visible location at each IDNR site as feasible.

Installing renewable energy infrastructure onsite at visible locations will allow IDNR sites to start generating and using renewable energy while also making these projects visible and available to educate and inform the public about the feasibility and potential aesthetics of such projects.

<p>Strategy 1: (1 year)</p> <p>Identify existing renewable generation occurring on IDNR lands.</p>	<p>Strategy 2: (short-term)</p> <p>Identify available renewable resources at sites.</p>	<p>Strategy 3: (short-term)</p> <p>Select sites that could be developed internally or through a power purchase agreement.</p>	<p>Strategy 4: (long-term)</p> <p>Strive to achieve 100% renewable generation at sites where feasible</p>
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Stakeholder Involvement	Community Outreach/Education
Site managers with existing renewable generation to identify those for mapping. Site managers would also identify available renewable resources (hydro, open lands for wind, etc)	Include renewable generator sites on site maps along with informational materials about the site-specific generation including comparison to site consumption.

Goal #3: Procure renewable energy for all IDNR sites by 2050

Objective 3.1: Increase procurement of renewable energy over time to reach 100% renewable by 2050.

It is not feasible to generate all of IDNR’s energy from local on-site renewable energy infrastructure. It will then be necessary for IDNR to generate or procure this remaining energy deficit with large scale renewable energy projects at offsite locations or through renewable energy contracts.

<p>Strategy 1: (short-term)</p> <p>Sites where IDNR has agricultural leases in place should be evaluated for the feasibility of solar, wind or other renewable infrastructure that may be installed.</p>	<p>Strategy 2: (short-term)</p> <p>Evaluate IDNR sites or leased properties for the potential of installing and using energy storage systems</p>	<p>Strategy 3: (medium-term)</p> <p>Include renewable energy ratio in electricity procurement contracts.</p>
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Stakeholder Involvement	Community Outreach/Education
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<p>Procurement to understand IDNR renewable energy procurement goals and include language in electricity procurement documents to procure increasing quantities of renewable electricity.</p>	<p>Educational materials would be used to communicate how renewable energy is produced, showing where sites are and communicating IDNR’s increasing renewable procurement.</p>
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Goal #4: Transition away from fossil fuels to renewable energy sources

Objective 4.1: Use heat pump technology where available to minimize energy consumption and ongoing cost impacts.

Even after switching to carbon free electricity sources, natural gas and propane equipment will still be a source of fossil fuel consumption. Replacing natural gas and propane equipment with electric options will allow sites to consume all energy from carbon free sources.

<p>Strategy 1: (short-term)</p> <p>As equipment needs to be replaced and rehabilitation projects are implemented, natural gas and propane appliances and infrastructure should be evaluated for conversion to electric equipment.</p>	<p>Strategy 2: (short-term)</p> <p>As equipment needs to be replaced and rehabilitation projects are implemented, upgrade existing electric appliances to utilize heat pumps or other higher efficiency products.</p>
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<p>Stakeholder Involvement</p>	<p>Community Outreach/Education</p>
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Maintenance staff to identify equipment coming due for replacement and aid in selecting appropriate replacements. IDNR to develop a catalog of equipment that has been found to be good fits at sites for others to consider and contact.

Educating the public about the differences in efficiency or cost of operation per hour of equipment. natural gas vs resistance electric vs heat pump electric, etc.

Objective 4.2: Electrify vehicles and outdoor equipment

Replacing gas-powered vehicles, and gas-powered outdoor equipment with electric and battery options will continue to reduce the carbon footprint of IDNR.

Strategy 1: (medium-term)

When practical, outdoor power tools gas powered equipment should be replaced with battery, electric, or other renewable power sources.

Strategy 2: (medium-term)

Install EV charging locations at IDNR sites including stations for public and departmental use

Stakeholder Involvement

Community Outreach/Education

<p>Maintenance staff to identify equipment coming due for replacement and aid in selecting appropriate replacements. IDNR to develop a catalog of equipment that has been found to be good fits at sites for others to consider and contact.</p> <p>Visitors to identify preferred locations for EV chargers and understand how they will be used i.e. Overnight while camping, quick charge during pit stop, etc.</p>	<p>Educating the public about the differences in efficiency or cost of operation per hour of equipment. Gas/diesel vs battery electric for both yard equipment and vehicles.</p>
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Objective 4.3: Develop a policy where new construction is “NetZero” where all new energy consumption is offset by renewable or carbon free energy generation.

A policy where new construction is “NetZero” will allow IDNR to minimize its carbon footprint going forward, without requiring expensive reconstruction or retrofit projects down the road.

<p>Strategy 1: (short-term)</p> <p>Incorporate energy efficient designs and strategies from the best management practices (BMP) list into design plans for new infrastructure.</p>	<p>Strategy 2: (medium-term)</p> <p>Develop a policy where renewable energy infrastructure is incorporated and built alongside other new projects.</p>
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<p>Stakeholder Involvement</p>	<p>Community Outreach/Education</p>
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Site staff and designers to have conversations about net-zero strategies and their impact on operations. Reducing impact on operations should be encouraged to allow designs to maintain their efficiency over time with changing staff.

Educating the public about the benefits of net-zero construction. Demonstrating how reducing loads makes net-zero easier to achieve.

Goal #5: Secure dedicated funding sources for energy efficiency and renewable energy projects

Objective 5.1: Create a dedicated fund/account for appropriation consideration within IDNR that can be used to implement small scale energy efficiency projects, upgrades, or equipment

Earmarking an amount of departmental funds as energy efficient funds will allow site superintendents to immediately begin replacing equipment with new energy efficient equipment. Without proper funding, the Climate Action Plan will fail.

Strategy 1: (short-term)

Identify funding sources for annual appropriation to fund energy efficiency.

Stakeholder Involvement

Community Outreach/Education

<p>Administration to designate funds for energy efficiency projects and advocate for funding on an ongoing basis.</p> <p>Staff to submit projects for consideration of funding from this fund.</p>	<p>Educating staff and the public of projects funded by the energy efficiency fund and their impacts on utility costs and environmental impacts.</p>
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Objective 5.2: Coordinate with CDB to ensure renewable energy and energy efficient design is incorporated into capital projects.

To achieve and maintain “NetZero” carbon emissions, it will be critical for IDNR to develop a coordinated strategy with CDB on the development of new sites and infrastructure. By requiring energy efficiency and sustainability in the planning phase of new construction will ensure proper budgeting of projects and increase the success of these projects.

<p>Strategy 1: (1 year)</p> <p>Develop Customers Project Requirements document for use by CDB and project engineers. The “NetZero” policy from Objective 4.3 should be included in Customers Project Requirements.</p>	<p>Strategy 2: (short-term)</p> <p>Incorporate natural design including landscape architects</p>	<p>Strategy 3: (medium-term)</p> <p>Quantify renewable energy potential for project locations</p>	<p>Strategy 4: (1 year)</p> <p>Use Best Practices guide to guide project design.</p>
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<p>Stakeholder Involvement</p>	<p>Community Outreach/Education</p>
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Maintenance and site staff to develop Customer Project Requirements in coordination with CDB. IDNR staff to evaluate project recommendations to identify impacts and methods for reducing impacts or improving project performance.

Landscape Architects to review designs to identify methods for improving fitting designs into existing landscapes.

Provide information about lower cost methods for reducing energy impacts and the need for renewable energy including planting trees and other shading methods.

2. Water & Wastewater Working Group Summary

Illinois IDNR Water Resources Action Plan

One of the goals of the IDNR is to preserve the quality and quantity of Illinois’ natural waterways, lakes, and groundwater resources. To preserve these resources for future generations, IDNR will lead the way in reducing water consumption, water waste, and pollution of these resources through responsible site management. The following plan will help IDNR support this mission:

Goal #1: Reduce IDNR’s use of potable water

Objective 1.1: Complete water infrastructure inventory

To better understand the uses of potable water at each site, the IDNR will need to develop an inventory of water infrastructure services for each site. Water use from city water mains is fundamentally different than water use from local groundwater wells. City water must meet consistent standards for quality, while well water sites can vary in water quality depending on local run-off, pollution sources, and climate factors. Maintaining a running inventory of site city water connections and well sites will help with planning for future infrastructure improvements, understanding differing risks to those water resources, and tracking the consumption of water at each site. On top of understanding the water resources at each site, building a database of prioritized sites for water projects will help direct projects where the need is greatest, and track performance over time.

Strategy	Strategy 1.1.1: Track water utility consumption in software, webtool, or central database.	Strategy 1.1.2: Implement metering of wells or estimate use based on park visitor counts and typical water use values	Strategy 1.1.3: Build inventory of IDNR-managed wells and their condition. Use data to prioritize improvements	Strategy 1.1.4: Use strategies 1-3 to develop prioritized list of project sites for water conservation
Timeline:	Short-term: Start building database immediately after selecting tracking software or webtool	Short-term: Develop estimates based on per person usage. Medium-term: Install metering on wells	Short-term: Build inventory and conduct assessments over 2-3 years	Long-term: Start by 2030. Implementation will be an ongoing process

Scale of Adoption:	IDNR-wide policy	IDNR-wide policy	IDNR-wide policy	IDNR-wide policy, regional priorities
Resources/ Internal Education:	Tracking tools: EPA Target Finder, GreenX, Energis, etc. Training on tool usage	Initial use estimates for staff, visitors, etc. Flow metering and communications equipment will be needed to automate data collection	ARCGIS maps already exist. Need to verify sites match reported data. Will need to reference past construction documents or maintenance records	Need to develop prioritization protocol: highest users, highest use intensity (gal/person, gal/sf, gal/acre depending on site and usage types)
Measurable Goals	Have all utility data in tracking program by 2030	Have well metering or reliable estimates developed by 2030	Complete inventory by 2030	Have an initial prioritization list by 2025. Update every 3-5 years.

Stakeholder Involvement	Community Outreach/Education
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Completion of initial inventories will rely heavily on-site managers, engineers, and architects to locate and document existing water lines and their condition.

Utility data gathering will require coordination among multiple groups, including CMS, IDNR accounting offices, and possibly the utility companies directly.

The IDNR webmaster may need to be consulted about updates to the website to document sustainability goals and achievements.

Partner with water conservation groups to highlight IDNR efforts, assist with projects, and identify potential funding sources.

Local parks, Audubon societies, municipal sustainability councils, Environment Illinois, IL Conservation Foundation and others found here: <https://turfcareonline.com/resources/il-environmental-groups/>

IDNR will build a water conservation webpage to highlight projects, document progress toward conservation goals, and reward/highlight staff who contribute major successes or innovations.

Objective 1.2: Implement a policy to reduce potable water consumption at all IDNR Sites

The southern regions of IDNR have greater impacts from seasonal droughts, and many have already implemented policies that all new water fixtures will meet standards for high performance, such as the WaterSense® label. However, sites in the northeast have been less impacted by drought conditions and have not yet implemented similar water conservation policies. To improve equality across IDNR, high-performance water fixture policies will be standardized across all regions. Additionally, sites will be assessed for opportunities to recover site rain and gray water to supplant potable water use for non-potable purposes such as toilet flushing, irrigation, and equipment cleaning. Capturing run-off for use in facilities not only reduces potable water consumption, it also lessens the impact of run-off on local waterways and assists in erosion control.

Strategy 1:

Implement a IDNR-wide policy that during any facility renovation, repair, or construction project, water fixtures for the site will be updated to WaterSense® labeled fixtures.

Policy can be implemented immediately, as it is already in place for a portion of IDNR.

Strategy 2:

Ensure water fixtures have an auto-off function appropriate for the site and usage: push button, motion sensor, or other method to limit water waste. This is often integral to WaterSense® fixtures.

Policy can be implemented immediately.

Recommend targeting lodges and resorts first with bulk replacement projects.

Strategy 3:

Implement a policy to recover water used for handwashing, laundry, and other uses that do not contain hazardous materials for non-potable uses.

Piloting of recovery systems may be needed at public use sites to determine if maintenance is feasible.

Recommend a pilot site per IDNR region implemented by 2035

Strategy 4:

Assess IDNR sites for rainwater capture and use to replace potable water for non-potable uses.

Recommend pilot projects to identify issues and set up procedures for maintenance concerns and identify suitable sites.

Recommend at least two pilot sites implemented by 2035, one northern, one southern.

Stakeholder Involvement	Community Outreach/Education
<p>Site managers and IDNR engineering/architects will be involved in initial inventory of fixtures, as well as replacement and installation of water reduction fixtures. Replacement can be completed largely behind the scenes without impacting non-IDNR stakeholders.</p> <p>Rainwater and greywater capture will require a bit more involvement with the public to understand what water is recovered and how it is used at each site.</p>	<p>Some initial education on the differences between greywater and black water is necessary to determine which water uses can be recovered.</p> <p>Signage and education on what can go down certain drains will help avoid maintenance issues with collection systems.</p> <p>Education on potable water use reductions will highlight IDNR leadership in water conservation.</p>

Objective 1.3: Implement irrigation management practices

Some IDNR sites have planters, landscape features, and green spaces that require irrigation to maintain appearances for the public. These might include the IDNR headquarters, resort and lodge facilities, and plant nurseries. Irrigation is often conducted manually based on the knowledge of IDNR staff or a regular schedule, which can often lead to over-irrigation and water waste. The following strategies will ensure that water is only used for irrigation when natural water sources will not be enough to maintain the health of landscape plantings or nursery plants.

<p>Strategy 1:</p> <p>Establish an IDNR-wide policy stating sites that use water for irrigation of plants will employ soil moisture sensors or other technology to limit over-irrigation and water waste.</p> <p>Policy can be implemented immediately, with phased implementation at sites based on irrigation water use. Initial inventory of irrigation uses should be completed by year 2030</p>	<p>Strategy 2:</p> <p>Reduce the need for irrigation by planting drought-resistant native plants in landscaping features. Also, replace turf grass with prairie plantings and hardier plant species wherever feasible.</p> <p>Many sites are already working toward greater prairie plantings to reduce mowing and site maintenance. IDNR can set a goal to reduce turf grass total acreage each year.</p>
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Stakeholder Involvement	Community Outreach/Education
<p>Site managers, local government officials and the public will need to be aware of changes in mowing patterns to avoid confusion and complaints from visitors used to old mowing practices.</p> <p>State botanists will likely need to be consulted for the best plantings for individual site conditions.</p>	<p>Connecting with local youth conservation organizations can help reduce maintenance and initial planting workloads. Boys/Girls Scouts, FFA groups, and others can help with plantings as part of educational trips.</p> <p>Staff and volunteers will need to be educated on removal of invasive species, care of native species, and other aspects of native planting maintenance.</p>

Goal #2: Improve Resiliency of IDNR Water and Wastewater Treatment

The movement of raw water from its source, through treatment, and to end users consumes energy, as does the treatment of wastewater streams. In the State of Illinois, the average energy impact for water procurements and wastewater treatment is about 5,000 kWh per million gallons. The objective under

this goal will strive to reduce the energy impact of water use and treatment at IDNR facilities, as well as improve the quality of effluent wastewater from IDNR sewage treatment sites. IDNR can host pilot sites for advanced nutrient removal and habitat recovery through constructed wetlands that can be an example for other community and municipal wastewater treatment facilities.

Objective 2.1: Reduce the embedded energy in water use and treatment

Closely associated with water conservation strategies are the strategies to reduce the energy required to obtain and treat water. IDNR will strive to reduce the kWh/MG energy intensity for water use through the following strategies.

<p>Strategy 1:</p> <p>Convert IDNR well water sites, where feasible, to municipal water sources. Centralized water benefits from economies of scale and consumes less energy per gallon than local water wells. Additionally, cost and labor for treatment and well maintenance are off-loaded from IDNR staff, allowing redirection of valuable staff time to other projects.</p>	<p>Strategy 2:</p> <p>Where well sites must be used, upgrade well pumps to the most efficient systems possible. This would include replacing motors with NEMA Premium® or Super Premium® models, optimizing pumps, and including VFDs where assessments indicate they are cost-effective.</p> <p>Upgraded well pumps may also include alarms and monitoring equipment that can ease workloads on IDNR staff in terms of reporting, tracking performance, and condition monitoring.</p>	<p>Strategy 3:</p> <p>IDNR should investigate the potential for micro- (5kW to 100kW) and pico-scale (<5kW) hydropower at IDNR-operated reservoirs, locks, and other waterways.</p> <p>While large-scale hydropower has largely been implemented where it is cost effective, smaller-scale systems that can power individual buildings using flow-of-stream or reduced head applications with smaller turbines may still be viable according to research studies. Projects where the LCOE are less than the current utility rate should be considered.</p>
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Stakeholder Involvement	Community Outreach/Education
<p>These projects may involve stakeholders outside IDNR, such as the Army Corps of Engineers, electric utilities, and local governments. Environmental impact studies will also need to be conducted on the safety of adding piping or hydropower systems to local environments.</p> <p>Each site that implements a form of hydropower will also need to coordinate with local site managers and regional IDNR offices to coordinate maintenance and staff training or negotiate PPAs or similar contracts to outsource such maintenance tasks.</p>	<p>Informing the community of the transition to city water and the benefits may help drive local support for conversion projects. Benefits include improved water quality, a more stable water supply, and redirection of IDNR resources to park services instead of maintenance tasks.</p> <p>In terms of potential hydropower, larger projects may require notifying local communities of changes to waterways, any potential safety hazards to swimmers and boating, and highlighting IDNR’s commitment to procuring viable green energy resources.</p>

Objective 2.2: Improve IDNR wastewater treatment practices

Many of IDNR’s campsites and leased agricultural lands have local wastewater treatment facilities that do basic treatment to prevent eutrophication of discharging waterways. However, most of these plants are likely not optimized for nutrient removal, only performing the minimum treatment required by EPA permits. IDNR’s Elmer Stoffer, the current WWTP director, is already making strides to assess the condition of existing IDNR wastewater facilities to recommend improvement projects.

IDNR’s mission to maintain and restore natural habitats should drive a change in wastewater processing that not only improves the quality of the effluent waters, but also increases the available habitat area for wetland wildlife where possible. This aligns with IDNR’s Strategic Plan to build resilience in natural systems and modernize regulatory programs.

Strategy 1:

IDNR should add constructed wetlands to wastewater treatment facilities where land is available for such addition. Examples of successfully constructed wetlands include [Big Marsh Park](#) and the [Bloomington-Normal Water Recovery District](#). These sites can also serve as learning sites for IDNR staff before implementing their own projects. Pilot projects should be implemented in each region and used as research and educational tools for local IDNR facilities interested in their own wetland projects.

Strategy 2:

Like Strategy 1, IDNR should investigate constructed wetland applications for irrigation run-off at leased agricultural lands to reduce environmental impacts of fertilizer run-off.

These sites can serve to educate local farmers, such as this [sample site](#) noted by the Nature Conservancy. Working with early adopters to identify successes, challenges, and maintenance needs will help IDNR be successful with their wetland projects.

Stakeholder Involvement	Community Outreach/Education
<p>Within IDNR, the current WWTP Director ORC, and Land Management will need to align potential wetland sites. Outside IDNR, IL-EPA, The Nature Conservancy, IL Sustainable Ag Partnership, and other naturalist programs would likely help support research or pilots of constructed wetland projects with grants, training, or other resources.</p> <p>Stakeholders could extend to any state connected to the Mississippi River, and the Federal Government to help abate the Gulf of Mexico Hypoxic Zone. Federal programs that may also support wetland construction include the USDA, US EPA, NRCS, Dept of Energy, Fish and Wildlife Service, and other federal conservation programs.</p>	<p>Concerns about mosquitos are likely to arise with wetlands. Informing the public of mosquito mitigation strategies built into wetland projects will help alleviate these concerns.</p> <p>Raising awareness of the operational needs of a wetland can also help drive further implementation beyond IDNR. If IDNR can set up pilot wetland sites in each region of the state, this offers local educational and training locations for farmers, municipalities, and private water treatment companies interested in wetland removal of nutrients.</p>

Goal #3: Improve IDNR Erosion Control and Floodplain Restoration.

One of IDNR’s core missions is to maintain the natural environment for the enjoyment and education of residents and visitors to the State of Illinois. Part of that involves IDNR sites being designed and managed to reduce erosion of soils and maintain the natural environment for local wildlife and residents. To achieve this, IDNR will employ the following strategies to reduce site run-off, restore natural floodplains, and maintain native habitats that support soil stability and run-of nutrient removal.

Objective 3.1: Decrease IDNR Site Run-off

The following strategies will help to reduce run-off from IDNR sites. Many strategies overlap with water use reduction strategies noted in previous strategies. Reducing run-off from IDNR lands and building sites helps slow the run-off of fertilizers into local waterways, thus reducing eutrophication downstream

in rivers and lakes. Reducing run-off also maintains top soils in place, promoting the growth of native plants and maintaining habitats that support local wildlife.

<p>Strategy 1:</p> <p>Employ permeable paving at IDNR parking lots and along paved pathways to allow rainwater to percolate into soil and groundwater.</p> <p>Permeable paving in lots may also be paired with underground storage of rainwater and used to reduce the consumption of potable water at IDNR sites.</p> <p>Permeable pavers should be employed along pathways where IDNR notes the pathway is allowing or causing excessive erosion of the path or surrounding soils to disrupt and slow water flow causing erosion.</p>	<p>Strategy 2:</p> <p>Install green roofs and/or walls on new and renovated IDNR facilities to reduce downspout run-off and make better use of rainwater at IDNR building sites wherever feasible.</p> <p>The addition of green roofs/walls not only reduces runoff from building downspouts, but it can also reduce stormwater surges to municipal WWTP in communities with combined sewers and expands natural habitat for flora and fauna.</p>	<p>Strategy 3:</p> <p>Convert IDNR parking islands and perimeter turf into bioswales or rain gardens with specialized plantings that help filter and remove road grit, winter salting, and fuel and oil leaks that may occur in the parking areas.</p>
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Stakeholder Involvement	Education/Outreach
<p>Within the IDNR, site managers will need to be engaged, along with landscape architects and biologists/naturalists that can identify the proper plantings for each situation. Site managers will also be engaged with the proper maintenance of these green areas to ensure their continued function, particularly if the green spaces are used to capture rainwater for site use.</p>	<p>IDNR staff will need training in maintaining green roofs/walls, and maintenance of green spaces and run-off management features at each building site.</p> <p>Outside IDNR these practices should be highlighted to help surrounding municipalities and private businesses implement similar practices, expanding IDNRs influence and educational outreach into surrounding communities.</p>

3. Transportation and Fuel Use Working Group Summary

Fuel use is central to IDNR operations. It is a necessary resource to accomplish the mission to preserve its natural resources and further the public's understanding and appreciation of those resources. It is also necessary to manage natural resources and historic sites to preserve those for present and future generations. Even though fuel use generates greenhouse gases, IDNR has significant opportunities to reduce the emissions related to IDNR's fleet, staff transportation, and fuel use at IDNR sites. Goals, objectives, and climate strategies in this summary align with the IDNR Strategic Plan under Goal 1: IDNR will be a state government leader in mitigating climate change; Objective 1: Reduce the IDNR's carbon footprint; Strategy 1.3: Examine general agency operations to determine potential for savings, such as types of vehicles purchased and travel.

The goal of the Transportation & Fuel Use Working Group was to identify strategies that will help IDNR address the impacts of transportation & fuel use through solutions that reduce maintenance, increase efficiency, and allow IDNR to excel in its mission. Eight IDNR staff and two SEDAC staff met over 20 meetings to develop climate strategies to reduce IDNR's transportation and fuel emissions impacts. Working Group members included site managers, site technicians, minerals and mining, volunteer services, and more. The approach to our strategies is to stage rollout and action over time. Starting with a pilot group of participants and amplifying successes will yield more and more voluntary participation without policy. Over time, we anticipate all strategies will be implemented across IDNR.

Goal 1: Increase the fuel efficiency of IDNR's vehicle fleet.

IDNR's vehicle fleet is the most significant emitter of greenhouse gases of IDNR's transportation-related impacts. While fuel is critical to achieving IDNR's mission, there are significant opportunities to reduce fleet emissions by transitioning light-duty vehicles to electric vehicles, implementing vehicle fuel efficiency standards for fleet vehicles, and evaluating efficiency opportunities for IDNR's heavy duty vehicle fleet over time. IDNR has an opportunity to lead the state by bringing an electric vehicle fleet online that reduces climate impacts across Illinois.

Objective 1.1: Evaluate vehicle procurement contracts and standards to increase fuel efficiency.

This objective is meant to reduce fuel emissions by procuring vehicles that are more efficient and meet certain efficiency standards. By procuring vehicles that are more fuel-efficient or electric, IDNR can reduce emissions and air pollution without interrupting necessary operations. This objective will also reduce fuel use and costs for all IDNR departments.

Overall strategy timeframe: Long-term. It will take a significant amount of time to switch all IDNR's vehicle fleet to electric.

Strategy:	1.1.1: Evaluate procurement options to increase availability of fuel-efficient and electric vehicles.	1.1.2: Set vehicle fuel efficiency standards by vehicle category that all new IDNR vehicles must meet.	1.1.3: Continually investigate future options for fuel-efficient and electric heavy-duty vehicles.
Time Frame:	Short to Medium-term	Medium-term	Short-term
Adoption Considerations:	<p>An electric vehicle pilot program will be important to gain buy-in and support for an all-electric light duty vehicle fleet. A pilot can be launched in the next year.</p> <p>Consider impacts state garages; may take time to train staff to maintain new vehicles.</p>	<p>Consider light-duty vehicles as a focus first, expand purview as technology becomes more efficient.</p> <p>Provide fact sheets to site superintendents to support fuel-efficient vehicle procurement options; share economics and climate benefits.</p>	<p>Phase in new heavy-duty vehicles over time and promote successful case studies to increase adoption.</p> <p>Gaining buy-in from site staff will be important. Build fact sheets and host roundtables to share success stories.</p>

Implementation Considerations:

Implementation of this objective should be IDNR-wide and primarily will be driven by policy and staff engagement. Support from headquarters, as well as from supervisors and staff, will be necessary to successfully implement these strategies. It is acknowledged that vehicle purchasing will be governed by available funding, state procurement and contracting rules, capacity and training capability of state garages, and ability of the current power grid to support increased electric vehicle use. Also, an overall state government plan to convert to electric or fuel-efficient vehicles likely may supersede these recommendations. Communication around ongoing strategies and opportunities will increase the likelihood of adoption across IDNR.

An electric vehicle or fuel-efficient vehicle procurement pilot would be an important strategy to gain buy-in and adoption of fuel-efficient vehicles. Even if electric vehicles are not available through CMS, the agency can still go out to bid for electric vehicles and conduct a voluntary pilot with interested IDNR staff. Vehicles that are 10 years or older or that have 150,000 miles or higher could be prioritized for replacement with an electric vehicle. Charging station needs should also be considered for this pilot and activities should coincide with Objective 1.2 below.

Engaging staff in sharing success stories from this pilot, as well as having an opportunity for staff to discuss pros and cons of technologies will increase adoption. An educational webinar would be an effective way to share information about electric vehicles and gain buy-in from staff. Fact sheets focused on electric, or hybrid vehicle technology compared to current vehicles used at IDNR would help staff understand both the economic and climate opportunities of fuel-efficient light-duty vehicles. Fact sheets for fuel efficiency standards and their benefits will also help staff navigate vehicles that fall within those categories and increase adoption.

We also acknowledge that technology and innovation for heavy-duty vehicles is still emerging. We encourage IDNR to research available heavy-duty vehicles, evaluate the current climate impacts of different vehicle classes, and monitor technology as it develops. We believe this can be an ongoing task but can start in the short-term to monitor opportunities for IDNR to lead in piloting fuel-efficient heavy-duty equipment and vehicles with vendors and, as successful, phasing them in over time.

Objective 1.2: Increase access to EV charging at IDNR sites.

The objective is to increase the amount of EV charging stations to encourage the procurement of light-duty electric vehicles, as well as support staff that have electric vehicles (EVs) or those that are considering the purchase of EVs. Some staff already have vehicles that are capable of charging at IDNR, but do not have charging stations accessible to them. This objective will increase the availability of charging infrastructure while encouraging the reduction of emissions and fuel costs by transitioning to electric vehicles. IDNR can demonstrate sustainable transportation leadership in communities across Illinois and promote the use of electric vehicles for residents, businesses, and municipalities.

Strategy:	1.2.1: Install charging infrastructure for IDNR light-duty electric vehicles.
Time Frame:	Medium to long-term

Adoption Considerations:

Promote the transition to EV models for light-duty vehicles by installing charging stations and capabilities for those vehicles.

Buy-in from staff is critical, as they make vehicle purchasing decisions.

Consider piloting both EV charging stations and light-duty EVs at the same time with sites. Sharing results and successes will encourage greater adoption across the agency.

Charging stations should also be made available to the public that visit IDNR sites. Might require electrical service upgrades – consider coordinating with sites’ facilities capital improvement projects.

Implementation Considerations:

Implementation of this objective should be voluntary and launched in the short-term but expanded over time across the entire agency. Education about EVs and charging stations are critical to gaining buy-in from staff that make vehicle purchasing decisions. Opportunities to learn about installation, maintenance and the amount of power used by charging stations is important to drive adoption. Providing fact sheets, as well as webinars or in-person training opportunities, on EV charging stations will increase awareness and support. Any sites with existing charging infrastructure should be documented and a case study should be developed to share widely across the agency. Education about EVs could also be made available for all staff to inform them of the economic and environmental benefits of EVs.

As staff procure electric vehicles, charging infrastructure should also be considered when making those purchases. This objective should align with Objective 1.1, as more EVs are purchased, charging stations should also be expanded. Placement of charging stations across IDNR sites should be equitable and a request system should be established to address equitable access to this infrastructure. Although EV charging electric use is minimal, the cost and use impacts should be acknowledged and shared with staff.

We also recognize that charging stations could also benefit staff interested in reducing their emissions, as well as benefiting the agency and its operations. A survey could be conducted to staff to understand charging station interest at various sites for employee use and stations could be installed where there is demand. Eventually, EV charging stations should also be made available for public use. We acknowledge that there is an EV charging station pilot currently ongoing at the agency. Therefore, we focused this objective on encouraging the adoption of EVs by increasing charging infrastructure for staff and growing an all-electric light-duty vehicle fleet.

Goal 2: Reduce fuel use across all IDNR sites.

Fuel is vital to maintaining the beauty of and protecting IDNR natural resources across the state. Many sites are already implementing strategies that reduce fuel use, such as using landscaping to reduce mowing, transitioning to electric equipment, or using best practices to reduce fuel use and costs. This goal will propel these best practices across IDNR to lower the impacts of fuel use to manage and maintain natural and historic sites. By expanding the use of electric equipment, transitioning grassy areas to native plants, and promoting fuel use best practices for sites, IDNR can manage its lands with climate impacts in mind. Strategies under this goal also provide an opportunity to engage the public in natural resource protection and emissions reduction strategies for their own homes or properties.

Objective 2.1: Use landscaping or native plant restoration to minimize mowing.

Site managers have a significant opportunity to reduce fuel use of mowing by transitioning grassy areas to native habitat. By using landscaping strategies or native plant restoration practices, sites can reduce maintenance time and fuel costs, as well as increase the amount of native habitat at sites. Some sites are already making this transition, but this objective encourages more support, resources, and the creation of pilot sites to encourage more sites to identify land that can be transitioned. The objective also focuses on education and engagement amongst site staff to grow participation in landscape transitions. By using landscaping to reduce mowing needs, IDNR will decrease fuel costs and emissions, while increasing native landscaping that can sequester more carbon over time.

Strategy:	2.1.1: Conduct a mowing assessment of priority sites to identify alternative landscaping or natural habitat opportunities.	2.1.2: Establish pilot sites to implement landscaping or natural habitat strategies and share successes and challenges.	2.1.3: Provide ongoing support to sites that are pursuing projects.
Time Frame:	Short-term, ongoing	Short-term, ongoing	Ongoing

<p>Adoption Considerations:</p>	<p>Staff will need support conducting assessments from outside partners to identify opportunities and assist with management of transition sites as they are getting established.</p> <p>Assessments should include a review of any impacts on visitor experience and recreation. Avoided costs (fuel, maintenance, etc.) should also be estimated during assessments.</p>	<p>Hard data (case studies) and examples of success (field days) will convince others to transition their landscapes.</p> <p>Public education of transition areas is absolutely critical to the success of pilot sites.</p> <p>Coordination with seed banks and nurseries in advance of pilot site establishment will ensure availability of plant material/seeds.</p>	<p>Engage with site managers already experienced with this work. Site mentors could be available for other sites looking to implement similar projects.</p> <p>Sites will need assistance with the development of public education materials and bringing expertise to their sites to transition landscapes. Ongoing support should be provided to assist interested sites.</p>
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Implementation Considerations:

Implementation of this objective should start immediately, and pilot sites can be identified in early 2023. This objective should start as a pilot but expand over time. Mowing assessments are critical to identify areas that can be transitioned and not take away from the visitor experience, while identifying transition costs and emissions reduction potential at a site. Assessments can begin with site volunteers in early 2023, but partnerships or collaborations may need to be developed to support interest from IDNR staff. IDNR should set a goal to evaluate a certain volume of sites within each region over 5 to 10-years to identify mowing reduction opportunities and identify landscaping methods and approaches for these areas.

Initially, we recommend that a goal for establishment of landscaping pilot sites should be about 10% of each region’s landscape footprint, or maybe 10 sites the first year, 15 the second year, etc. IDNR should allow sites to self-select for the pilot and develop their own plans for their sites. Pilot sites could also form a pilot group to also work collaboratively, sharing landscape transition ideas, implementation plans, and coordinate planting materials and/or timing. By bundling transition into a pilot, sites can work together through challenges and find partnerships with external entities that can provide support to projects, such as providing plant material or seeds, establishment support or ongoing maintenance

support. This cross-site support will build deeper relationships across the state and build internal support amongst site staff.

Initial pilot sites could start in the Fall of 2023 and establish their program over the next two years, by fall of 2025. Communications with seed banks and nurseries should be done well in advance to ensure that plant material and seeds will be available. Resources for seed, plant, and partners that could assist with establishment of native habitat sites should be developed in tandem with this pilot launch. Public education materials and signage should also be developed at this time for all sites. As sites are transitioning their landscapes to native plantings or other options, materials such as project planning steps, seed mixes, and other resources can be compiled to share with other site managers interested in transitioning portions of their landscapes. All best practices and resources uncovered during the pilot used should be documented.

Once all pilot sites are established, field days, educational sessions, and case studies should be shared with site staff to highlight the successes of pilot sites. Education and engagement sessions for all site staff will build connections across sites, share best practices, and spark ideas for landscape transitions at sites that have not participated in the pilot. During educational sessions, it is important to highlight cost of implementation, maintenance time and support/partnerships for landscape establishment. Resources used, as well as ongoing maintenance needs, should also be shared so that site staff understand all aspects of establishing and managing an alternative landscape site. Case studies and educational session recordings should be available to all staff to replicate successful projects in the future.

Over time, success should be measured in the number of sites per year who have a landscape transition pilot at their locations. An overall goal for this strategy could be using landscaping and native habitat restoration to minimize mowing by 5% across all IDNR sites. The goal or percentage could certainly be increased or modified after landscape assessments have been completed and the potential for transition is realized. By 2040, we anticipate that every IDNR site will have a portion of their land in transition or fully transitioned to native plants or different sustainable landscape practices.

Objective 2.2: Encourage the use of electric site maintenance tools.

Multiple staff across IDNR are already successfully using electric maintenance tools, such as string trimmers or chainsaws, at their sites. This objective would share success stories and identify electric equipment that can replace traditional gas-powered maintenance equipment to increase the use and transition to more electric site maintenance tools. Supplier and/or manufacturer collaborations, education and training, as well as staff engagement and education are all critical to this objective's success. As IDNR expands adoption over time, sites will reduce fuel use and costs, equipment maintenance needs and make it easier for site staff to maintain IDNR lands.

Strategy:	2.2.1: Identify small equipment that can easily be switched to electric.	2.2.2: Establish pilot sites to test small electric equipment & share experiences across sites.	2.2.3: Demonstrate small electric equipment for site staff; Encourage staff to share successes and challenges.	2.2.4: Phased implementation of larger equipment over time, across all sites as technology improves.
Time Frame:	Short-term, ongoing	Short-term, ongoing	Short-term, ongoing	Medium to long-term
Adoption Considerations:	<p>Electric equipment is usually lighter and easier to carry. This will benefit site staff by reducing the physical impact of site maintenance.</p> <p>Identify equipment that has similar capacity and run time to gas-powered equipment. Identify cost savings with transition.</p>	<p>Documentation of pilot site and test results will be critical for broader adoption.</p> <p>Consider collaborations with equipment providers to test electric models and document results.</p> <p>Any electric equipment must match the power and time needed to complete a job.</p>	<p>Share lessons learned and experiences to encourage more widespread adoption.</p> <p>Documentation of this information, as well as the successful models used, is critical for replication across the agency.</p>	<p>Funding availability for equipment replacement can accelerate agency rollout.</p> <p>Awareness of battery recycling options must be made available to site staff.</p> <p>As more electric equipment that is comparable to current gas-powered equipment is available, more replacements can be encouraged.</p>

Implementation Considerations:

Small site equipment was selected as a target for this objective (e.g., string trimmers, chain saws) over equipment such as lawn mowers or ATVs. After comparing common gas-powered site equipment with electric equivalents, we found that more advances in battery storage and equipment longevity need to evolve before IDNR should invest in widespread replacements of all site equipment with electric counterparts. While some equipment may already have electric counterparts, such as lawn mowers, they are more expensive and do not run as long as gas-powered equipment. Therefore, we encourage testing this larger site equipment over time and pursuing electric equipment replacements for small site equipment, such as string trimmers and chainsaws.

Implementation of this objective will be IDNR-wide, with adoption starting small and voluntarily. To start encouraging a transition to small electric site equipment, IDNR must identify common equipment types that could be replaced with electric models. SEDAC has already completed an analysis of equipment types as a foundation. Equipment suppliers and manufacturers may be open to allowing IDNR to use and pilot electric equipment and document effectiveness before investment. Collaborations like this should be explored to test different makes and models of electric site equipment. Additionally, many sites are already investing in electric maintenance equipment. Equipment types, lessons learned, and best practices should be collected and shared to help identify current equipment that can be transitioned immediately to electric.

Once electric equipment has been identified and case examples have been developed, an educational session or field day should be held to inform IDNR staff of electric maintenance equipment options and opportunities. Staff should have the opportunity to volunteer and pilot this equipment at their sites. Suppliers and/or manufacturers can also be invited to demonstrate equipment at a field day to allow staff to try out equipment before investing or committing to transitioning.

Funding availability to purchase electric equipment is a concern, but sites can plan for this transition over time. Additional batteries and charging equipment would be needed to make this transition, which also increases the overall cost of replacing gas-powered equipment and would add extra maintenance time for IDNR staff. When evaluating implementation costs, make sure this is evaluated and taken into consideration. Regional battery recycling options also should be identified and made available to reduce future environmental impacts.

As sites transition to electric equipment, success stories and lessons learned should be shared across all staff. Initial investment costs, avoided fuel use costs, and emissions avoided should also be calculated and shared. Events, webinars, case studies and fact sheets should be available and offered to help staff make informed decisions for their sites. Ongoing support and sharing will help staff continue to make this transition over time. Goals should be set around the number of sites that have made the transition and total emissions and fuel costs avoided should be tracked. Sharing this progress over time will increase volunteer participation in this transition.

IDNR should continue to investigate larger site equipment electrical models for equipment such as lawn mowers, ATVs, golf carts and leaf blowers. As technology and battery capacity evolves, it may make sense for IDNR to replace these equipment types with electric models as well. Continuing relationships with suppliers and manufacturers can provide IDNR with the ability to test the latest equipment models and continue to make transitions as they see fit. A working group or task force could be formed amongst staff to maintain this activity over time.

Objective 2.3: Encourage staff to use fuel efficiently at their sites.

While fuel is necessary to accomplish IDNR’s mission and manage its lands, there are opportunities for staff to use fuel more efficiently across the agency. This objective is meant to inform staff of practices that reduce fuel use through reducing idling times and fuel-efficient driving practices.

Strategy:	2.3.1: Promote an anti-idling practice to reduce fuel use in vehicles and machinery (supported by education & engagement)	2.3.2: Share efficient fuel use best practices for IDNR vehicles.
Time Frame:	Short-term	Short-term
Adoption Considerations:	<p>Need to determine the best way to educate staff on anti-idling policies. State policy might be able to provide some guidance and examples.</p> <p>Education and engagement are critical steps. Launching this strategy with a policy may come with significant pushback from staff and reduce participation across the agency.</p>	<p>This strategy should be supported by education and highlight engagement across the agency.</p> <p>Fact sheets with fuel costs avoided and IDNR-specific examples should be shared widely.</p>

Implementation Considerations:

This objective and its strategies should be considered for light-duty vehicles primarily and should be shared IDNR-wide. We do not recommend that these practices be made policy at the agency initially. Voluntary participation should be encouraged, and education should be primarily how staff are engaged in these best practices. Listening sessions to both share practices and collect concerns or feedback before sharing best practices widely across the agency should be hosted with all interested IDNR staff.

To increase engagement and participation in these best practices, a competition amongst departments or within departments could be held, or staff could commit by signing a pledge. Creating fun and engaging programs, or gamifying, fuel efficiency best practices will encourage more staff participation and engagement. It could also be an opportunity to build comradery amongst departments, sites, and staff across the agency.

Goal 3: Reduce transportation impacts of IDNR staff.

IDNR staff travel is the second highest fuel emissions category for the agency. IDNR cannot control emissions related to staff travel but can offer remote meeting or work options that reduce the need for staff travel, as well as ridesharing or carpool options, when applicable. This goal will reduce overall fuel use while providing flexibility for staff, where applicable.

Objective 3.1: Incorporate remote work and meeting options, when applicable.

This objective encourages flexibility of remote work where available, as well as encouraging remote meeting options for all staff. Guidance on these two topics will reduce staff travel, fuel use and costs, and overall staff emissions. While this strategy reduces climate impacts, it may not be an option that all staff can utilize. Listening to all voices across the agency before policies, best practices and/or programs in place will be critical to this strategy's success.

Strategy:	3.1.1: Collect feedback from staff around concerns or benefits of remote meetings or work options.	3.1.2: Identify situations where remote meetings or work to reduce fuel emissions, while not disrupting normal workflow.	3.1.3: Provide guidance to staff for remote meetings or work options.	3.1.4: Identify technology needs to support remote meetings or work and provide as needed and when applicable.
Time Frame:	Short-term	Short-term	Short-term – Medium-term	Short-term – Medium-term

Adoption Considerations:	Remote work and meeting options may be applicable to only a small percentage of IDNR staff. Ensuring all voices are heard and understanding the variety of scenarios of applicability or inapplicability are critical.	Conduct a study to understand where remote work and meetings could be possible. Union requirements should also be reviewed for applicability with certain job titles or roles.	Provide unique guidance by department rather than IDNR-wide. Carefully determine scope of where remote work or meetings could be applicable or useful.	Assessing the technological needs of all staff for remote meetings or work is important before providing guidance. Equitable access to technology needed to follow guidance, and funding to purchase equipment, should be considered before sharing guidance.
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Implementation Considerations:

Implementation of this objective should be IDNR-wide but should be department or job specific to address sensitivities to applicability of these practices for different job roles and responsibilities. This objective applies to some portions of the agency’s activities and staff than others. Understanding unique needs across the agency by department, as well as managing communications and expectations around suggested opportunities for remote work and/or meeting flexibility, are important to the success of this objective. For example, site technicians need to be on-site to complete their work. Remote work is not an option for this job role. However, remote options may be available for those that work in Springfield or Chicago offices. Union rules need to be reviewed through this process as well to ensure that compliance with union guidelines is being met.

To successfully launch this objective, technology needs also must be addressed. Upgrading computer equipment at IDNR offices to meet the needs of remote work or meetings, as well as providing at-home equipment (when circumstances permit), must be considered. Understanding technology upgrades and equipment needs and phasing this in over time will allow for all employees equally to participate in remote meetings or work environments. Remote meeting or work guidance should be put into place once technological needs are met equitably across the agency.

Objective 3.2: Encourage staff ridesharing and carpooling, when applicable.

This objective will focus on encouraging ride sharing and/or carpooling when available and applicable to reduce emissions. Opportunities to share rides and carpool may not be available for every department, office or IDNR location, but guidance should be provided to reduce single occupancy vehicle (SOV) use across the agency. This measure will help staff reduce fuel costs, as well as build relationships across the agency.

Strategy:	3.2.1: Assess opportunities for IDNR regions to offer ridesharing and/or carpooling and support the coordination of pathways for participation.
Time Frame:	Short-term
Adoption Considerations:	<p>This objective is situational and depends greatly on the staff and their ability to easily carpool to the office. A variance in schedules or distance between staff may prohibit this objective from being deeply integrated across the agency.</p> <p>Guidance should be developed around how offices can approach setting up this type of program and language should be provided to launch the initiative at IDNR locations.</p>

Implementation Considerations:

This objective may not be an option for all IDNR offices. Education and guidance around how to set up a carpool or ride sharing program should be available for offices interested. Pilot offices should be encouraged, and results of ride sharing should be promoted across the agency. Engaging offices that work in dense regions of the state may yield the best results.

4. Solid Waste Working Group Summary

Energy is required during each step of a product's life – from raw material extraction, manufacturing, transportation, purchase, use and finally to disposal. This means solid waste is directly connected to

climate change due to the energy used to produce all the materials we consume and discard. An organization the size of the Illinois Department of Natural Resources (IDNR), with nearly 1,200 employees, requires a significant number of disposable products and materials to operate. Additionally, IDNR attracts millions of visitors to its state parks each year, and they also consume and dispose of materials during their visits. At this scale, it can be challenging to sustainably manage waste internally, while designing systems to address the needs of visitors to IDNR sites. The situation provides a unique opportunity for IDNR to demonstrate its commitment to sustainability while educating the public. Solid waste can become a useful touchpoint for promoting the benefits and beauty of nature while encouraging visitors to take ownership and responsibility of these natural spaces. Goals and climate strategies in this summary align with the IDNR Strategic Plan under Goal 3: Increase public participation in Illinois' climate change efforts; Objective 1: Develop educational and interpretive programs; Strategy 1.2: Through educational outreach, interpret the meaning and value of Illinois' natural resources to foster appreciation and improve experiences for constituents, with special outreach to stressed communities and underrepresented constituencies.

The goal of the Solid Waste Working Group is to reduce the impact of materials purchased and disposed of by IDNR. Four IDNR staff and one SEDAC staff member met more than 20 times to develop climate strategies to reduce IDNR's solid waste emissions impacts. Working Group members included a site superintendent, office coordinator, laboratory supervisor, and an office director. Our purview for solid waste includes organizational waste streams such as paper, plastic, glass, metals, food, oil, mechanical equipment, chemicals, and paints as well as organic waste and landscaping, plus waste from guests which include food and beverage packaging, camping and outdoor activity supplies, and materials illegally dumped on IDNR property. We are aware that all parks and offices are unique and that one-size-fits-all approaches will not address individual needs. As we work to gather comprehensive waste data, we will consult with sites to provide variety and flexibility. This plan creates recommendations and suggestions that will accommodate the needs and concerns of IDNR staff and visitors while reducing waste and making our sites cleaner.

Goal 1: Develop a strategy for waste reduction, reuse, and recycling

Waste reduction, reuse, and recycling strategies should be applied across IDNR. With so many solid waste management practices available, our intention is to implement pilot projects to test our assumptions on a small scale before deploying specific practices agency-wide. Additionally, we want to ensure our recommended strategies are responsive to the unique characteristics of each site in the IDNR portfolio. This goal will reduce overall resource consumption and decrease waste and associated costs.

Strategy 1.1: Examine general agency operations and collect data

The working group has identified the need to better understand solid waste practices and infrastructure across IDNR's operations. While there are many instances of sustainable solid waste practices occurring, due to a lack of data being collected, it is not possible to adequately assess current practices or make fully informed policy recommendations. Solid waste information exists mostly at the site level. However, this data is not centralized or uniformly reported in a way that can give necessary context to IDNR's total waste production. In addition to the variety of sites and activities that occur in each location, the availability of options for recycling and reducing waste are highly dependent on the local area and available resources. Analyzing the internal and external factors related to solid waste performance will

enable us to make targeted and adaptive recommendations. Some of the metrics that can be tested are quantities of waste sent to landfill, materials diverted to recycling, materials reused, and dumped material.

Strategy:	1.1: Examine general agency operations and collect data
Time Frame:	Medium-term
Adoption Considerations:	To analyze options and strategies we must consider the entire IDNR portfolio. Given IDNR’s rich variety of sites and activities, there could be a mix of mandatory and voluntary requests depending on the ease of access to collecting data. Buy-in is needed from staff members who can assist in data collection and answer potential questionnaires and surveys. In addition to staff, additional engagement could include stakeholders, visitors, and vendors.

Implementation Considerations:

This strategy will require careful consideration when working with employees and vendors to collect and report data. Communicating the importance of gathering accurate data and explaining how it will be used will make a big difference in the time and effort that will be required to collect this data.

Strategy 1.2: Pilot a waste reduction, reuse, and recycling program at selected sites

New solid waste programs will need to be tested at a variety of sites to determine what works in a particular location and setting. It is acknowledged that each site is going to be different, so a one-size-fits-all approach will likely not be effective. Testing potential practices and then tailoring programs to fit each site (or type of site) will increase participation and trust. Site metrics gathered before and updated after the pilot program begins will help evaluate success.

Strategy:	1.2: Pilot a waste reduction, reuse, and recycling program at a few different types of sites
Time Frame:	Medium-term

Adoption Considerations:

The large variety, purpose, size, and location of IDNR facilities and sites require pilot programs at select locations. Guidance from agency leadership will be needed to determine the number of sites and locations for these pilot programs. Identifying voluntary participants and creating a friendly competition between sites can help increase engagement. Sites will be chosen where staff and superintendents are committed to seeing pilot projects through. Pilot projects will need champions (either the superintendent or designated staff) who will keep the project on track. Depending on the site and practices being piloted, this could include visitors and vendors as well.

Implementation Considerations:

This strategy involves operating the pilot and analyzing the results. Choosing the site locations and practices to test is the first step. Next, determining how we want to quantify, analyze, and summarize findings will be key to understanding the success of each program. We want to know the value and costs of implementing certain solid waste practices as well as the visitor and staff attitudes necessary to make these programs work. A focus should be placed on finding opportunities to make these practices easier for staff or other stakeholders to learn and implement.

Strategy 1.3: Propose new practices and perform cost benefit analysis

This strategy utilizes the findings from the analysis of IDNR operations and the results of the pilot programs. From there, we can distill the best solid waste practices to propose for adoption. Advice will be solicited from the Senior Management Team (SMT) regarding the best ways to operationalize these recommendations. A cost-benefit analysis will be undertaken to quantify the impact of each practice.

Strategy:	1.3: Propose new practices and perform cost benefit analysis
Time Frame:	Medium-term
Adoption Considerations:	Determining if proposed practices will be adopted, feasible, voluntary, or mandatory will be decided at an administrative level. Decision makers will need to be on board with helping to move forward with enacting recommendations. Including more people in communicating the costs and benefits across the organization will increase staff buy-in.

Implementation Considerations:

Explaining the costs, benefits, and purpose of the proposed practices along with resources and options available to staff is a proactive and upfront messaging approach for building support at all levels of the agency. The proposed practices will need to be organized into a quick and easy guide that clearly explains any changes in a way that site managers can easily understand.

Strategy 1.4: Create incentives to help motivate staff engagement

This strategy is designed to motivate and engage staff with incentives to achieve better performance in terms of waste reduction goals. Adding new solid waste practices or responsibilities on top of existing staff duties could be a heavy lift. Designing the right kinds of incentives for participation will improve buy-in and adoption of new practices. Some potential incentives could be hats, shirts, or even free lunches. These incentives and the recognition of accomplishment will increase staff outreach that also extends outside the workplace.

Strategy:	1.4: Create incentives to help motivate staff engagement
Time Frame:	Medium-term
Adoption Considerations:	This strategy could both apply IDNR-wide or be designed to specific sites depending on the engagement needs. These incentives could be part of a competition between staff or sites and should be voluntary. Broadcasting recognition of the winners and the solid waste reduction results throughout IDNR will serve to motivate additional staff to participate.

Implementation Considerations:

This strategy is dependent on effective incentives and an incentive program structure responsive to the motivations of staff. The incentives need to be approved and supported by senior management and periodically analyzed to determine staff engagement effectiveness. Clearly communicating the incentive program requirements and managing the logistics of program launch will be necessary for a smooth rollout.

Goal 2: Create a sustainable purchasing policy

What an organization purchases, who it purchases from, and how it uses the goods and services once procured reflects that organization's values. In this goal, the creation of a sustainable purchasing policy will further demonstrate IDNR's commitment to reducing environmental, social, and economic impacts related to procurement. This goal starts with assessing internal procurement practices across IDNR and extends outward to vendors, contractors, and concessionaires. This analysis will drive tactical recommendations and determine pilot programs needed to test new ideas. The impacts of these sustainable purchasing efforts will be quantified and shared internally and externally to connect IDNR actions to the larger picture environmentally.

Strategy 2.1: Assess current procurement practices and performance

A sustainable purchasing assessment should be performed to better understand what is bought and used, and the implications of these purchases. IDNR's procurement division, vendors, contractors, and concessionaires will be engaged and asked to report on the sustainable attributes of the goods and services they provide. This purchasing data will be critical in setting a benchmark and developing goals for future performance and guidance for purchasing contracts. During this process, it will be important to establish a system for reporting and measuring to gauge program effectiveness and promote continuous improvement in purchasing performance.

Strategy:	2.1: Assess current procurement practices and performance
Time Frame:	Short-term
Adoption Considerations:	This strategy touches all of IDNR and extends outward to any vendors and suppliers. The procurement division, any staff involved with purchasing, and those who can help find data will be directly engaged in the assessment. Maintaining healthy communication and thoughtful dialog with vendors during the process will foster collaborative solutions and make it easier to work together to achieve IDNR's purchasing goals.

Implementation Considerations:

Developing the assessment procedure, designing survey questions, understanding how to evaluate sustainable attributes of products and vendors, and processing the results will be necessary to perform a successful assessment. Accurate and actionable data is a priority outcome from this strategy. Translating the data into policy decisions and goals that will be supported will happen at an administrative level. Over time, the effectiveness of the sustainable purchasing policy can be judged via reporting and adjusting implementation as necessary. A robust reporting system will provide accountability to ensure these efforts are maintained and improved over time.

*State of Illinois procurement rules must be considered at all stages of data gathering. Communication with vendors should be vetted through IDNR procurement before reaching out.

Strategy 2.2: Pilot a sustainable purchasing program at the IDNR Cafe and a few concessionaires

Switching to sustainable products and services will require some trial and error as new substitutes are considered. This strategy is designed to help IDNR find and test innovative products and services which help lessen environmental impacts. There are many factors to consider with such changes and stakeholders need to actively participate in this process to make the transition as smooth as possible.

A successful sustainable purchasing pilot program will test sustainable purchasing options at multiple locations to provide a more representative perspective of IDNR operations. The results of the pilot programs will be analyzed and shared to help communicate the purpose of these newly vetted purchasing practices. The aim is to set an example that will inspire concessionaires to adopt these practices at their other locations and educate guests at the same time. If the public understands why we employ these practices, they may incorporate the practices into their daily lives.

Strategy:	2.2: Pilot a sustainable purchasing program at the IDNR Cafe and a few concessionaires
Time Frame:	Short-term
Adoption Considerations:	The sustainable purchasing pilot programs will require buy-in from key contacts who can champion these practices and help operate the pilot at their site. Vendors will need to be engaged in the design and operation of the pilot programs as well. Additionally, the vendors should be recognized and incentivized for their sustainable efforts. Consideration of how to communicate changes to visitors will help to prevent possible confusion and frustration with new products or services.

Implementation Considerations:

Coordination of pilot program objectives with the staff or concessionaires helping to enact these new purchasing policies are key for this strategy to succeed. These partners need to have pertinent information explaining the reasons behind these new practices as well as resources and guides on how to implement them. Including visitors in the process by sharing the reasoning and results behind the changes tested in the pilot program will help IDNR establish leadership and educate the public on these important practices.

Measuring performance and evaluating the results of the pilot program is as important as program design because this is where improvements will be identified. These results should be reviewed with the vendors to seek their input.

Strategy 2.3: Analyze the current status of the recycling industry to determine what materials should be purchased

High staff confidence that IDNR’s new sustainable solid waste practices will lead to meaningful results will improve participation. Specifically, there is a need to acknowledge how rapid changes occurring in the recycling industry and post-consumer recyclable materials markets affect whether materials will be recycled or landfilled. The results of this analysis can inform purchasing decisions to ensure the time, energy, and money spent to increase recycling is not done in vain. Establishing a plan to periodically

analyze the recycling industry and adapt procurement practices accordingly will inspire trust and encourage participation in recycling programs.

Strategy:	2.3: Analyze the current status of the recycling industry to determine what materials should be purchased
Time Frame:	Short-term
Adoption Considerations:	<p>Analytical methods to assess the recycling industry still must be determined. How frequently this analysis is updated should be tied to the timing of purchasing contracts and when data on the recycling industry is typically reported or made available.</p> <p>There is an opportunity to foster relationships with outside agencies, such as the Illinois EPA, the Illinois Recycling Association, and others to source the data used in this analysis. These partners could also help disseminate the findings to the public to encourage their participation in recycling programs at IDNR locations. Making the final report easily shareable will spread this information to a wider audience.</p>

Implementation Considerations:

How the analysis is used may be the most important aspect of implementation. Packaging and presenting this information in a digestible format that can be shared with staff and the public will make the analysis more useful. This analysis is especially useful for engaging staff internally who may doubt the utility or effectiveness of recycling and should help boost participation and prevent people from feeling like these practices are part of a lost cause. This process provides a voice for staff that ensures their concerns are heard. Staff will also know that recommendations regarding recycling practices have been thoroughly researched.

Strategy 2.4: Connect IDNR purchasing practices to the larger picture of environmental impact

Messaging should be developed to convey the impacts of IDNR purchasing decisions in relatable ways that demonstrate the purpose of sustainable changes and the resulting positive benefits. Looking at the big picture and showing how purchasing decisions affect the organization, and the environment will illustrate the need for these sustainable purchasing practices. This messaging will supplement training for vendors and procurement staff who interface with any new purchasing procedures. Additionally, the messaging will be useful for taking in feedback and explaining the reasoning behind new practices and products to address possible concerns or complaints by visitors.

Strategy:	2.4: Connect IDNR purchasing practices to the larger picture of environmental impact
Time Frame:	Short-term
Adoption Considerations:	<p>Sometimes, messages must be relayed that people may not want to hear. This means special consideration should be given to properly understanding science and diplomatically communicating the information.</p> <p>There is an opportunity to foster relationships with outside agencies, such as the Illinois EPA and others to help calculate savings and impact of IDNR purchasing practices. These partners could also help disseminate the findings to the public to encourage their support of IDNR’s sustainable solid waste purchasing practices. Making the final report easily shareable will spread this information to a wider audience.</p>

Implementation Considerations:

The messaging to be developed in this strategy needs to be based on high quality and trusted data sources. Messaging will need to be translated into understandable and relatable terms that connect with the audience. Most importantly, the messaging will need to be shared internally and externally, and be made available on the IDNR website, social media posts, at public facing events, and on posters at specific sites. This messaging can be instructional, where feasible, while also raising awareness of the impacts of IDNR’s sustainability efforts.

Goal 3: Engage the public to participate in waste reduction strategies

Creating a dialog with the members of the public who visit IDNR sites is critical to developing an understanding of IDNR’s sustainable solid waste programs. The public plays a significant role in the quantity and quality of waste that IDNR must manage. The decisions made by the public, both ‘upstream’ with what they choose to purchase and ‘downstream’ with how they dispose of it, affects all sites, and has implications for how IDNR staff must use their time and resources. Making an intervention before visitors make their purchases or before they dispose of it can greatly impact IDNR’s costs for dealing with solid waste issues. Successfully engaging the public in these waste reduction strategies will make all solid waste practices more effective and inspire people to incorporate these practices at home and work.

Strategy 3.1: Study how guests utilize waste management infrastructure and identify opportunities for improvement and how to reduce dumping

Surveying guests to find out what materials they bring into IDNR sites and how they dispose of them will provide valuable insight. Each site and every guest are unique, which means a tailor-made approach will work better than a one-size-fits-all approach. Currently, most site managers are very knowledgeable about guest litter habits and illegal dumping issues due to managing and cleaning up this waste at their sites. Collecting and analyzing this information from site managers and combining it with data from guest surveys and interviews will result in a more comprehensive view at both the site and department-wide level. This information will enable us to compare sites and find patterns to identify successful waste management strategies that can be shared and implemented at other sites. Additionally, this process will provide an inventory of the types and quantity of materials that are dumped on IDNR properties that can be used to create a plan for curbing dumping.

Strategy:	3.1: Study how guests utilize waste management infrastructure and identify opportunities for improvement and how to reduce dumping
Time Frame:	Medium-term
Adoption Considerations:	The scope for this strategy should extend to all sites visited by the public. We want to thoughtfully engage site managers and guests via surveys and other means to gather the necessary information. Making the process streamlined and easy to complete will lead to greater participation. IDNR will need to connect with hard-to-reach communities and sites.

Implementation Considerations: Implementation will involve the collection of data and then translating it into actionable tactics to address littering and dumping issues. Understanding the full extent of the problem will allow for nuanced approaches that can address the specific needs of each site. Administering and communicating new procedures and policies to the public will be important as the agency considers multiple methods for reaching guests to make sure the messages will resonate.

Strategy 3.2: Research successful strategies implemented at other parks and sites (e.g., Pack-In, Pack-Out)

For this strategy, IDNR will research the sustainable solid waste practices implemented at other leading parks and natural areas around the world to glean ideas that could be adopted at IDNR sites. IDNR is not alone in its efforts to address littering and dumping at natural areas. Connecting with and learning from other leading organizations will expand our toolkit of possible solutions and build relationships.

Strategy:	3.2: Research successful strategies implemented at other parks and sites (e.g., Pack-In, Pack-Out)
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Time Frame:	Short-term
Adoption Considerations:	The research will be focused on national and global leaders and the results will be shared throughout IDNR. As new practices are continuously being developed, IDNR should determine the frequency for repeating these inquiries to stay on the leading edge. IDNR seeks to be a leader in sustainable best practices and should form mutually beneficial relationships with other leading organizations to share findings and learn from their experiences.

Implementation Considerations: IDNR should develop a repeatable process combining internet research and directly contacting representatives from outside organizations to collect information about innovative solutions to litter and dumping issues. Developing a current list of sources and organizations will ensure better research and make it easier to repeat the research in the future. Additionally, learning about best practices in outside organizations could also expand beyond solid waste or sustainability to help IDNR continuously improve and innovate as an organization.

Strategy 3.3: Pilot a Pack-In, Pack-Out program at a few sites

IDNR is seeking to understand where and how Pack-In, Pack-Out programs are appropriate at IDNR sites. Pack-In, Pack-Out is a movement being implemented by parks across the country to keep our natural spaces free of litter. Additionally, these actions help increase the sustainability and viability of recyclables, protect wildlife and the environment, help save on maintenance costs so that resources more directly benefit site users, and eliminate human-made trash cans to provide more scenic views.

Every IDNR site is unique and has different needs and capacities for implementing Pack-In, Pack-Out programs. For this reason, the working group recommends piloting Pack-In, Pack-Out programs at select IDNR sites to get a sense of what works and what site attributes are ideal for these programs. A small-scale pilot that identifies and works through issues will make it easier for additional sites to consider adopting these programs.

Strategy:	3.3: Pilot a Pack-In, Pack-Out program at a few sites
Time Frame:	Medium-term

Adoption Considerations:

The Pack-In, Pack-Out pilot programs will require buy-in from key personnel that can champion and operate these pilots at their sites. This pilot is voluntary. Sites wishing to join the pilot need to be self-motivated and willing to work to share data and experiences during the pilot process.

Vendors and visitors will be impacted by the new Pack-In, Pack-Out practices and will need to be informed and educated about the program and how they can fully participate. Proactively addressing potential concerns with outreach and signage will reduce confusion and frustration of people who may be new to Pack-In, Pack-Out programs.

Implementation Considerations: The pilot programs will be crucial to understanding how to grow Pack-In, Pack-Out programs across IDNR. This is not a one-size-fits-all solution because the recycling infrastructure and available resources can be very different depending on the region of the state. However, with the lessons learned from the pilot programs, we will be able to tailor solutions to each site to give site managers flexibility. By identifying and providing resources and tips for sites considering Pack-In, Pack-Out programs, we can increase the number of site managers volunteering to try out these new programs.

Volo Bog State Natural Area has already launched their own Pack-In, Pack-Out program and is willing to share their lessons learned and advise on how to help the other pilot programs get started. This site will also be included in the pilot program as the very first IDNR site to try a Pack-In, Pack-Out program.

Strategy 3.4: Communicate the connection between litter, wildlife, and the value of beauty/nature

This strategy is designed to encourage guests to appreciate the value of nature and treat the parks and sites with greater care. When successfully executed, Pack-In, Pack-Out will have a major impact on guests and educate them beyond their interactions with IDNR. Developing a messaging campaign and engaging the public can help communicate the sustainability goals of IDNR and educate people about the impacts of their actions when visiting sites.

Strategy:	3.4: Communicate the connection between litter, wildlife, and the value of beauty/nature
Time Frame:	Short-term

**Adoption
Considerations:**

This strategy is focused on visitors, but it can also be shared with vendors and other outside audiences. The research and messaging can be developed internally and in partnership with other agencies and community groups.

IDNR may wish to engage human dimensions experts to help develop and promote the messaging internally and externally.

Implementation Considerations: Success is dependent on IDNR’s ability to connect with the public. Understanding how the public views IDNR sites (entertainment venues versus natural areas) is key to success. Highlighting the effects of littering and dumping on wildlife and the experience of visitors can illustrate the need for public participation in keeping sites clean. Raising awareness about the quantity of litter, wildlife impacts, disposal costs, and staff time will demonstrate relevance of the pilot project.

5. Equity & Inclusion Working Group Summary

Goal 1: Ensure that all Illinois Department of Natural Resources climate action strategies and implementation take place equitably and connect holistically with existing and planned diversity, equity, accessibility, and inclusion (DEAI) activities.

1. Objective: Comprehensively address issues of discrimination and systemic injustice by seeking to understand their complexity, officially recognize their interconnectedness, and unite to overcome their disproportionately negative effects on disadvantaged and underserved people and communities—e.g., in the climate change-related realms of public health, housing, and environmental degradation

1. Strategy: Continue IDNR’s DEAI strategic planning committee and incorporate these Climate Action Plan Equity & Inclusion goals, objectives, and strategies into IDNR’s broader strategic planning process
 2. Strategy: Continue IDNR’s DEAI training for new and existing departmental hires, especially for new and existing positions related to Climate Action Plan implementation
 3. Strategy: Seek input on DEAI strategies and activities, especially those relating to climate change and departmental climate change mitigation, from diverse organizations and experts involved in environmental and social justice advocacy (Ref. Goal 3.1.a – 3.3.a)
2. Objective: Ascertain and assess the past, ongoing, and planned equity and inclusion activities of IDNR and how they potentially complement or contend with recommended climate action strategies within this plan
 1. Strategy: Inventory IDNR goals, objectives, strategies, and activities related to equity, inclusion, and outreach to underserved and disadvantaged communities (Ref. Goal 3.1.a – 3.3.a)

Adoption Considerations: The Climate Action Plan must consider existing departmental activities, especially within the DEAI committee to the strategic plan, and incorporate progress towards DEAI goals. A big part of this must be organizational integration—either one or multiple staff serving on both groups. These strategies will also require a survey of other sectional activities such as DEAI training completion rates and personnel rolls, strength of contacts and partnerships (past, present, and planned) with outside climate equity-related community-based organizations, grants awarded to or provided for the support of underserved people and communities regarding climate change. In conjunction with the Education & Engagement working group, a small team of support personnel can create a survey/questionnaire that will help inventory and categorize existing activities, organize and place requests for information for each departmental division or section towards this goal.

Timeframe: *Immediate to 1 year – Start by 2023-2024 and achieve ongoing programmatic sustainability by 2025.* Although these activities will be ongoing and potentially long-term to achieve significant success, they are foundational and must take place before other work can begin. As work on the Climate Action Plan proceeds, these goals should be considered sequential and strategies ongoing unless otherwise stated.

Goal 2: Identify, prioritize, and engage communities who have been both disproportionately impacted by climate change and systemically disadvantaged in the allocation of resources (e.g., government funding, activities, and beneficial supports).

1. Objective: Using a variety of available mapping tools and data resources (e.g., the Federal Justice40 Initiative and EPA’s EJSCREEN), develop equitable criteria for identifying these communities and opportunities for partnership and relationship building with IDNR
 1. Strategy: Define “disadvantaged community”, “environmental justice community”, “underserved community”, “stressed”, “underrepresented”, “frontline”, etc. and craft language that achieves the most empowering and accurate description of the climate challenges facing these communities in Illinois
 2. Strategy: Identify where IDNR lands and properties intersect with these communities and prioritize projects that simultaneously address climate change AND enable inclusion and accessibility to community members within those spaces.
 - i. Map these communities in relation to IDNR facilities and lands by utilizing available local/state/federal social vulnerability data and existing mapping tools
 - ii. Emphasize the proper community scale—neighborhood, zip code, city, etc., and/or self-defined social community—and provide careful interpretation of the map that includes necessary background and context
 3. Strategy: Consider both where these communities are disproportionately exposed to environmental harms AND where they are lacking environmental assets (such as access to green spaces). Identify these gaps to then prioritize future grants and allocation of other resources (Ref. Goal 5.1.a – 5.1.c)
2. Objective: Conduct regular, systematic internal reviews/audits of these activities to ensure programs are achieving goals and meeting community and departmental needs (regularity to be determined – perhaps on a 1- to 3-year cycle)

Adoption Considerations: As with Goal 1, information requests, project tracking, and community engagement are central to Goal 2. Implementation personnel should create files pertaining to subject communities—contacts, communications, partnerships, grants, or other types of outreach—and assess gaps within the state given the definitions of disadvantaged areas outlined in the stated resources. Another example is the USFS Community Accomplishment Reporting System. Coupled with metrics already used by the Urban and Community Forestry Program to measure a community’s capacity for tree coverage, planting, and care, IDNR can determine which communities may be at greater risk from the impacts of climate change and prioritize and plan engagement accordingly.

Timeframe: *Begin by 2025 and achieve ongoing programmatic sustainability by 2030.* Goal 2 strategies require significant investments in staff time and resources, not only to ascertain existing projects and partnerships, define communities, and identify gaps, but also to plan and execute engagement processes that achieve sustainability and build trust. In this regard, partial or nominal investments could end up doing more harm and wasting more resources than either doing nothing or fully funding a robust community engagement program.

Goal 3: Recognize members of these communities as experts in their own lives and empower them to 1) call out and undo disparities in the negative impacts of climate change on their communities, and 2)

reveal and eliminate the inequitable allocation of public funds to IDNR projects where they result in disparate effects on these communities. (Ref. Goal 5.2)

1. Objective: Work directly with community members and gain their trust; prioritize support, empathy, attentiveness, sensitivity, and context in public engagement and outreach
 1. Strategy: Promote this approach in all IDNR's new and existing partnerships, but especially with schools, libraries, and other community organizations centered around IDNR's climate action (IDNR's Greenways and Trails program serves as a primary example of this partnership development approach)

2. Objective: Develop empowering partnerships with environmental justice organizations that are already engaged in equitable climate mitigation work within these communities; IDNR must assume a supportive, mutually beneficial learning role that centers community-driven solutions
 1. Strategy: Identify, reach out to, and collaborate with nonprofits and other organizations that are leaders in the environmental justice movement and that exemplify the climate action and equity and inclusion goals of IDNR
 2. Strategy: Promote positive and successful examples (case studies, partnerships, programs, infrastructure projects, events) where IDNR worked to support and benefit these communities; the IDNR Urban and Community Forestry program, for instance, regularly partners with community-based nonprofits

The IDNR Forestry Division works to assist under-resourced and rural communities to advance their community tree preservation and care programs. IDNR Forestry is utilizing a partnership with Heartlands Conservancy to outreach to Metro East Illinois communities and provide these under-resourced communities with technical support in developing community ordinances and establishing local urban forestry advocacy and advisory committees.

In partnership with the nonprofit Trees Forever, IDNR provides select communities with tree planting grants of up to \$3,000. IDNR and Trees Forever have also created an Urban Forest Strike Team that assists under-resourced communities after disaster events by providing tree risk assessments and tree management plans to these communities. This year IDNR and Trees Forever provided Eureka, Illinois a tree risk assessment of their community park trees as part of a mock strike team training deployment.

The US Forest Service State Urban Forest Resiliency program recently awarded IDNR's Forestry Division a grant of \$456,000 for a collaborative project led by the Morton Arboretum's Chicago Region Tree Initiative (CRTI). The partnership will address tree losses caused by the emerald ash borer and help develop resiliency in seven Chicago communities. Along with the City of Chicago and IDNR's Forestry Division, the CRTI partnered with community-based organizations in each of the seven identified under-resourced and under-

canopied Chicago neighborhoods. The community organizations and members of the City of Chicago Tree Equity Working Group will work through their established networks to build community support for trees, provide instruction on how to plant and care for trees, help residents understand the value and benefits of trees, and identify locations for 700 new trees in areas where trees are typically not requested. The CRTI will administer the grant and work with the community groups to provide training, resources, and tools, and the City of Chicago will provide and plant the trees.

The IDNR Forestry Division has also secured a partnership with the nonprofit Openlands to extend urban forestry assistance provided by their TreeKeepers program to Chicago communities and neighborhoods identified as vulnerable. The Openlands TreeKeeper program recruits local volunteers to complete Treekeeper training and assist in the local planting and care of community trees. Through IDNR support, the Openlands Treekeeper program also provides training in Spanish and offers bilingual volunteer opportunities and events. Trained Treekeeper volunteers often go on to further their careers in the arboriculture, landscape, and horticulture profession.

3. Objective: Affirming the necessity that all of IDNR’s grant writing, NOFOs, and award processes take place equitably, ensure that IDNR’s external funding processes specifically related to climate action take place equitably
 1. Strategy: Develop recommendations—eventually codified quotas—for IDNR’s climate action-based grants that must be awarded to projects within the identified communities and/or to organizations which are minority- or women-led
 2. Strategy: Link new partners, organizations, and identified communities with grant-funding opportunities

Adoption Considerations: Following from the cataloging and engagement groundwork of Goals 1 and 2, Goal 3 details the kind of engagement process IDNR should cultivate for its staff and its potential partnering communities. As such, personnel may need skills or training beyond the existing DEAI modules that IDNR provides internally. Climate equity advocates, organizations, or even other state agencies could help supplement, especially once partnerships have been established. Program management needs could also be intensive—requiring effective staff with sufficient knowledge and resources—and active coordination with communications staff and the Education & Engagement working group must take place to promote and amplify success stories that champion DEAI values without devolving into tokenism.

In the case of grant writing processes for climate-related projects, the working group advises *recommending* rather than prescribing a certain level of funding for identified disadvantaged communities and minority- or women-led organizations to gauge the relative success of such efforts. Recommendations are more flexibly applied and do not have the potentially punitive aspect of codified quotas. If recommendations prove effective, IDNR can reassess and codify them. Nonetheless, these recommendations underline the necessity to support disadvantaged communities financially.

Timeframe: *Begin by 2025 and achieve ongoing programmatic sustainability by 2030.* Though some aspects of this engagement approach can and should be developed immediately, fulfillment of this level and type of process takes considerable time and resources. Building trust does not happen overnight, and funding worthwhile community projects requires extensive staff and vetting. The Equity & Inclusion working group envisions these engagement goals taking place successively and incrementally following, in many respects, from one goal to another.

One way to test efforts before addressing multiple areas or regions at once would be initiating a scalable pilot program involving one, two, or three communities within a five- to ten-year period and concentrating community engagement activities and resources in those areas alone for that timeframe. Depending on levels of success, goals achieved, and available resources, the program could expand.

Goal 4: Emphasizing IDNR’s need to become a diverse, equitable, accessible, and inclusive organization that reflects the considerable diversity of the state of Illinois, endeavor that all new and existing personnel who work to implement climate action strategies understand and uphold these values.

1. Objective: Address the hiring process to attract and diversify workforce talent for all personnel involved in climate action strategies
 1. Strategy: Market and promote positions to diverse candidates through social media and other channels
 2. Strategy: Incentivize direct communication and referrals between current diverse staff and prospective diverse candidates
 3. Strategy: Reduce barriers to obtaining IDNR jobs (ensure competitive salaries, create accessible application process, provide help navigating qualifications, allow for remote and flexible schedule opportunities)
 4. Strategy: Even the playing field for positions (consider outside applicants in addition to interdepartmental hires)
 - i. Consider giving outside applicants interview questions ahead of time so they can prepare equitably versus someone within IDNR
 5. Strategy: Implement a guideline akin to the NFL’s “Rooney Rule” for IDNR climate-related personnel when diverse candidates apply (department must interview a certain minimum percentage of diverse candidates for open positions)

1. Objective: Acknowledging IDNR’s current lack of diversity, promote a culture of inclusiveness within all divisions working to implement the Climate Action Plan
 1. Strategy: Engender a culture of difference and diversity through marketing materials and promotion of climate events and projects (Ref. Goal 3.2.b and 6.1.a)

- i. Create effective branding for IDNR as an organization that desires and pursues equity, diversity, inclusion, and difference (pictures/images, printed material, website, etc.)
 - ii. Highlight diversity within department (promote successful climate projects that involve diverse communities and partners)
2. Strategy: Improve interdepartmental communication by focusing conversations on climate change, diversity, and representation (coordinate planned lunch and learns with the DEAI committee, departmental trainings, guest speakers) (Ref. Goal 6.1.a)
 - i. Make sure different divisions speak with each other to break down silos and cross cultural and locational boundaries (e.g., urban/rural divides)
3. Strategy: Start an IDNR-sponsored climate change campaign for equity and inclusion on social media
 - i. Engage with diverse professionals on social media (LinkedIn, YouTube, TikTok, Facebook, and similar platforms), create engaging videos or engage existing creators to inspire future IDNR professionals
4. Strategy: Engage young professionals to contribute to IDNR's climate change goals and attract diverse candidates to IDNR's hiring pool
 - i. Engage with diverse college student groups and organizations at job fairs and on campuses, through social media channels as well
5. Strategy: Partner with workforce development groups to add diversity and value to IDNR's climate change projects
 - i. E.g., the training and education nonprofit OAI working with Greencorps to develop a workforce for green infrastructure maintenance
6. Strategy: Organize affinity groups for staff to encourage mentorship, bonding, camaraderie, and solidarity

Adoption Considerations: In drafting Goal 4, the Equity & Inclusion working group discussed the relative difficulty and seeming paradox of trying to build trust in disadvantaged communities when IDNR itself lacks much diversity, on the one hand, and trying to attract diverse candidates and ensure a supportive and inclusive work environment when recruitment of BIPOC candidates can itself be difficult in an organization that lacks trust within disadvantaged communities, on the other hand. The two objectives are mutually reinforcing. Thus, following Goals 1-3, IDNR must similarly inventory its hiring and recruitment practices to determine how to achieve a diverse workforce. Though these strategies may require more time and effort from personnel conducting the inventory and cataloging of DEAI activities where they overlap with climate action projects, e.g., in Human Resources, they will be a boon to both outreach and hiring if implemented.

Further barriers to implementation of Goal 4 are considerable. In addition to the inventory and information requests, these comprehensive strategies require extensive buy-in and coordination: from HR, marketing, and communications divisions to the Education & Engagement working group and

personnel implementing the Climate Action Plan. The CMS system itself may prove challenging to work with if it restricts any of these provisions. Social media messaging also requires a certain level of competency to properly execute these strategies, necessitating training or additional hires. Again, IDNR can take an incremental approach and apply these recommendations in certain instances, perhaps when it comes to hiring outreach and communications personnel who will be instrumental to the Climate Action Plan. Composing a diverse workforce and reaching out to diverse communities will ultimately help IDNR to make Illinoisans of all backgrounds across the state feel included and valued. When that happens, IDNR will see the difference in its climate action.

Timeframe: *Begin by 2025 and achieve ongoing programmatic sustainability by 2030.* Much of this coordination can begin immediately, but the guidelines likely will not become effective until the divisions listed above lay the groundwork for recruitment of diverse candidates within Climate Action Plan tasks. Moreover, achieving a more diverse IDNR will be an ongoing endeavor inclusive of climate-related work.

Goal 5: Ensure equitable access to IDNR sites and resources by these identified communities.

1. Objective: Address impact disparities for climate change AND for IDNR-implemented climate mitigation measures (Ref. Goal 1 – 2)
 1. Strategy: Ensure that the IDNR Climate Action Plan and working groups take into account systemic disparities in the allocation of resources to these communities
 - i. Develop questions and guidelines for Climate Action Plan working groups to adhere to when implementing climate mitigation strategies at their sites and in their communities
 1. Strategy: Conduct climate risk assessments to identify which communities in Illinois will be most impacted by climate change
 2. Strategy: Equitably apportion and allocate IDNR resources—especially those related to climate mitigation and infrastructure projects—to underrepresented communities; prioritize implementation of mitigation measures that will benefit those most impacted
2. Objective: Develop a public engagement plan to capture and prioritize experiences, perspectives, ideas, and strategies most important to community members disproportionately impacted by climate change
3. Objective: Create a language accessibility plan for all of IDNR’s public-facing climate change material/signage
4. Objective: Create an adaptable site accessibility template for use at all of IDNR’s public sites to engage members of the identified communities
5. Objective: Increase public and active transportation options to IDNR parks and lands to and from the identified communities
 1. Strategy: Create and make widely available resources (maps, transit schedules, apps) to increase IDNR site use by visitors from these communities

Adoption Considerations: Some of this work has already begun. As other working groups prepared their goals and strategies, Equity & Inclusion drafted questions and guidelines for use by each other working group to assess the potential impact on disadvantaged communities, and to plan for alternatives that mitigated or eliminated foreseen disproportionate or other negative impacts (the International Association of Public Participation (IAP2) also provides a useful framework to ensure equity):

Try to think beyond the emissions reduction purpose of the strategy:

- *Does this impact surrounding communities or visitors?*
- *Are there groups of people who would be adversely impacted by this strategy or who would require additional explanation if the strategy moved forward as written?*

Think beyond convincing and argumentation for or against a certain strategy:

- *Consider how diverse audiences—internal, external, or both—could assist in the implementation of decision making that goes into the strategy.*
- *Would the strategy outcome be better with engagement?*
- *What other steps must be taken to ensure this?*

Having thought about potential impacts on diverse audiences and communities:

- *How will this strategy promote real collaboration and partnership development to achieve the desired outcomes and ensure equity?*
- *Is this goal/strategy useful to people of different identities, backgrounds, and abilities (i.e., BIPOC, non-English speakers, people with disabilities, low-income, home-bound)?*
- *Can this goal/strategy be enhanced to be more approachable to and inclusive of diverse groups?*
- *Does this goal/strategy result in equal outcomes for all IDNR staff and/or community residents?*

Developing from the inventory outlined in Goals 1-2, determination of past/historic levels and allocation of funding for identified communities is vitally important. This foundational work will help set the stage for a pilot or full-scale, statewide engagement plan. Depending on these past investments and assessed needs, execution of community climate assessments presents further opportunities from the community engagement approaches listed in Goals 2-4. IDNR can partner with communities and/or organizations to assess climate risk in one to three communities as part of a pilot, then scale accordingly. Site accessibility and transportation plans may then develop organically, with community support and municipal and IDNR partnership, and operate on the local level as responses to individual community climate risk assessments.

The Equity & Inclusion working group and DEAI committee must coordinate closely with the Education & Engagement working group to ensure that any public engagement plan champions equity and all the values of IDNR. Centering disadvantaged communities in this plan should help, and one way to promote inclusion and accessibility is through language and communications. Non-English-speaking immigrants and people with disabilities will not have opportunities to engage unless resources and published materials, like educational handouts and the IDNR website, are provided in native languages, e.g., Spanish and Hindi, or text-to-speech-enabled formats. IDNR should strive to follow best practices for state agencies and large cities across the country.

Timeframe: *Begin by 2030 and achieve ongoing programmatic sustainability by 2040.* Obviously much of this work will take place right away, but the climate risk assessments, engagement plan, and site plans will involve considerable time, resources, and effort. Aiming for completion of the work—or scaling and ramping up of ongoing projects—by the next decade creates a realistic timeline for success.

Goal 6: Increase public participation and outreach within Illinois' climate change efforts. (Ref. Goal 3, 5)

1. Objective: Develop educational and interpretive programs that serve to elucidate the links between the natural environment, human society, culture, history, and climate change
 1. Strategy: Create public-facing resource materials, exhibits, and events that interpret the climate history of Illinois and place past climate change in context with current events for the public
 - i. Include interpretations of cultural history—emphasize indigenous land ownership, how past environmental management decisions have impacted certain communities
 - ii. Tell diverse stories that reflect Illinois's rich and diverse cultures and histories (e.g., the African American Heritage Water Trail)
 - iii. Go beyond IDNR spaces—think of ways to bring department resources to communities at existing events and outreach (bike tours, mobile history lessons, field trips, classroom lessons at schools and libraries, etc.)
 - iv. Use social media (YouTube, TikTok, Facebook) to create and post educational content that promotes and explains IDNR's climate change materials and projects

Adoption Considerations: Much of this work currently exists for some IDNR divisions, e.g., the Illinois State Museum in Springfield and many of the historic grounds, and these groups may lead the charge on materials development along with the Education & Engagement working group, but it is also important to expand these educational and outreach opportunities to divisions that have not traditionally been involved in education, especially surrounding climate change. Fishing and Wildlife, for example, or Mines and Minerals and Oil and Gas. Investments to inventory existing DEAI and climate activities, community engagement, and hiring and recruitment called for throughout this Equity & Inclusion summary will benefit public participation in Goal 6 and vice versa. Likewise, efforts called for in the Education &

Engagement summary to survey divisions about these activities complement efforts in Equity & Inclusion.

Timeframe: *Immediate to 1 year – Start by 2023-2024 and achieve ongoing programmatic sustainability by 2025.* Some of these tasks will require more lead time, i.e., developing partnerships with community organizations representative of and knowledgeable about diverse cultural and indigenous histories, but much of the work should begin immediately, such as the exhibit and materials inventory and subsequent development of resources that highlight diversity and equity. In addition, IDNR already has some partnerships with area cultural museums and other community-based nonprofit organizations. Not all of these partnerships address climate change, but potential exists.

6. Education and Engagement (E²) Working Group Summary

Goal 1: Increase transparency and buy-in for proposed climate actions among internal and external IDNR audiences.

***Guiding questions:** Who needs to be informed of the proposed climate actions? Who will be impacted by the proposed climate actions? How can input influence the implementation of these actions?*

Below we describe the strategies that will be used to inform and engage people about the broader climate action plan. Information and engagement needs related to specific climate actions are described in other working group summaries.

Strategy 1: Share highlights of the proposed climate action plan with internal and external IDNR audiences.

- The Education and Engagement team (E² team) will develop general factsheets and a webpage that broadly summarizes the climate actions that IDNR proposes taking through this climate action plan, and the impact of those actions. Factsheets will be developed for specific audiences as needed, including the Governor's Office, legislators, state agencies, IDNR staff, advisory and friend groups, and the public. Fact sheets will be shared through listservs, social media, and e-newsletters and on the IDNR website.
- The E² team, with the support of other working groups, will develop presentations to summarize the proposed Climate Action Plan for specific audiences, including the Governor's Office, legislators, state agencies, IDNR staff, advisory and friend groups. The Climate Action Plan summary presentation will be shared with these important staff stakeholders.

Timeframe and adoption considerations: We recommend that IDNR work with communications staff to develop and disseminate high-level summaries of the CAP during the first quarter of 2023. Dedicated staffing will be required to develop and maintain the website and develop social media updates.

How they do it

Chicago's 2022 Climate Action Plan (CAP) website highlights the goals and impact of their plan, while increasing transparency and encouraging public engagement. Stakeholders and the public can read the entire plan or a summary and quickly plan's anticipated impacts.

Chicago also developed CAP presentations (which they present at events and meetings throughout the city) to inform people about the plan and solicit feedback. Their engagement process for the 2022 version of the plan included interactive virtual town halls, two online surveys, facilitated conversations

with community partners, and comments on the draft plan. Over 2,100 Chicagoans from 70+ community areas helped shape the format and the content of the plan. See Figure 7 and Figure 8 below.

Get Involved



2022
CAP CHICAGO CLIMATE ACTION PLAN

Chicago's new climate goals set a course to reduce the city's carbon emissions 62% by 2040. Anchored in values of economic inclusion and savings, pollution burden reduction, and equitable access to critical infrastructure and community health and resilience, the 2022 CAP prioritizes delivering meaningful community benefits and system improvements as the City continues to lead on climate.

[Read the Plan](#)

Figure 7. Chicago Climate Action Plan graphic.



Figure 8. Chicago Climate Action Plan graphic, request a presentation.

Strategy 2: Solicit feedback from IDNR staff about proposed climate actions and implementation.

- The E² team will distribute a questionnaire to solicit input from IDNR staff about a) climate actions they are currently taking, b) level of support for future actions, and c) implementation considerations for proposed climate actions. This survey will have questions for different offices and departments.
- The E² team will facilitate input sessions with IDNR staff and key administrative groups about climate actions, with a focus on the specific actions that IDNR staff will implement or be impacted by. The input sessions will allow staff to voice concerns, discuss implementation considerations, and offer general feedback.
- The E² team will develop a formal climate action recommendation process for staff to recommend new climate initiatives or provide feedback on existing or proposed initiatives.
- The E² team will analyze staff feedback and create a staff engagement report with recommendations for how the climate action plan should be modified to respond to staff feedback.

Timeframe and adoption considerations. This is one of the most important early tasks and should take place before implementation begins in earnest. We propose that the staff engagement process be conducted during the second quarter of 2023. Developing communication materials, conducting input sessions, focus groups, distributing questionnaires, and creating a report to summarize this input will take substantial staff hours. A dedicated staff member would be helpful.

Strategy 3: Solicit feedback from external audiences, including advisory boards, friends of parks groups and the general public about IDNR’s proposed climate actions.

- The E² team will host input sessions with the Natural Resources Advisory Board, the Endangered Species Protection Board, and the Illinois Nature Preserves Commission, as well as other key partners. Attendees will be invited to voice concerns, discuss implementation and collaboration considerations, and offer feedback. Virtual and in-person options may ensure a wider reach.
- The E² team will host virtual and in-person input sessions with friends of parks groups to allow friends to voice concerns, discuss implementation and collaboration considerations, and offer feedback.
- The E² team will develop a questionnaire about IDNR’s proposed climate actions for the public. The questionnaire will be shared at the state fair (or other large-scale events) and on the IDNR website to solicit feedback.
- The E² team will analyze feedback and create a stakeholder engagement report with recommendations for how the climate action plan should be modified to respond to stakeholder feedback.

Timeframe and adoption considerations: We propose that external engagement take place in the third and fourth quarters of 2023. Again, engagement is time and staff-intensive and will be difficult at existing staffing levels.

How they do it

- The University of Illinois' 2020 Climate Action Plan (iCAP) was drafted with widespread campus and community engagement. Engagement efforts included:
- A Campus Sustainability Celebration Open Forum, a free public event with poster sessions about various aspects of the iCAP and a Q&A forum.
- Monthly Student Input Sessions with undergraduate and graduate students to facilitate idea generation and strategy development.
- An iCAP Input Questionnaire for campus and community members to submit feedback in a standardized format.
- Presentations and input opportunities with key campus administrative organizations, such as Facilities and Services, the Senate Committee on Campus Operations, the Research Administrators Working Group, and more.

Working group ideas

The education and engagement working group provided training and resources to help the other working groups identify education and engagement needs for their proposed climate actions. Figure 9 and Figure 10 below are examples of how they identified different audiences and their educational and engagement needs, using the resources we provided. Specific education and engagement strategies are described in the different working group summaries.

Recommended Action : Reduce Energy Consumption by 35% by 2035	
Who will be implementing the action? All Staff	Engagement needed Identifying potential upgrades, identifying potential applications for improvements
Who will be impacted by the action? All Staff and visitors, tax payers, etc	Informing needed Need to inform people about currently available technologies, inform about incentives to implement
Who could be inspired by the action? Public	Education/training needed Educating public about improvements being made and how they might do it at their home, training staff about making the improvements.

Figure 9. Example 1 from Working Group guidance.

Buy-in needed	Community Inclusion
Describe the extent to which staff or stakeholder buy-in will be required	Describe the level of community involvement (how is this strategy involving community stakeholders? Is it fostering collaboration and partnership? How does it build relationships?)
Site managers, land managers, administration, public	Community needs to be aware of reduced mowing, invasives control, benefits to wildlife, taxpayer savings

Figure 10. Example 2 from Working Group guidance.

Goal 2: Broadly communicate agency progress in reducing carbon emissions as actions are implemented.

Guiding questions: How can IDNR increase transparency and support for the climate action plan as it's being implemented? What internal and external audiences have a vested interest in agency progress in reducing carbon emissions?

Strategy 1: Develop and share metrics so progress can be reported to staff, partners, and the public.

- The E² team will share progress with the public through a special climate action webpage on the IDNR website. Metrics demonstrating IDNR's carbon emissions reductions, as well as success stories, will be prominently displayed on the website and shared through social media.
- The E² team will work with communications staff to provide periodic updates on progress, as well as success stories, using e-mail, internal newsletters, and social media.
- The Climate Action Team will deliver presentations sharing agency progress to the Governor's Office, Legislators, State Agencies, IDNR staff, the Natural Resources Advisory Board, Endangered Species Protection Board, the Illinois Nature Preserves Commission, and other key partners.
- The E² team will develop short annual reports that highlight the agency's progress on achieving their climate action goals. These documents will be shared widely and posted on the website.

Timeframe and adoption considerations: During 2023, we recommend that the E² team work with IDNR's website manager to develop a webpage that can highlight IDNR's climate actions and work with other communications staff to determine how to regularly share progress through newsletters, social media, and at events and meetings. The goal will be to have the communication plan in place to begin sharing IDNR's climate action progress by the start of 2024.

How they do it

Wisconsin Department of Natural Research has a robust [climate change webpage](#), including a [page](#) that describes their own climate actions. People can sign up to receive updates about IDNR’s work on climate change. On this webpage, people can access annual reports highlighting IDNR’s progress, press releases, energy policies, climate action planning documents, greenhouse gas emissions inventories, waste studies, adaptation resources, and much more.

In addition, Wisconsin IDNR has partnered with the Nelson Institute for Environmental Studies to create the Wisconsin Initiative on Climate Change Impacts (WICCI). Their [website](#) contains a wide range of research and resources on climate change impacts and solutions. The website summarizes the efforts of different IDNR working groups to catalogue the impacts of climate change on different natural resources, and to develop solutions to mitigate the impacts. Their Education and Outreach section shares “WICCI in Action” success stories.

The University of Illinois’ iCAP portal provides a wealth of information about the University of Illinois’ progress in reducing carbon emissions since their first Climate Action Plan in 2010. The portal includes a video that summarizes the iCAP, featured updates, and an Objectives Dashboard that displays key performance metrics tracking their progress toward achieving climate commitments. They have different graphs for increasing energy efficiency, reducing building-level energy, generating clean power, reducing driving on campus, reducing water consumption and more (see [iCAP 2020 Objectives Dashboard | iCAP Portal | University of Illinois](#)). The portal also includes highlights, a list of projects by theme, and an image gallery. Figure 11 shows an example of their CAP dashboard.

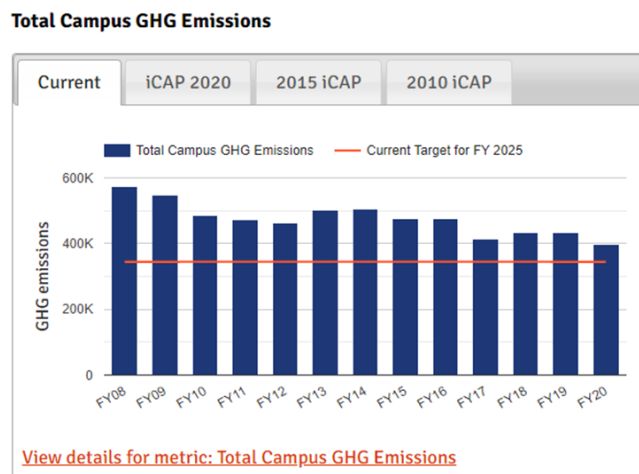


Figure 11. UIUC CAP Dashboard

Goal 3: Empower IDNR staff to implement solutions outlined in the Climate Action Plan

Guiding questions: *Who will be implementing climate actions? What education will they need for implementation? Which climate actions will be voluntarily implemented, and how can IDNR encourage voluntary implementation?*

Below we broadly describe the strategies that will be used to educate and train staff and inspire them to take voluntary actions about the climate action plan as a whole. Specific staff education strategies are included in other working group's reports.

Strategy 1: Provide education to staff who will be implementing climate actions.

- The E² team will advise other working groups and staff about internal training needed to implement climate actions. Example education could include training workshops, revised manuals, fact sheets, or demonstrations.

Timeframe and adoption considerations. We anticipate that staff education and material development will be needed throughout the implementation of the climate action plan. This education will largely be the responsibility of the working groups and staff who are implementing the actions. However, the Education and E² team can provide guidance and assistance, as needed.

Strategy 2: Inspire staff to take voluntary actions to reduce emissions.

- The E² team will host two events per year (such as climate “lunch and learns” or bike-to-work days) where staff can share climate actions with others, encouraging other individuals or sites to adopt similar practices.
- The E² team will host one competition or challenge per year that can be rolled out across different IDNR groups (offices, buildings, parks, etc.). For example, IDNR might host a competition to “green certify” offices and offer prizes or incentives to offices in the winning group.
- The E² team will create communication systems as needed to facilitate voluntary actions (e.g., a carpool bulletin board or webpage signup to encourage staff members to carpool).

Timeframe and adoption considerations. We recommend that the E² team host two events and one competition or challenge per year to encourage staff members to voluntarily engage in climate actions. Feedback from IDNR staff and other working groups can help to determine the nature of these events and challenges.

How they do it

The Illinois Institute for Sustainability, Energy and Environment (iSEE), one of the major groups involved in drafting the Climate Action Plan, hosts a variety of events that educate and inspire the campus community to engage in voluntary actions to reduce campus greenhouse gas emissions.

These include:

- A program to “Green-Certify” campus offices, with training and recognition for those who are certified.
- A 3-day faculty retreat to train faculty to incorporate sustainability themes into their curriculum.
- Campus-wide [contests and challenges](#) regarding waste and water reduction.
- Lectures, seminars, and symposia related to sustainability topics for the University community.
- Illini Lights Out—a voluntary program to shut off all lights in campus buildings from 5:30-7pm every weekend.
- Bike-to-work programs, a clothing swap and a “Dump and Run” at the end of each semester.
- A Campus Sustainability Celebration.

Working Group Ideas

The education and engagement working group developed a spreadsheet for other working groups to consider adoption strategies and internal training needs. In considering how their proposed strategies would be adopted, working groups identified a) the scale of adoption (whether it would be adopted IDNR-wide, at individual sites, or pilot sites), b) the type of adoption (whether it will be mandatory or voluntary), and the buy-in needed, as shown in Figure 12 below.

Adoption			
Scale of adoption	Type of adoption	Buy-in needed	Community Inclusion
<i>Describe scale of adoption, e.g. DNR-wide, individual sites or offices, pilot first</i>	<i>Describe to what extent the strategy will be required, e.g., policy, mandatory, voluntary, competition</i>	<i>Describe the extent to which staff or stakeholder buy-in will be required</i>	<i>community involvement (how is this strategy involving community stakeholders? Is it fostering collaboration and partnership? How does it build relationships?)</i>

Figure 12. Adoption criteria for working groups.

Working groups also considered the internal education and engagement needs for each of their proposed strategies. Working groups noted the education and communication materials that would need to be developed, the training and engagement needs, and special audiences to consider, as shown in Figure 13 below. Specific internal education and engagement strategies are described in the other working groups’ summaries.

Internal Education & Engagement			
Education materials and communication needs	Training/engagement needs	Special audiences to consider	Internal Ed notes
<i>e.g. How-to manuals, posters/signage, internal newsletters, fact sheets</i>	<i>e.g. Listening sessions, workshops, webinars, online training module</i>	<i>e.g., Specific IDNR office, staff category (facilities and maintenance)</i>	<i>Description</i>

Figure 13. Internal Education & Engagement criteria for working groups.

Goal 4: Through IDNR’s climate actions, inspire the public to join Illinois’ climate change efforts.

Guiding questions: *Who will be inspired by IDNR's climate actions? How can IDNR's climate actions be leveraged to educate and inspire the public to take similar actions?*

Below we broadly describe the strategies that will be used to educate and inspire external audiences to take actions to reduce carbon emissions. Specific education strategies are included in other working group’s reports.

Strategy 1: Showcase IDNR’s climate actions to educate and inspire the public to take positive climate actions.

- The E² team will work with other working groups, site managers and communications staff to showcase IDNR’s implemented climate actions at specific sites. We will support them in developing signage, educational brochures, newsletters, social media, pamphlets, and QR codes to educate and inspire people to similarly engage in positive climate actions.
- At demonstration sites, the E² team will work with other working groups and site managers to leverage existing materials developed by IDNR and other partners (such as Illinois Extension) to educate people about how to reduce emissions at their homes or places of work or recreation.
- On the IDNR website and in social media posts, the E² team will feature examples of IDNR’s climate actions to inspire people to reduce emissions.

Strategy 2: Provide educational events at demonstration sites to inspire the public to take positive climate actions.

- The E² team will work with other working groups and education staff to host workshops at demonstration sites or other educational events where people can see what IDNR has done and learn about how to take similar actions at home.

Timeframe and adoption considerations: We anticipate that external education and material development will be needed throughout the implementation of the climate action plan. This education will largely be the responsibility of the working groups and staff who are implementing the actions. However, the E² team can provide guidance and assistance, as needed.

How they do it

Illinois Extension hosts a demonstration garden, the Idea Garden, to showcase ideas for garden design and maintenance. The gardens promote environmentally responsible gardening practices. Signs inform visitors about the different types of plants in the garden, and the [Idea Garden website](#) includes plant lists and other educational materials for gardeners. At the Idea Garden, Master Gardeners teach others how to care for and maintain plants in the garden. Illinois Extension has developed a wide variety of fact sheets on pests and diseases, fruit and vegetable gardening, soil health, pollinators, trees, and more. The Idea Garden is where they put this education into action.

Working group ideas

The E² team developed a spreadsheet to help the other working groups identify the external education opportunities associated with each of their proposed strategies. Working groups were asked to consider material development, events, special audiences, and partnerships, as shown in Figure 14 below. Specific external education strategies are described in the other working groups' summaries.

External Education & Engagement			
Educational materials	Educational events	Special audiences	Education partnerships
<i>e.g., webpage type, social media, posters/signage, videos, newsletters, exhibit, educational modules, pamphlets</i>	<i>e.g. Field trips, state or county fairs, special site events, earth day</i>	<i>Who will you be targeting? E.g., general public, farmers, K-12 students, park visitors</i>	<i>Who? E.g., other agencies, CBOs, educational institutions</i>

Figure 14. External Education & Engagement criteria for working groups.

Goal 5: Increase public participation in Illinois' climate change efforts through robust educational resources and programming.

Strategy 1: Make existing educational resources about climate change easier to access, share, and use through a special IDNR climate change webpage.

- The E² team will continue to inventory existing IDNR publications and educational resources related to climate change and identify areas where resources could be shared with the public more effectively or updated to address climate change. Examples could include revamping educational materials on wetlands to address their ability to sequester carbon and mitigate the impacts of a changing climate.
- The E² team will gather and inventory educational resources about climate change from external organizations and partners, such as Illinois Extension or Wisconsin IDNR, similar in purpose to IDNR. We will make recommendations about which resources could be used by education staff or shared on IDNR's website.
- The E² team will identify communication guidelines and resources that can help staff (and others) better engage the public about climate change and post these guidelines on the website.
- The E² team will make recommendations to IDNR about building a special climate change webpage on IDNR's main website that includes high-impact resources on the following topics:
 - Illinois climate history
 - Impact of climate change on Illinois natural resources
 - Mitigating climate change through conservation, efficiency, carbon capture, and renewables
 - Mitigating the negative impact of climate change on Illinois natural resources (increasing resilience)
 - Resources will be organized to improve accessibility for various audiences.

Timeframe and adoption considerations. We recommend that the climate change webpage be built out within the 2023 calendar year and populated with existing external or internal resources. This will require close coordination with IDNR's communications team and webmaster and a thorough inventory of what already exists. In subsequent years, IDNR may want to update old resources or create new ones.

How they do it

There are useful climate change websites from neighboring states that IDNR could use as models. Wisconsin IDNR's website has a special "Climate" menu item, front and center (see the figure below). Their climate webpage provides resources that describe the science of climate change, its impacts in Wisconsin, and solutions.

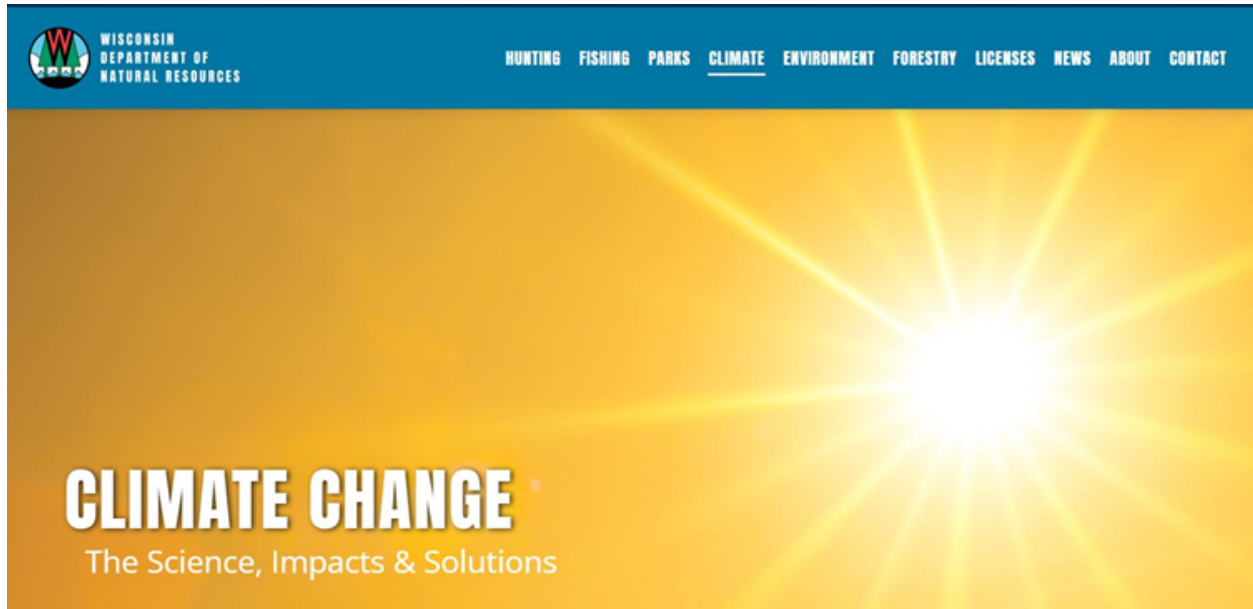


Figure 15. Wisconsin IDNR webpage

The Wisconsin Initiative on Climate Change Impacts (WICCI) (a partnership between the Wisconsin IDNR and the Nelson Institute for Environmental Studies) [website](#) contains even more educational resources. It houses assessment reports that describe how the state’s climate is changing, summaries of issues and impacts related to specific natural resources, and a “stories” page that describes impacts and solutions.

PBS Wisconsin’s “Climate Wisconsin: Stories from a State of Change” provides an excellent example of climate storytelling through engaging videos that describe how Wisconsin’s natural resources are being impacted by climate change. Beneath each video, there is an article with a wealth of data, and “teaching tips.”

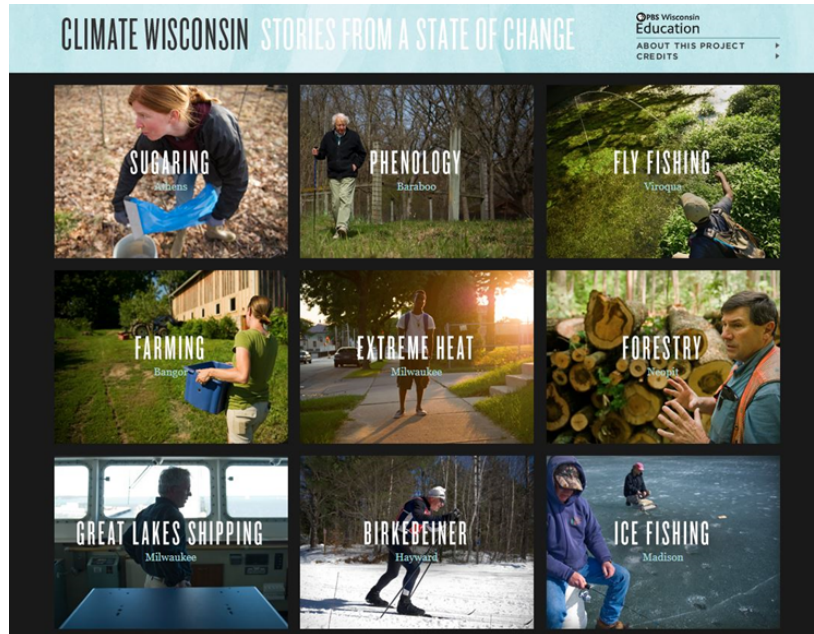


Figure 16. Climate Wisconsin PBS educational series.

Minnesota has a statewide Climate Action Framework (their IDNR is one of the 15 state agencies on the Climate Change Subcabinet responsible for developing this framework). Minnesota’s website, [Our Minnesota Climate](#), provides a wealth of resources about local impacts, state of Minnesota actions, and community solutions. The “Local Impacts” page hosts several stories that describe how climate change is impacting health, housing, fishing, farming, and more.



Minnesota is getting warmer and wetter

The scientific evidence is clear: Minnesota's climate already is changing rapidly.



Farmers face new challenges for crops, livestock

A warmer, wetter Minn. strains food production, our ag economy, and farmers.



Mega-rains overwhelm rivers, roads, and budgets

Since 2000, Minnesota has seen a significant uptick in devastating rainstorms.



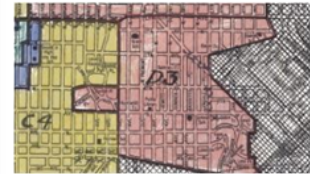
Older Minnesotans are in danger from extreme heat

Average temperatures have warmed by nearly 3°F and extreme heat events are also on the rise.



Recreation, tourism threatened by winter warming

Our increasingly warm winters is one of the leading indicators that Minnesota's climate is changing.



Disproportionate heat risks for communities of color

Decades of housing discrimination created climate inequities in cities like Minneapolis.

Figure 17. "Our Minnesota Climate" resources webpage.

Strategy 2: Develop or enhance educational and interpretive programs to educate the public about climate impacts and solutions related to Illinois natural resources and wildlife.

- The E² team will explore the feasibility of creating new educational curriculum (aligned with educational standards) and programs to address climate change's impact on Illinois natural resources. This could include ENTICE curriculum, field trip curriculum, or a climate change focused trunk.
- The E² team will work with museum staff to build or enhance existing exhibit(s) that interpret the climate history of Illinois and place past climate change in context with current events for the public. Improvements could consider more recent climate history, rainfall impacts in Illinois, and the human history of climate change (to address environmental equity).
- The E² team will host discussions with naturalists and other IDNR educators to explore how to interpret the meaning and value of Illinois' natural resources to foster appreciation for these natural resources, in the context of the threats posed by climate change.
- The E² team will partner with other organizations to invite youth to create educational materials (such as posters, videos, or blog posts) that feature the impacts of climate change on Illinois' natural resources, or that showcase solutions that mitigate climate change or its impacts. We will select content to display on our website or at IDNR sites.

- The E² team will support staff and external organizations who are developing citizen science initiatives and educational programming to research the impact of climate change on Illinois natural resources and wildlife. Support could include advertising, developing materials, or bringing staff for presentations.
- The E² team will look for federal, state, or foundation funding to support IDNR's educational efforts and encourage partnerships with other organizations.

Timeframe and adoption considerations: Education staff are currently stretched very thin. Developing new programming is not feasible unless IDNR can hire more people and get more funding. We recommend that early efforts be focused on enhancing existing educational programs and exhibits, rather than building new ones, and exploring partnerships with other organizations, such as Illinois Extension and the Morton Arboretum.

How they do it

The [Morton Arboretum](#) has a robust education and outreach mission and collaborates with many other organizations to provide education for youth. They offer field trips and school programs, virtual bundles, professional development, podcasts, and a variety of learning resources. Several of their education programs are specifically focused on the impacts of climate change on natural resources, as well as how natural resources can help with climate adaptation and climate change mitigation.

IDNR already [encourages people](#) to participate in citizen-science programs, offered by organizations such as the Audubon Society, the Field Museum, the Nature Conservancy that offer opportunities for students, teachers and the public to participate in scientific data collection. These projects are an ideal way to get the public involved in monitoring the impact of climate change on Illinois' natural resources. IDNR could take a more active role in promoting these projects or partnering with these organizations to educate the public about climate change.

2023 Implementation Plan

Strategies	2023 Q1	2023 Q2	2023 Q3	2023 Q4
Develop fact sheets and presentations to summarize proposed CAP	X			
Solicit feedback from IDNR staff about proposed climate actions & implementation	X			
Solicit feedback from external audiences, including advisory boards, friends groups, public		X		
Website: Develop CAP webpage and other communication materials to share progress. Develop or locate existing educational resources to put on the webpage.		X	X	X
Support other groups to provide education to staff who will be implementing climate actions				
Support other groups to inspire staff to take voluntary actions to reduce emissions				
Support other groups to showcase IDNR's climate actions on site to educate and inspire people (signage, QR codes, videos, live feeds)				
Provide educational events at demonstration sites.				
Inventory educational and interpretive programs and exhibits at interpretive centers and museums that educate about climate impacts and solutions.				X

Task 1 (January 1-March 30): Inform people about short and long-term CAP goals and strategies (Linda & Joe & Dannyl—with design and images; Terra can help, Mel can help with editing)

- The Education and Engagement team (E² team) will develop 2 factsheets: one that broadly summarizes IDNR's long-term climate actions and goals to 2050, and one that covers the proposed actions that are slated for implementation in 2023. The factsheets will be shared with the Governor's Office, legislators, state agencies, IDNR staff, advisory and friend groups, and the public through listservs, social media and e-newsletters, and on the IDNR website.
- The E² team will develop a webpage on the IDNR website to describe the climate action planning process and planning documents, as they are ready to share.

- The E² team, with the support of other working groups, will develop presentation slides that summarize the proposed Climate Action Plan (long-term plan and 2023 actions) that can be shared at external and internal meetings with key stakeholders.

Task 2 (January 1-March 30): Solicit internal IDNR feedback on long-term climate action plan and implementation of 2023 actions. (Linda can help develop process; Terra & Mel can help analyze results; Dannyl can help gather information)

- The E² team will distribute a questionnaire to solicit input from IDNR staff about a) climate actions they are currently taking, b) level of support for future actions, and c) implementation considerations for proposed 2023 climate actions. This survey will have questions for different offices and departments.
- The E² team will develop protocols for input sessions with IDNR staff and key administrative groups about the climate action plan, with a focus on the specific actions that IDNR staff will implement or be impacted by. The input sessions will allow staff to voice concerns, discuss implementation considerations, and offer general feedback.
- The E² team will develop a formal climate action recommendation process for staff to recommend new climate initiatives or provide feedback on existing or proposed initiatives.
- The E² team will analyze staff feedback and create a staff engagement report with recommendations for how the climate action plan should be modified to respond to staff feedback.

Task 3 (April 1-June 30th): Solicit feedback from external audiences, including advisory boards, friends groups, and the public. (Linda can help develop process; Terra & Mel can help analyze results; Dannyl can help gather information)

- The E² team will host input sessions with the Natural Resources Advisory Board, the Endangered Species Protection Board and the Illinois Nature Preserves Commission, as well as other key partners. Attendees will be invited to voice concerns, discuss implementation and collaboration considerations, and offer feedback. Virtual and in-person options may ensure a wider reach.
- The E² team will host virtual and in-person input sessions with friends of parks groups to allow friends to voice concerns, discuss implementation and collaboration considerations, and offer feedback.
- The E² team will develop a questionnaire about IDNR's proposed climate actions for the public. The questionnaire will be shared at the state fair (or other large-scale events) and on the IDNR website to solicit feedback.

- The E² team will analyze feedback and create a stakeholder engagement report with recommendations for how the climate action plan should be modified to respond to stakeholder feedback.

Task 4 (April 1-Dec 31). Develop CAP webpage and other communication materials to share progress. Develop or locate existing educational resources to put on the webpage.

(Joe & Linda lead, but all hands-on deck. Mel has experience in telling stories. Everyone in our committee can share resources. Ask co-workers to help develop or gather resources, tell stories about different offices, programs).

- The E² team will share progress with the public through a special climate action webpage on the IDNR website. Metrics demonstrating IDNR's carbon emissions reductions, as well as success stories, will be prominently displayed on the website and shared through social media.
- On the IDNR website and in social media posts, the E² team will feature examples of IDNR's climate actions to inspire people to reduce emissions.
- The E² team will continue to inventory existing IDNR publications and educational resources related to climate change and identify areas where resources could be shared with the public more effectively or updated to address climate change. Examples could include revamping educational materials on wetlands to address their ability to sequester carbon and mitigate the impacts of a changing climate.
- The E² team will gather and inventory educational resources about climate change from external organizations and partners, such as Illinois Extension or Wisconsin IDNR, similar in purpose to IDNR. We will make recommendations about which resources could be used by education staff or shared on IDNR's website.
- The E² team will identify communication guidelines and resources that can help staff (and others) better engage the public about climate change and post these guidelines on the website.
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 - Illinois climate history
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 - Mitigating climate change through conservation, efficiency, carbon capture, and renewables
 - Mitigating the negative impact of climate change on Illinois natural resources (increasing resilience)
- Resources will be organized to improve accessibility for various audiences.

Task 5 (Oct 1-Dec 31): Inventory educational and interpretive programs and exhibits at interpretive centers and museums that educate about climate impacts and solutions. (Dannyl, Stacy, Joe, Mel)

Task 6 (April 1-end of year): Support other groups to a) solicit feedback from internal and external audiences about specific climate actions, b) provide education to staff who will be implementing climate actions, c) inspire staff to take voluntary actions to reduce emissions, and d) showcase climate actions to educate and inspire people.

Appendix C. Emissions Inventory and Mitigation Methodology

This appendix details the IDNR emissions inventory and mitigation methodology for the graphs and data presented in the Plan.

Energy Emissions Estimation

Electric, natural gas, and propane emissions values were produced across 15 differing site types and a grand total of 208 facilities and parks. Carbon emissions from across these sites vary significantly, but limited detail is available on individual site emissions contributions. Electricity use was provided by ComEd, Ameren Illinois, and local electric Co-ops. To calculate energy emissions, SEDAC had access to Ameren Illinois and ComEd accounts for IDNR through Central Management System (CMS), but co-op electric data was estimated based on a sample of 20 different IDNR sites across a variety of site types and usage at similar sites in Ameren and ComEd territory. Natural gas (provided by Nicor or Ameren Illinois data) and propane purchased from other sources are also responsible for a large portion of carbon emissions. This information was gathered both from CMS data and estimated based on a building energy sample.

Electric Emissions Estimation

IDNR provided electric accounts for IDNR sites served by ComEd and Ameren IL utilities managed by the state Central Management System (CMS). As SEDAC reviewed the data, multiple sites appeared to have abnormally high or absent utility consumption, so an in-depth analysis of the provided utility accounts was performed.

SEDAC found that 37% of the accounts were incorrectly associated with the wrong park, a total of 93 of the provided accounts. Another 17 accounts did not have a service address in the provided tracking spreadsheet and could not be verified for proper site attribution. These accounts were assumed to be properly attributed to a site for our analysis, but it is highly recommended they be investigated and corrected if necessary. A summary of the corrected accounts and unverified accounts is included in the Appendix.

To estimate energy consumption for IDNR sites with electric co-op utility service, SEDAC grouped all IDNR sites by one of 15 categories that were expected to have similar usage profiles. The categories and the number of sites with and without utility data is included in the following table.

Table 3. Summary of known electric usage vs. unknown site usage.

Category	CMS Data	Estimated
Fish Hatchery	2	1
Game Propagation Center	2	2
Historic Sites	6	47
Nature Preserve	2	2

Other Departmental Property	14	9
State Conservation Area	5	1
State Fish Wildlife Area	18	30
State Forest	1	3
State Habitat Area	0	1
State Hunting Area	0	1
State Natural Area	5	11
State Park	44	21
State Recreation Area	5	9
State Trail	3	1
State Tree Nursery	2	0

For each use category, SEDAC used Excel ANOVA analysis or linear regressions to check for electric usage correlation with site building area. For each category type, an electric use intensity in terms of kWh/sf was determined. This value was applied to other sites in the same category to estimate their energy consumption. The following Table denotes which method of analysis was used for each site type.

SEDAC attempted to see if correlations between visitor counts or recreational vehicle (RV) counts had better correlations, but visitor and RV data available for each park was not consistent and would have required additional estimation of visitor counts. We determined that estimating two different values, visitor counts and energy consumption, would be less accurate than using a single estimate based on known square footage values. Thus, the electric use per square foot was deemed a sufficient approximation provided the regression analysis was limited to sites with similar usage categories. R2 correlation values and P-values exceeded 80% for most estimates, indicating a decent fit for the known data to the energy intensity regressions for each category. A summary of the regression data is included in Table 4.

Table 4. Summary of IDNR Electric Usage Estimation Methods.

Category	Analysis Method	Known Pts	Unknown Pts	kWh/sf	R ²	P-Value
Fish Hatcheries	Equal to 2019 data ¹	2	1	N/A	N/A	N/A
Game Propagation Centers	Avg of kWh/sf ²	2	2	5.51	N/A	N/A
Historic Sites	Avg of 2019-2021 Linear Regressions	6	47	17.29	0.84	N/A
Nature Preserves	No Analysis ³	2	0	0.00	N/A	N/A
Other Departmental Properties	Avg of 2019-2021 Linear Regressions	14	9	3.10	0.81	N/A
State Conservation Areas	1-way ANOVA ⁴	5	1	0.74	N/A	0.68
State Fish & Wildlife Areas	1-way ANOVA ⁴	18	30	7.61	N/A	0.90
State Forests	Other Dept. Properties kWh/sf Used ⁵	1	4	3.10	N/A	N/A
State Habitat Areas	No Analysis ³	0	1	0.00	N/A	N/A
State Hunting Areas	No Analysis ³	0	1	0.00	N/A	N/A
State Natural Areas	1-way ANOVA ⁴	5	11	7.70	N/A	0.84
State Parks	1-way ANOVA ⁴	44	21	13.25	N/A	0.89
State Recreation Areas	1-way ANOVA ⁴	5	9	9.57	N/A	0.94
State Trails	1-way ANOVA ⁴	3	1	5.95	N/A	0.76
State Tree Nurseries	No Analysis ³	2	0	N/A	N/A	N/A

Table Notes:

1. Unknown site had 2019 data, but not 2020 or 2021. Used 2019 data as the baseline estimate.
2. No good correlation with square footage, site acreage, or other known values, so average of two known site's kWh/sf applied.
3. Sites had no building square footage listed, assumed no electric consumption.
4. ANOVA analysis excluded 2019 data due to significant variance from COVID closures. Average energy intensity from 2020 and 2021 used for estimating unknown sites.
5. One site had negligible 2019 consumption, and no consumption in 2020 and 2021. Used lowest energy intensity value to estimate consumption.
6. All sites had full electric consumption data.

Heating Fuel (Natural Gas and Propane) Estimation

SEDAC received limited natural gas and propane data for IDNR sites and could not effectively form clusters of usage categories as was done with the electric data above. Most of the categories above had no usage data for heating fuels. As such, SEDAC looked at energy consumption for historic sites, then looked at energy consumption for all other IDNR sites as these two groupings had significantly different regression values.

The goal was to separate sites that heat only from sites that may use propane or natural gas for cooking/grilling as well. Propane and natural gas data were converted to therms of heating energy, as

two sites had both propane and natural gas use indicated. Excel linear regression for each category, “Historic Sites” and “All Other Sites” was used to calculate an energy use intensity per square foot of building area for each category. The regressions for historic sites had an R2 value of 0.67, while all other IDNR sites had an R2 value of 0.42. Thus, the propane and natural gas data should be approached as a very rough estimate of actual consumption across IDNR sites. Using the slope values from each linear regression, a total therm value was calculated for historic sites and all other IDNR sites.

The ratio of propane use to natural gas use for each use category was used to break up the calculated total therms of heating between propane heating and natural gas heating, and appropriate CO2 equivalence factors used to estimate the total GHG contributions from propane and natural gas combustion.

Water Use Estimation

As with heating fuel above, SEDAC received limited data on water consumption at IDNR sites, only 36 of 208 sites have water consumption data provided with only 5 site types having water data. No water data was available from sites that use well water, so only City-supplied water data was available. Due to the limited amount of water data, regression analysis for water was impractical. Thus, to estimate water consumption, SEDAC used supplied visitor and RV information from multiple parks and US Forest Service and National Parks Service recommended water consumption values to estimate water consumption at IDNR sites by visitors.

The US Forest Service and National Parks Service both noted that campers should consume 2 gallons of water per day, and RVs typically consume 20 gallons per day. SEDAC used sites with known visitor and RV counts to linearly expand across sites with unknown visitor counts. For example, 6 historic sites had visitor data. The total number of visitors was divided by the number of sites (6), then multiplied by the total number of historic sites (53). This same procedure was used to estimate the number of RV visitors per site, limited to Fish and Wildlife Areas, State Recreation Areas, and State Parks. Other site use categories were assumed to not have RV spaces. IDNR lists a total of 958 employees, including administrative staff, park rangers, and other personnel. This number was spread evenly across all IDNR sites as a quick estimate of the total number of employees at each site, and accounts for some sites sharing staff. Staff were treated as visitors in that they are assumed to consume about 2 gallons of water per day at most IDNR sites. Thus, 2 gallons per day per visitor and per employee, and 20 gallons per RV were used for almost all sites to estimate water consumption. The only exceptions to this methodology were historic sites, where 75% of visitors were assumed to walk through the site without using any water facilities, and the hatcheries and game propagation centers, where no visitors were assumed, and staff were assumed to use about 25 gallons per day based on the water use of the Jake Wolf Fish Hatchery. This accounts not only for typical human water uses, but also for water use for fish hatching processes, animal water, and other process needs.

To account for some amount of water leakage from underground pipes, SEDAC applied the above assumptions to sites with known water consumption and found a 4.8% higher consumption rate than estimated. This was attributed to leakage from water infrastructure across all IDNR sites.

To account for an amount of water being procured from on-site water wells, SEDAC separated the usage at State Forests, Natural Areas, and Habitats from the estimated consumption for all other sites, and attributed this to well water usage, which totaled about 17% of the estimated water consumption.

These sites were selected as they were the most remote and likely to be too far from municipal water supplies.

The remaining 83% of water consumption was attributed to the appropriate electric utilities, and SEDAC average kWh/MG for water treatment plants to calculate emissions factors. Similarly, SEDAC average kWh/MG for wastewater treatment in Illinois was used to estimate the impact of wastewater from IDNR sites, assuming wastewater flow is equal to potable water consumption. Emissions from well-water pumping are included in site electric energy estimates, and thus discounted from the water emissions analysis.

Transportation, Mowing, and Equipment Fuel Use Estimate

IDNR provided information on WEX fuel purchases from 2019 - 2021 to SEDAC for the purposes of estimating emissions from transportation and equipment fuel use. An estimation of mowing & equipment fuel use was developed based on feedback from site managers in the Transportation & Fuel Use working group. To calculate IDNR staff commuting, employee zip code and office zip code data was used to estimate miles driven by staff to get to their offices in personal vehicles. An average mile per gallon fuel efficiency of 22 miles per gallon was assumed to estimate the emissions impact of fuel consumption. To calculate overall emissions, 0.009 MTCO_{2e} per gallon of gasoline was used, estimating that about 94% of fuel used in IDNR's fleet is from gasoline vehicles.

Solid Waste Estimate

SEDAC estimated waste production based on pounds of waste per person for staff and visitors to IDNR sites. The net-zero report for Jake Wolf Fish Hatchery was used to develop a waste estimate for all the Fish Hatcheries, Game Propagation Centers, and Tree Nurseries. The net-zero report for Rock Cut State Park and a waste survey sent to all IDNR site superintendents was used to estimate staff and visitor waste production at state parks and was applied to all other IDNR sites. It was estimated that about 95% of waste comes from visitors, whereas only 5% is generated from general site operations. Visitor counts and staff counts estimated in 1.1.3 Water Use Estimate were used again for the waste production estimates across all IDNR sites. EPA emissions factors for municipal waste were applied to the final waste totals to estimate the total emissions.

Appendix D. Relevant Reports on Climate Impacts and Projections in Illinois, the Region, and the World

These reports are valuable resources for understanding the impacts of climate change in Illinois, now and in the future. They are synthesis reports that bring together recent research at different scales. The

first three reports focus on Illinois and the region. The IPCC reports look at global impacts, with section that focus on large regions. The National Climate Assessment covers the United States but has useful sections on the Midwest and important sectors of community and economic life.

An Assessment of the Impacts of Climate Change in Illinois, 2021

Wuebbles, D., Angel, J., Petersen, K., & Lemke, M. (2021). *An Assessment of the Impacts of Climate Change in Illinois: Executive Summary* (p. 7). The Nature Conservancy, Illinois.
<https://doi.org/10.13012/B21DB-1260194 V1>

An Assessment of the Impacts of Climate Change on the Great Lakes, 2019

Wuebbles, D., Cardinale, B., Cherkauer, K., Davidson-Arnott, R., Hellmann, J., Infante, D., Johnson, L., de Loe, R., Lofgren, B., Packman, A., Seglenieks, F., Sharma, A., Sohngen, B., Tiboris, M., Vimont, D., Wilson, R., Kunkel, K., & Ballinger, A. (2019). *An Assessment of the Impacts of Climate Change on the Great Lakes*.

Central Hardwoods Ecosystem Vulnerability, 2014

US Forest Service Northern Research Station. (2014). *Central Hardwoods Ecosystem Vulnerability Assessment and Synthesis: A report from the Central hardwoods Climate Change Response Framework Report*. (General Technical Report NRS-124; p. 254). US Department of Agriculture Forest Service.

Intergovernmental Panel on Climate Change (IPCC), 2022

IPCC. (2022). *Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (p. 3056 pp). Cambridge University Press; doi:10.1017/9781009325844.

IPCC. (2022). *Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press; doi: 10.1017/9781009157926.

National Climate Assessment, 2018

Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.). (2018). *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II* (p. 1515). U.S. Global Change Research Program. [doi: 10.7930/NCA4.2018](https://doi.org/10.7930/NCA4.2018)

Appendix E. List of Relevant Tools for Analysis and Implementation

EPA EJScreen: Environmental Justice Screening and Mapping Tool

This tool allows users to see environmental and demographic data to identify areas of concern for environmental justice.

<https://www.epa.gov/ejscreen>

FEMA National Risk Index

This tool and dataset shows areas at risk of 18 hazards (including the climate-related hazards of drought, heat waves and floods) and community risk.

<https://hazards.fema.gov/nri/map>

NOAA Climate Mapping for Resilience and Adaptation Assessment Tool

This tool shows exposure to 5 hazards that are related to climate change (including heat, drought, flooding, coastal flooding and wildfire). It includes some demographic data and allows users to download data and create reports.

<https://coast.noaa.gov/digitalcoast/tools/cmra.html>

TNC Floodplain Prioritization Tool

This tool helps users explore opportunities for conservation and restoration in the Mississippi River basin. It allows users to compare the effects of restoration on different goals including habitat, flooding and nutrient removal.

<https://freshwaternetwork.org/innovative-tools/floodplain-prioritization-tool/>

Appendix F. Glossary

Timeframes for climate action in this plan:

- Immediate: Within 1 – 2 years
- Short-term: By 2030
- Medium-term: By 2040
- Long-term: By 2050
- Ongoing: Ongoing

Glossary

Accessibility

The extent to which the structural and organizational arrangements facilitate participation in the program. *Source: [EPA, 2017, Program Evaluation Glossary](#)*

Adaptation

Adjustment or preparation of natural or human systems to a new or changing environment which moderates harm or exploits beneficial opportunities. *Source: [EPA, 2017, Climate Change Terms](#)*

Benchmarking (utilities)

Measuring progress toward a goal at intervals prior to the anticipated attainment of the goal. *Source: [EPA, 2017, Program Evaluation Glossary](#)*

Brownfield

A property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant or contaminant. *Source: [EPA, 2017, School Siting Guidelines Glossary](#)*

Business-as-Usual (BAU)

Business-as-usual (BAU), the normal execution of standard functional operations within an [organization](#), forms a possible contrast to [projects](#) or [programs](#) which might introduce change. BAU may also stand in [contradistinction](#) to external events which may have the effect of unsettling or distracting those inside an organization. *Source: [Wikipedia & Roberts, Paul, 2013 Roberts, Paul \(4 February 2013\). "Chapter 1 The components of effective project management". Guide to project management: getting it right and achieving lasting benefit \(2nd ed.\). Wiley. ISBN 9781118383704](#)*

Carbon Footprint

The total amount of greenhouse gases that are emitted into the atmosphere each year by a person, family, building, organization, or company. A person's carbon footprint includes greenhouse gas emissions from fuel that an individual burns directly, such as by heating a home or riding in a car. It also includes greenhouse gasses that come from producing the goods or services that the individual uses, including emissions from power plants that make electricity, factories that make products, and landfills where trash gets sent. *Source: [EPA, 2017, Climate Change Terms](#)*

Carbon-free energy sources

When energy sources are labeled carbon-free, the energy is produced by a resource that generates no carbon emissions, such as nuclear or large hydroelectric. Although these resources help reduce greenhouse gas emissions, they may impact the environment or the economy. *Source: [MCE Community Choice Energy, 16 September 2022](#)*

Carbon sequestration

Terrestrial, or biologic, carbon sequestration is the process by which trees and plants absorb carbon dioxide, release oxygen, and store the carbon. Geologic sequestration is one step in the process of carbon capture and sequestration (CCS) and involves injecting carbon dioxide deep underground where it stays permanently. *Source: [EPA, 2017, Climate Change Terms](#)*

Carbon storage

Prevention of the release of carbon to the atmosphere by its storage in living plants (e.g., trees) and undecayed and unburned dead plant material (e.g., wood products, biogenic materials in landfills). *Source: [EPA, 2017, Waste Reduction Model \(WARM\) Definitions & Acronyms](#)*

Conserve and load

SEDAC used a “Conserve and Load” strategy to chart a course to net-zero. A ‘conserve and load’ strategy is a strategy that incorporates energy conservation with renewable energy source loading to help organizations reach net-zero emissions. First, we recommended reducing the overall energy use in the facilities through efficiency and conservation. Then, we identified ways to satisfy the much more manageable load with renewable energy resources. *Source: SEDAC, 2022.*

Education

How climate change related issues are communicated to the public in an effort to create a widespread understanding. *Source: [EPA, 2017, Resilience and Adaptation in New England \(RAINE\) Glossary](#)*

Electrification

Electrification refers to the process of replacing technologies that use fossil fuels (coal, oil, and natural gas) with technologies that use electricity as a source of energy. Depending on the resources used to generate electricity, electrification can potentially reduce carbon dioxide (CO₂) emissions from the transportation, building, and industrial sectors, which account for [65 percent](#) of all US greenhouse gas emissions. *Source: [Resources for the Future, 2019](#)*

Embedded Energy

The energy contained within the raw materials used to manufacture a product. For example, the embedded energy of plastics is due to their being made from petroleum. Because petroleum has an inherent energy value, the amount of energy that is saved through plastic recycling and source reduction is directly related to the energy that could have been produced if the petroleum had been used as an energy source rather than as a raw material input. *Source: [EPA, 2017, Waste Reduction Model \(WARM\) Definitions & Acronyms](#)*

Environmental justice

Environmental Justice is the fair treatment and meaningful involvement of all people regardless of race, color, culture, national origin, income, and educational levels with respect to the development, implementation, and enforcement of protective environmental laws, regulations, and policies. *Source: [EPA, 2017, Environmental Justice Key Terms](#)*

Equity

Equity is achieving fairness and balance in access to environmental resources (e.g., green space, safe neighborhoods, healthy homes, healthy fisheries), in bearing environmental burdens (e.g., pollution in air, water and on land), and in participating in environmental decision-making. *Source: [Equity and Environmental Justice at EDF](#)*

Equity is just and fair inclusion. An equitable society is one in which all can participate and prosper. The goals of equity must be to create conditions that allow all to reach their full potential. In short, equity creates a path from hope to change. *Source: [PolicyLink](#)*

Faucet aerator

A faucet aerator (or tap aerator) is often found at the tip of modern indoor water [faucets](#). Aerators can simply be screwed onto the faucet head, creating a non-splashing stream and often delivering a mixture of water and air. *Source: [Wikipedia](#)*

Footprint

The term “footprint” refers to the quantification or measure of a specific environmental parameter. For example, the greenhouse gas (GHG) emissions footprint is the quantification or measure of carbon dioxide and other greenhouse gases emitted by a particular activity, facility, individual or remedy. The GHG emissions footprint is of interest because such emissions have been linked to environmental effects such as global warming and related climate change. The term “footprint” can be expanded to other environmental parameters such as energy use, water use, land use and air pollutant emissions. In addition, an environmental footprint can be local, regional, or global. For example, the combustion of diesel fuel at a site will result in nitrogen oxide emissions (among other compounds) in the immediate vicinity of the site. *Source: [EPA, 2014, Environmental Footprint Analysis of Steam Enhanced Extraction Remedy](#)*

Greenhouse gasses

Any gas that absorbs infrared radiation in the atmosphere. Greenhouse gasses include, carbon dioxide, methane, nitrous oxide, ozone, chlorofluorocarbons, hydrochlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride. *Source: [EPA, 2017, Climate Change Terms](#)*

Green roof

Also known as rooftop gardens, green roofs are planted over existing roof structures, and consist of a waterproof, root-safe membrane that is covered by a drainage system, lightweight growing medium, and plants. Green roofs reduce rooftop and building temperatures, filter pollution, lessen pressure on sewer systems, and reduce the heat island effect. *Source: [EPA, 2017, Greening EPA Glossary](#)*

Heat pump

An electric device with both heating and cooling capabilities. It extracts heat from one medium at a lower (the heat source) temperature and transfers it to another at a higher temperature (the heat sink), thereby cooling the first and warming the second.

Geothermal/ Ground source heat pump

These heat pumps are underground coils to transfer heat from the ground to the inside of a building.

Water source heat pump

Heat pump that uses wells or heat exchangers to transfer heat from water to the inside of a building. Most such units use groundwater. *Source: [EPA, 2017, Terms of Environment](#)*

Hydropower

Electrical energy produced by falling or flowing water. See hydroelectric power plant. *Source: [EPA, 2017, Greenhouse Gas Emission & Sink Glossary](#)*

Inclusion

Inclusion is a state of being valued, respected and supported. It's about focusing on the needs of every individual and ensuring the right conditions are in place for each person to achieve his or her full potential. Inclusion should be reflected in an organization's culture, practices and relationships that are in place to support a diverse workforce. Inclusion is the process of creating a working culture and environment that recognizes, appreciates, and effectively utilizes the talents, skills, and perspectives of every employee; uses employee skills to achieve the agency's objectives and mission; connects each employee to the organization; and encourages collaboration, flexibility, and fairness. We define inclusion as a set of behaviors (culture) that encourages employees to feel valued for their unique qualities and experience a sense of belonging. *In simple terms, inclusion is getting the mix to work together. Source: [U.S. Department of Housing and Urban Development](#)*

Immediate timeframe for climate action

Recommendation for IDNR to implement this strategy within 1 – 2 years. *Source: IDNR CAP, 2022*

LEED (certification standard from USGBC)

LEED...promotes sustainable building and development practices through a suite of rating systems that recognize projects that implement strategies for better environmental and health performance. It works throughout the building lifecycle – design and construction, operations and maintenance, tenant build-out, and significant retrofit. *Source: [Energy & Store Development Conference, 2011](#)*

Long-term timeframe for climate action

Recommendation for IDNR to implement this strategy by 2050. *Source: IDNR CAP, 2022*

Medium-term timeframe for climate action

Recommendation for IDNR to implement this strategy by 2040. *Source: IDNR CAP, 2022*

Mitigation

A human intervention to reduce the human impact on the climate system; it includes strategies to reduce greenhouse gas sources and emissions and enhancing greenhouse gas sinks. Source: [EPA, 2017, *Climate Change Terms*](#)

MTCO₂e (metric tons of carbon dioxide equivalent)

A metric measure used to compare the emissions from various greenhouse gasses based upon their global warming potential (GWP). Carbon dioxide equivalents are commonly expressed as "metric tons of carbon dioxide equivalents (MMTCO₂Eq)." The carbon dioxide equivalent for a gas is derived by multiplying the tons of the gas by the associated GWP. $MTCO_2Eq = (\text{metric tons of a gas}) * (\text{GWP of the gas})$ See greenhouse gas, global warming potential, metric ton. Source: [EPA, 2017, *Glossary of Climate Change Terms*](#)

Net-zero:

Achieving *zero* emissions means releasing no greenhouse gasses to the atmosphere—that is, no carbon dioxide (CO₂), no methane, no nitrous oxide or other greenhouse gasses. Achieving *net-zero* emissions means that some greenhouse gasses are still released, but these are offset by removing an equivalent amount of greenhouse gasses from the atmosphere and storing it permanently in soil, plants, or materials. Because it would be prohibitively expensive or disruptive to eliminate some sources of emissions entirely, achieving net-zero emissions is considered more feasible than achieving zero emissions at a nationwide scale. Source: [National Academies, 2022.](#)

Ongoing climate action

Recommendation that this become an ongoing strategy for IDNR. Source: *IDNR CAP, 2022*

Passive Design

Passive design is about taking advantage of natural energy flows to maintain thermal comfort. It is about using the appropriate building orientation, building materials and landscaping. Source: [Altan, Haşim. "Passive Design." *Springer Tracts in Civil Engineering*, 1 Jan. 2016](#) Altan, Haşim & Hajibandeh, Mona & Tabet Aoul, K. & Deep, Akash. (2016). *Passive Design*. 10.1007/978-3-319-31967-4_8.

Permeable pavement

Alternatives to traditional pavement on our paved surfaces can help reduce runoff by infiltrating rain water and melting snow. These alternative materials which include pervious asphalt, pervious concrete, interlocking pavers, and plastic grid pavers, allow rain and snowmelt to seep through the surface down to underlying layers of soil and gravel. In addition to reducing the runoff from the rain that falls on them, permeable pavements can help filter out pollutants that contribute to water pollution. Permeable pavements can also reduce the need for road salt and reduce construction costs for residential and commercial development by reducing the need for some conventional drainage features. Source: [EPA, *Soak Up the Rain: Permeable Pavement, 2017*](#)

Renewable energy

The term renewable energy generally refers to electricity supplied from renewable energy sources, such as wind and solar power, geothermal, hydropower, and various forms of biomass. These energy sources are considered renewable sources because they are continuously replenished on the Earth. *Source: [EPA, 2017, Clean Energy Glossary](#)*

Resilience

A capability to anticipate, prepare for, respond to, and recover from significant multi-hazard threats with minimum damage to social well-being, the economy, and the environment. *Source: [EPA, 2017, Climate Change Terms](#)*

The capacity of social, economic, and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity and structure while also maintaining the capacity for *adaptation*, learning and *transformation*. This definition builds from the definition used by Arctic Council (2013) *Source: [Arctic Council, 2013 Arctic Council, 2013: Glossary of terms. In: Arctic Resilience Interim Report 2013. Stockholm Environment Institute and Stockholm Resilience Centre, Stockholm, Sweden, pp. viii.](#)*

Rooney Rule

The Rooney Rule is one part of the National Football League’s effort to develop a deep, sustainable talent pool at all levels of the organization. The policy promotes diverse leadership among NFL clubs to ensure that promising candidates can prove they have the necessary skills and qualifications to excel. *Source: [NFL Football Operations](#)*

Short-term timeframe for climate action

Recommendation for IDNR to implement this strategy by 2030 *Source: [IDNR CAP, 2022](#)*

Solar array

The most important part of a solar panel system is the solar array. It holds all of the panels in your system, which is where sunlight is collected and converted into electricity. Simply put, a solar array is a collection of multiple solar panels that generate electricity as a system. *Source: [EnergySage Blog, 2022](#)*

WaterSense

WaterSense is a partnership program sponsored by EPA that is designed to protect the future of our nation’s water supply by promoting and enhancing the market for water-efficient products, homes, and professional certification programs (hereafter referred to as “programs”). WaterSense aims to help consumers and businesses use water resources more efficiently to preserve them for future generations and to reduce water and wastewater infrastructure costs by decreasing unnecessary water consumption. *Source: [EPA, WaterSense Program Guidelines, Version 5.3](#)*

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