ASLA
MINNESOTA

Climate Action & Biodiversity Plan

Minnesota Chapter of the American Society of Landscape Architects

March 2025

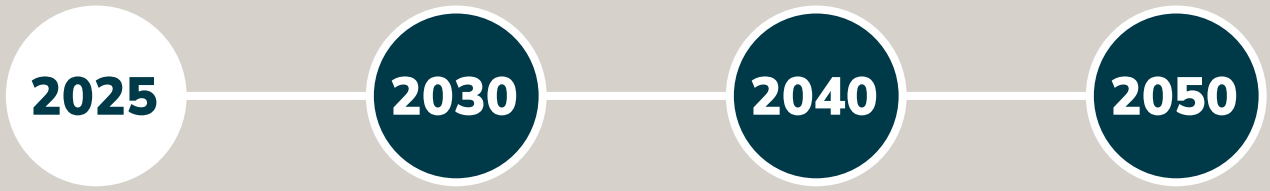
ASLA Minnesota Climate Action & Biodiversity Plan

Landscape Architects are in the business of making places. We have a professional responsibility to design places that are forward-thinking and reflect the state of the environment. As Landscape Architects, we must adhere to our ethical responsibilities to:

+ Protect public health, safety, and welfare
+ Respect natural systems and cultural heritage
+ Act as responsible stewards of the land and environment

In a rapidly changing world, climate action in practice is increasingly urgent; we must adapt our practices to remain relevant and responsible practitioners, and in doing so positively impact the individuals, communities, allied professionals and other stakeholders who interact with or collaborate in our work.

This document details action steps practitioners can take to reduce emissions today, this week, or this year. These actions might involve cultural norms or individual choices, practical applications, or theoretical frameworks; they may be introspective or outwardly focused and they range in ease and difficulty.



Adoption of **ASLA-Minnesota Climate Action & Biodiversity Plan**

Cut greenhouse gas emissions by 50% globally per the Intergovernmental Panel on Climate Change (IPCC)

ASLA Goal of Global Zero Emissions aligned with United Nations Sustainable Development Goals

IPCC Global Net Zero Emissions Goal

Adopted By ASLA Minnesota on March 6, 2025

Acknowledgments

Developed by the 2024-2025 ASLA Minnesota Executive Committee, with special thanks to the Climate Action Committee Chair, John Pierce, and the Climate Action Plan Subcommittee, John Pierce, Jess Vetrano, Matthew Rentsch, and Laura Kamin-Lyngaard.

Cover image is courtesy of Friends of the Mississippi River

Climate Actions

ASLA MINNESOTA

This checklist offers actionable steps to reduce emissions—whether today, this week, or over the next year. Some actions are about shifting daily office habits, others focus on broader systems and strategies. They may be quick wins or long-term efforts, personal endeavors or collective initiatives. No matter where you start, every step moves us forward.

Office & Workplace

- [ ] **1.** Upgrade your electricity to solar & wind
- [ ] **2.** Cultivate a zero food waste office culture
- [ ] **3.** Order plant-based foods for events
- [ ] **4.** Incentivize employees to use public transportation or active transportation
- [ ] **5.** Embrace tap water
- [ ] **6.** Take care of office tech
- [ ] **7.** Reduce single use plastics
- [ ] **8.** Recycle judiciously
- [ ] **9.** Conserve electricity
- [ ] **10.** Optimize office heating & cooling

Education & Advocacy

- [ ] **34.** Stay informed on evolving climate science & solutions
- [ ] **35.** Assess climate risks to your region of the state or area of practice
- [ ] **36.** Incorporate social equity into climate action
- [ ] **37.** Embrace climate optimism
- [ ] **38.** Explore cultural knowledge systems
- [ ] **39.** Think beyond certifications
- [ ] **40.** Innovate

Landscape Architecture Practice

- [ ] **11.** Demand low carbon concrete & carbon free steel
- [ ] **12.** Source regionally
- [ ] **13.** Calculate embodied emissions
- [ ] **14.** Ask for EPDs to understand & compare product emissions
- [ ] **15.** Advocate for native plants
- [ ] **16.** Use plantfinder to inform plant palette & biodiversity
- [ ] **17.** Find a local native plant expert to guide restoration efforts
- [ ] **18.** Consider alternatives to tropical hardwoods
- [ ] **19.** Amplify “nature-based” solutions
- [ ] **20.** Preserve soil
- [ ] **21.** Avoid peat
- [ ] **22.** Be aware of greenwashing
- [ ] **23.** Educate clients
- [ ] **24.** Use recycled materials
- [ ] **25.** Collaborate with trees
- [ ] **26.** Discourage pesticide & herbicide use after turnover
- [ ] **27.** Collaborate with allied professionals on climate
- [ ] **28.** Marginalize two-stroke engines in landscape maintenance
- [ ] **29.** Right-size turfgrass
- [ ] **30.** Induce walking & biking, not driving & parking
- [ ] **31.** Design for low-salt maintenance regimes
- [ ] **32.** Treat all site water as a resource
- [ ] **33.** Integrate onsite renewable energy

Office & Workplace Actions

The built environment is a major driver of emissions. Office operations—including energy consumption, material choices, & operational efficiency—offer immediate opportunities to reduce environmental impact.

1. Upgrade your electricity to solar & wind

All industrial sectors, transportation systems, construction sites, and commercial enterprises will need to upgrade to non-fossil electricity to stop climate change.[1] Talk to your landlord or electricity provider to make the switch to renewables (solar or wind) at your office.

2. Cultivate a zero food waste office culture

Reduce food emissions at the office and strive to be a zero-food waste office. In practice, this might mean right-sizing your event food orders. Start an office composting regime to deal with the rest. Some cities have robust organics programs, while others need signals from constituents to get these programs going. Food waste reduction has a surprisingly large impact on emissions: about 8%. [2]

3. Order plant-based foods for events

Food choices matter for climate change.[3] Dairy and red meat are the most emissive food choices as well as the most water intensive. For example, beef is roughly 40 times more emitting than coal pound for pound.[4] Work with restaurants that provide quality plant-based options and prioritize these types of foods for events.

4. Incentivize employees to use public transportation or active transportation

Change employee commute policies to encourage active transportation, carpooling, and transit instead of subsidizing individual trips. Consider parking "cash-out" programs in which employees can choose the mode of travel to work without an incentive to drive alone. To "cash-out", a firm calculates its parking benefit and disburses a cash equivalent to each employee rather than providing "free" or subsidized parking by default. Each employee then chooses how to use their cash benefit.

5. Embrace tap water

Embrace tap, not bottled, water at the office. Tap water avoids transportation emissions (liquids are heavy to ship) and avoids plastic production and waste.

6. Take care of office tech

Streamline and reduce e-waste by optimizing electronics: sell, repair, recycle, donate, or upcycle office electronics. Maintain lithium battery devices with the current best practices: Avoid charging lithium batteries to 100% unless necessary, avoid letting battery charges drop to 0%, and operate lithium batteries within their temperature limits. Keep lithium devices between 20% and 80% charged when in operation and for storage. Mineral extraction is essential to our increasingly digital lifestyles and workflows. By taking care of our electronics, we can reduce mining emissions and demand as we shift to electrification.

1 www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf
2 drawdown.org/solutions/reduced-food-waste
3 drawdown.org/sectors/food-agriculture-land-use
4 ourworldindata.org/meat-production

7. Reduce single use plastics

Conventional single use plastics (cutlery, bags, containers, etc.) are cheap because fossil fuels are underpriced.[5] The "three arrows" recyclable symbol is unregulated and mostly meaningless in America; many single use plastics cannot be recycled physically nor is the process economically competitive.[6] Reduce and replace single-use plastics where possible and opt for reusable alternatives. If reusable options are not available, choose compostable products or non-fossil derived plastics.

8. Recycle judiciously

Recycle what you can. Glass bottles are infinitely recyclable, and recycling metal products helps to reduce mining impacts. When in doubt about recyclability, put the item in the trash rather than "wish-cycling." Direct consumer re-use and demand reduction are a more effective means of avoiding emissions than mixed recycling.[7]

9. Conserve electricity

Turn off devices when not in use and establish power norms for workstations (power settings and automatic shutdowns). Turn off the lights when not needed. Where possible, set passive light shut offs to avoid the need for human intervention. Treat underutilized electricity like a flowing faucet: an unnecessary expenditure of money and resources.

10. Optimize office heating & cooling

Minnesota's climate is one of extreme cold and occasional extreme heat. Work to install a "smart" heating and cooling control to increase performance within the office's existing HVAC setup. Down the road, technological solutions for fully electrified heating and cooling are increasingly possible; our allies at MEP2040 and Architecture 2030 have solutions and expertise to assist.

5 ourworld.unu.edu/en/fossil-fuel-prices-far-lower-than-true-costs
6 www.sierraclub.org/ohio/blog/2021/06/what-do-chasing-arrows-mean-anyway
7 drawdown.org/solutions/recycling

Landscape Architecture Practice Actions

As landscape designers, we have the power to drive markets toward sustainable solutions. Thoughtful decisions—especially early in the process—lead to stronger climate outcomes.

11. Demand low carbon concrete & carbon free steel

Substitute lower-carbon concrete and steel in projects where possible. Reducing the use of traditionally produced concrete and steel in landscape architecture projects is essential for mitigating climate change, as both materials are significant sources of CO_2 emissions. Where reduction is impossible, concrete mix substitutions can lower the embodied carbon. Research and integrate the best options for lower carbon cement mixes appropriate for your projects. Seek out fossil-free or lower carbon steel products.

12. Source regionally

Regional sourcing reduces emissions from shipping. The USGBC uses a 500-mile radius (the distance between Minneapolis and Milwaukee) for the extraction, harvest and/or recovery of project materials as its definition of regional for materials.

13. Calculate embodied emissions

For landscapes, approximately 75% of emissions come from those embodied in the materials of our projects. The Carbon Conscience[8] tool is designed for early planning stages and encompasses both Landscapes and Buildings emissions estimations. Pathfinder[9] is suited for later stages of design and can show drawdown scenarios from planted landscape. For Revit users, the paid plug-in Tally[10] provides emissions of selected building materials. Understanding existing emissions profiles is essential for us to move toward the post carbon reality.

14. Ask for EPDs to understand & compare product emissions

Move the marketplace by asking for Environmental Product Declarations (EPDs). An EPD is a verified report that quantifies a product's environmental impact throughout its life cycle (otherwise known as a lifecycle assessment). This aligns with ASLA's support for a zero-emission landscape architecture product marketplace.[11] The professional demand and market shifts start with each project. Emissions assessment and product disclosures provide the baseline data that can be used to compare and select products and companies based on global warming potential.

15. Advocate for native plants

Climate change is closely linked to biodiversity loss: as the planet warms, plant and animal extinction rates increase. Incorporate native plants in all projects to protect biodiversity. Strive to gain client support and ensure adequate maintenance to help native plant species or communities thrive. Awareness of and proximity to existing or burgeoning natural areas can inform adjacent project planting designs. Larger projects can reduce the harms of construction by setting aside soil and plant protection areas, native plant experts can assist in keeping invasives at bay and helping native plants become established using local ecotype seed and plugs.

8 carbon-conscience.web.app
9 app.climatepositivedesign.com
10 choosetally.com
11 www.asla.org/uploadedFiles/CMS/Practice/Climate_Action_Plan/Product_Data.pdf

16. Use plantfinder to inform plant palette & biodiversity

The National Wildlife Federation's "Plantfinder" tool[12] provides a sortable database based on the number of species supported by each plant. This is helpful to make strategic planting decisions within projects at all scales. Planted areas and gardens need to do more than just feed mature pollinators, they need to create pollinators to slow their decline.

17. Find a local native plant expert to guide restoration efforts

Ecological restoration appears to be an industry on the rise. Bringing an expert on board to advise and oversee seed selection, timing, and installation can help native plant communities succeed.

18. Consider alternatives to tropical hardwoods

Ipe and other tropical hardwoods are linked to illegal logging despite certification efforts indicating otherwise.[13] Tropical forests act as self-generating weather stabilizers, biodiversity hotspots, global air purifiers, and carbon sinks. They are under immense deforestation pressure despite their importance as a bulwark against further climatic instability; reducing product demand can help to slow their loss from extraction. Substitutions include bamboo, thermally modified ash, and others.

19. Amplify "nature-based" solutions

Nature-based solutions "leverage nature and the power of healthy ecosystems to protect people, optimize infrastructure and safeguard a stable and biodiverse future" (IUCN).[14] These activities might include using trees for heat island reduction, utilizing water as an asset, and using plants for biodiversity and erosion control. Systems thinking, considering longer time horizons, "softening" instead of "hardening", and other conceptual frameworks might also fall under the "nature-based" toolkit. As weather extremes worsen, these strategies may become increasingly critical. Even the Army Corps of Engineers is elevating nature-based strategies within the field of civil engineering. [15]

20. Preserve soil

Avoid imported soils unless contamination or other physical problems foreclose in situ use of soil. Stockpile soil on site and keep soil microbes alive during construction (create a soil pile height maximum, use a cover crop, inoculants and/or amendments, etc.). The SITES program explains soil management in detail.

21. Avoid peat

Peat bogs are a major carbon sink; specifying them for professional or personal use is harmful. Substitutions such as coconut coir, compost, rice hulls and more are available. Peatlands cover 3% of the world's land surface but contain at least a quarter of the world's soil carbon; potentially more than is stored in all forests globally.[16] By eliminating peat in our projects, we reduce pressure on these carbon sinks.

12 nativeplantfinder.nwf.org
13 www.washingtonpost.com/science/2023/11/04/brazilian-hardwood-ipe-harvested-illegally
14 www.iucn.org/our-work/nature-based-solutions
15 www.erdc.usace.army.mil/Media/News-Stories/Article/3214936/engineering-with-nature-initiative-contributes-to-white-house-roadmap-for-accel
16 nhsforest.org/resources/environmental-vandalism-how-and-why-to-stop-using-peat

22. Be aware of greenwashing

Avoid greenwashing and approach environmental certifications with skepticism. Greenwashing is harmful because it mischaracterizes actions as beneficial, delaying or distracting from meaningful climate progress and creating confusion. When evaluating environmental claims, consider factors like the energy source (e.g., is the process electrified or moving in that direction?), the carbon embodied in the concrete mix, the total transportation miles for components, and the lifecycle impacts of materials. Tools like Environmental Product Declarations (EPDs) and Life Cycle Assessments (LCAs) offer valuable insights, but vendors must be encouraged to provide them.

What we ask of vendors, we must also ask of ourselves: are our office buildings or home offices powered by renewable electricity? Are our HVAC systems optimized for efficiency? Are we actively reducing food waste? Paradoxically, we must resist the urge to greenwash our projects while also celebrating and pursuing environmental wins whether incremental or transformative.

23. Educate clients

Educate every client on climate risks. Learn, then lead. ASLA National boldly advises landscape architects to be ready to reject planning and design work that fails to account for climate risks.

24. Use recycled materials

High quality recycled materials streams can reduce extractive impacts. Request EPDs from vendors for products to understand product materials' impact. Carbon accounting is an area for growth: how much global warming potential is generated from the production of this recycled product? And how does this compare to similar products?

25. Collaborate with trees

Trees provide numerous benefits when utilized in the built environment. Heat island reduction, shade, mental health benefits, and wildlife habitat are a fraction of the ecological services provided by trees. Sapling protection is particularly important in urban areas. Mix species to prevent disease spread and increase the odds of survival during weather events. NWF's Plantfinder Tool[17] and local experts can assist in understanding ecological connectivity and appropriateness.

26. Discourage pesticide & herbicide use after turnover

Encourage a no pesticides or herbicides regime after turnover, especially for projects near biodiverse areas. These powerful products should be considered a last-resort method for controlling noxious invasive species. Neonicotinoids are of particular concern for maintaining insect biodiversity.

27. Collaborate with allied professionals on climate

The codes and certifications that create the legal operating parameters of the built environment can lag in a rapidly changing world; collaborate with colleagues across professional lines to execute leading edge decisions related to water management, concrete selection, and other areas unique to each project.

28. Marginalize two-stroke engines in landscape maintenance

Ask landscape contractors if they have a phase-out plan for two-stroke tools. These small tools emit pollutants equivalent to a pickup truck.[18] Battery-powered alternatives, charged by wind and sun electricity, are a better choice.

17 nativeplantfinder.nwf.org
18 psci.princeton.edu/tips/2020/5/11/law-maintenance-and-climate-change

29. Right-size turfgrass

Guide clients to choose alternatives to traditional mowed turfgrass particularly in nonfunctional or surplus spaces. Reserve the use of manicured turf for appropriately sized active use and programmed areas and integrate resilient or biodiverse varietals whenever possible.

30. Induce walking & biking, not driving & parking

Encourage clients to reduce parking spaces (but go above EV charging requirements); support shaded, safe sidewalks, robust bike lanes, and other urban design patterns that reject the singular modality of individual vehicles. Although low-density development has been the norm for the last several decades in America, climate change may be changing the developmental math as the ecological and public health effects of land use and transportation patterns become increasingly apparent.

31. Design for low-salt maintenance regimes

Minnesota's freeze/thaw cycles are changing as the climate warms.[19] Designing for lower salt regimes is important to reduce chloride accumulation in our soils and waterbodies. Lower salt design strategies include harnessing the sunlight on critical braking and vehicle turning areas, designing natural barriers to break uninterrupted winter winds, orienting building entrances for maximum sun exposure, choosing deciduous trees instead of evergreens near paved surfaced, and placing snow storage on the downhill side of paths.

In addition to increased freeze/thaw, extreme heat will stress outdoor materials. This may affect design details and materials decisions. These climate changes may be an invitation to re-evaluate standard design details.

32. Treat all site water as a resource

Climate models predict that global warming will make the water cycle increasingly erratic in Minnesota. This forecast strengthens the case for integrating water retention, purification, and management into virtually every type of landscape. By reimagining how our projects capture, retain, and convey water — and designing systems that emulate the natural water cycles of healthy ecosystems — landscape architects can lead the way toward a more water-resilient future. What we implement on our projects serves as a microcosm of broader opportunities for water-conscious design.

33. Integrate onsite renewable energy

The massive inertia of the physical environment and grid systems represents a major obstacle to slowing energy emissions. It is likely that small, distributed renewable energy systems will be increasingly common as Minnesota works towards its emissions cuts. Landscape architects can and should have a role in integrating dispersed energy and utilities gracefully into designed landscapes.

19 twin-cities.umn.edu/news-events/how-will-warmer-winters-impact-our-roads

Education & Advocacy Actions

Climate science & environmental ethics are evolving. Staying informed helps us protect public welfare & make responsible choices.

34. Stay informed on evolving climate science & solutions

Education empowers Landscape Architects to empower others and improve project outcomes. Examples of strong local cultural leadership in climate action include the "City Climate Corner" podcast, The Climate Action Handbook by Dr. Heidi Roop, and the annual programming of the Great Northern Festival. Nationally and internationally, resources abound. Examples include FT's "Climate Game,"[20] the L.A. Times' "Ocean Game"[21], and the illustrated "Bad Future, Better Future"[22] resource and "the New World: Envisioning Life After Climate Change."[23] These resources pack broad amounts of information into digestible articles or games. Critically evaluate the science and messaging in climate writing to identify potential bias or dissonance.

For a deeper dive into climate, the IPCC 6th report is the most up to date assessment on the planetary forecast.[24] For a menu of actions for industry-agnostic climate solutions, Project Drawdown is a leader.[25] ASLA National hosts an expansive and growing resource library as the nexus of landscape and climate solutions becomes clearer.[26] USGBC's SITES system is the leading climate and biodiversity landscape toolkit.[27]

35. Assess climate risks to your region of the state or area of practice

Assess climate risks to your office, neighborhood, and region and prepare for these risks. According to the EPA, Minnesota faces near-term climate risks both physical and cultural.[28] Consider the risks for the locations of your projects and respond accordingly with in-house office actions, community or neighborhood advocacy, or state house advocacy.

Environmental stressors disproportionately fall on poorer households and communities in a variety of ways (i.e. greater exposure to heat waves, increased ground level ozone, inferior access to quality green spaces, etc.). Global warming is likely to increase these environmental justice concerns. Climate savvy design strategies are both an opportunity to slow (mitigate) emissions compared to "business as usual" alternatives and an opportunity to adapt the built environment to the changes that are already happening.

20 ig.ft.com/climate-game
21 www.latimes.com/projects/la-me-climate-change-ocean-game
22 www.nytimes.com/interactive/2021/04/18/climate/climate-change-future-kids.html
23 www.nytimes.com/interactive/2022/10/26/magazine/visualization-climate-change-future.html?smid=nytcore-ios-share&referringSource=articleShare
24 www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf
25 drawdown.org/solutions/table-of-solutions
26 ASLA National climate resources include: "Towards Zero Business Operations", "Collaborating with Industry Partners on Climate Action and Biodiversity", "Decarbonizing Specifications: A Guide for Landscape Architects, Specifiers, and Industry Partners", "Climate Action Field Guide", "Climate Action Plan", and more. www.asla.org/climateaction.aspx
27 www.usgbc.org/resources/sites-rating-system-and-scorecard
28 19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-mn.pdf

36. Incorporate social equity into climate action

Climate change disproportionately affects marginalized communities that often have the least access to resources for adaptation and are most exposed to environmental risks like heat waves, air pollution, and flooding. Addressing these disparities is essential for achieving long-term climate resilience. Deep community engagement, particularly with Indigenous and underserved communities, can enable cultural land management practices and promote ways of practice better equipped to deal with increasing weather extremes. Ideal landscape solutions would be both locally relevant and reflect a holistic and historically informed conception of the public good.

Further, climate investments and strategies should ensure fair distribution of benefits such as green infrastructure, affordable transportation, and clean air and water access. The ASLA's Climate Action Plan states that "landscape architects will increase support for equity and equality, rights of nature, food security, and the right to clean water and air, green spaces, housing, [and] transportation options for all."[29]

37. Embrace climate optimism

Reject climate polarization and cynicism. Climate change is neither hopeless nor resolved. Human action can forestall many of the predicted impacts, but scientists tell us we are currently moving too slowly. Sociological research indicates that it takes the outspokenness of just 3.5% of a population to impact public opinion and shift outcomes.[30]

38. Explore cultural knowledge systems

Learn from indigenous cultural knowledge systems. The International Federation of Landscape Architects says that practitioners "commit to respecting and working with indigenous communities and honoring cultural land management practices to mitigate climate change impacts and continue work towards reconciliation."[31] Ideas of reciprocity and the interconnectedness of all things are increasingly mainstream.[32] The integration of these ideas could have profound impacts on our response to climate change and our designs. While harm reduction is urgent, we might aim for "no harm" and then improvement and reciprocity.

39. Think beyond certifications

Utilize certifications such as SITES and LEED as a resource and apply their highly considered frameworks and metrics to help your practice and designs. But note that LEED's success in North America does not correlate with wider adoption of climate mitigation efforts or global emissions goals.[33] If landscape architects do not get ahead of the certification systems, we may be left behind as governments and other allied and competitive fields adapt at different rates.

40. Innovate

The mechanisms and opportunities to reduce project emissions are beyond the scope of any single document, practitioner, office, or government. Innovate today with tomorrow's world in mind, one in which all landscape projects will simultaneously:

+ Achieve zero embodied and operational emissions and increase carbon sequestration
+ Provide significant economic benefits in the form of measurable ecosystem services, health co-benefits, sequestration, and green jobs
+ Address climate injustices, empower communities, and increase equitable distribution of climate investments
+ Restore ecosystems and protect, conserve, and enhance biodiversity

29 www.asla.org/uploadedFiles/CMS/Practice/Climate_Action_Plan/ClimateActionPlan.pdf
30 www.nonviolent-conflict.org/resource/success-nonviolent-civil-resistance
31 www.iflaworld.com/ifla-climate-action-commitment-statement
32 www.nature.com/articles/s41586-023-06406-9
33 www.wri.org/insights/2023-ipcc-ar6-synthesis-report-climate-change-findings