Recommendations of the IAC Land Use and Nature Based Solutions Working Group
Decarbonization Roadmap and the Clean Energy and Climate Plan for 2030, Submitted 9/28/2020

PREAMBLE

The Land Use and Nature Based Solutions Working Group supports the work of the Massachusetts Global Warming Solutions Act Implementation Advisory Committee (IAC); and we coordinate closely with the GWSA IAC Climate Justice Working Group. We are focused on creating and improving state policies, programs and incentives that use nature to help reach the state's Net Zero goals. The Nature Conservancy is coordinating the efforts of this Working Group. Other members include Appalachian Mountain Club, the Environmental League of Massachusetts, Mass Audubon, Metropolitan Area Planning Council, and The Trustees of Reservations.

Reducing greenhouse gas, especially from fossil fuels, is the most critical action we must take to mitigate climate change. However, only by harnessing the power of natural climate solutions to remove and store carbon can Massachusetts reach Net Zero greenhouse gas emissions targets. Natural climate solutions (NCS) are **actions to protect, restore, and better manage natural and working lands, such as forests, farms, and wetlands, to reduce and remove carbon emissions, with many co-benefits including resilience.** With currently available practices, Massachusetts' lands have the potential to remove and reduce **an additional 1-2 million metric tons CO2e per year.**

As we move toward net zero goals, and emissions reductions from other sectors become more challenging and expensive, NCS will become increasingly needed and important. *Nature is the only viable tool we have right now to remove carbon pollution already in the air at scale.*

To meet emissions reduction and carbon drawdown goals while making the best use of limited funding and resources, the NCS Working Group recommends that this hierarchy be followed in sequence:

1) **Protect** natural and working lands (NWL). Much of the carbon in these lands is irrecoverable; this carbon is emitted into the air when land is developed, and it is not possible to regain that lost carbon through management or restoration for over 30 years (the net zero timeframe).

2) **Manage** NWL in ways that sequester carbon in soil and plants over time. This includes monitoring agricultural and forest carbon stocks, including soil health, while ensuring steady supply of wood and food coming from Massachusetts' working lands.

3) **Restore** NWL when it has not been possible to protect or sustainably manage NWL. These actions include reforestation, city tree planting, restoration of wetlands, and actions to repair soil health.

For the purposes of this plan, the Land Use and Nature Based Solutions Working Group has focused on policy recommendations that are not already being implemented through state government. These recommendations are based on the full expectation that the Executive Office of Energy and Environmental Affairs will implement the recommendations of both the Healthy Soils and Resilient Lands Initiatives, and these priorities should be viewed as additive to those initiatives.

The Working Group's policy recommendations are offered with the following overall principles and guidance in mind:

Massachusetts should accurately and effectively utilize natural and working lands to achieve the benchmarks and goals in the state's Clean Energy and Climate Plan for 2030. The Commonwealth needs to take immediate and robust actions today, as investments in NWL need time and will pay enormous dividends in the future.

To effectively utilize NWL, the state should set numeric goals to:

- Reduce greenhouse gas emissions caused by the loss and poor management of NWL (emissions reductions), including the urban and suburban tree canopy; and,
- Increase the carbon dioxide that is removed from the atmosphere and stored in NWL (sequestration).

The state should establish a baseline for NWL to monitor changes in carbon emissions and removals, understand return on investment, and measure progress towards the state's carbon goals. If the chosen start date is different from 1990 (the date used in other sectors under the Global Warming Solutions Act), then state agencies should provide a transparent and comprehensive explanation for the different start date.

The state should create and maintain an annual greenhouse gas inventory of NWL emissions reductions and sequestration, including but not limited to, forests, farms, inland and coastal wetlands, and urban and suburban tree canopy. In the case of forest and agricultural products produced in Massachusetts but consumed elsewhere, and vice versa, carbon pools shall be counted, but not double-counted.

Overall, the state shall use the best available data and science when developing an annual NWL greenhouse gas inventory, numeric goal, and baseline.

The state should approach NWL strategies through a holistic lens. Strategies should consider co-benefits of investments in NWL and ways to achieve multiple objectives, including benefits of such lands to environmental justice populations, enhancing and improving climate resiliency and adaptation, protecting drinking water supplies, conserving fish and wildlife habitat, providing habitat connectivity, creating quality jobs, stimulating the economy, and creating and expanding outdoor recreational opportunities. Solely focusing policy on the carbon value of land-based resources could lead to unintended consequences and missed opportunities.

To reach the Commonwealth's climate and equity responsibilities, the state should develop partnerships, policies, programs, and funding mechanisms to protect, manage, and restore NWL. The state should incorporate the principles created by the IAC Climate Justice Working Group when forging said partnerships, policies, and programs and prioritize funding that corrects long-standing environmental injustices and makes historically marginalized communities more resilient to climate change.

Finally, in addition to meeting Massachusetts' carbon reduction goals, the inclusion of NWL is critical to meet the U.S. Climate Alliance Natural and Working Lands Challenge, and to align with international standards of carbon accounting and inventories.

The Land Use and Nature Based Solutions Working Group has identified a broad suite of actions that could be taken to activate NWL in the state's climate strategy. The following recommendations are a subset of the most urgent actions the Working Group believes the state needs to take between now and 2030 to maximize NWL contribution to the Commonwealth's climate goals.

These six recommendations have been drafted based on input in the spreadsheet [here](#).

Top 6 Recommendations:

Category 1: Avoid Forest Conversion

Avoid the loss of forests in all geographies (rural, suburban and urban) by establishing new and increasing and streamlining existing grant and incentive programs for forest protection within the Executive Office of Energy and Environmental Affairs (EEA), and other state agencies, policies and programs. Programs should include priority set-asides for 1) conserving land near Environmental Justice (EJ) communities and water supply lands; 2) maintaining mature urban tree canopy; and 3) conserving large, interconnected forests (which contain the highest carbon). To further protect forests in all geographies, add tree removal as a mandatory threshold under Massachusetts Environmental Policy Act for an Environmental Impact Review, for trees of a size to be determined by geography. Measure the carbon loss from deforestation as well as urban tree loss in greenhouse gas inventories.

Category 2: Restoration and protection of wetland systems' greenhouse gas sequestration and services (Blue Carbon)

Protect, manage, and restore inland and coastal wetland systems and their carbon flux by establishing new and strengthening existing regulations and guidance and compliance and enforcement that maximize ecosystems vitality, carbon capture and other ecosystem services and expanding wetlands and stream restoration programs 1) to reduce climate change impacts by reflecting future climate change projections (sea level rise, shifting temperatures, changing precipitation projections) under the Massachusetts Wetlands Protection Act and regulations; and, 2) to prevent water quality degradation from pollution, especially in nutrient sensitive areas with combined sewer systems, Total Maximum Daily Loads for nutrient pollution, septic systems, and stormwater MS4 permits.

Category 3: City trees and Reforestation

Retain existing city trees and set targets for planting new trees and for survival of planted trees in Environmental Justice communities, all 26 Gateway Cities and other urban centers. Prioritize the siting of trees where they will reduce heat island effects and lower the heating and cooling energy needs of nearby buildings and to absorb stormwater. Collect additional data on urban trees, where losses occur, and the types of development that are associated with loss. In suburban and rural areas, expand programs to reforest riparian and flood-prone areas (for example, by matching USDA Natural Resources Conservation Service cost-share funding).

Category 4: Net Gain of Ecosystem Functions/Services

Enact legislation to achieve a Net Gain of ecosystem functions/services (TBD), and the ability for natural resources to provide clean air and water, carbon sequestration, adaptation benefits, etc. The law should

require that EEA 1) set a Net Gain goal; 2) measure and report land use conversion and trends, including trends in Environmental Justice communities that impact urban tree canopy cover; 3) create a spatial decision support tool to calculate net losses and gains, to quantify impacts and benefits, and to guide decision-making at all scales and across land use types; 4) provide incentives for protection and restoration; and, 5) promulgate regulatory requirements to avoid, minimize, and mitigate land use conversion.

Category 5: Increase carbon on working lands

Increase carbon stored on working lands and increase the quality of forest and agricultural products by employing a range of strategies including using grants and state and local incentives to: 1) pay and incentivize forest landowners to practice carbon-beneficial forestry practices (through existing programs, like the Family Forest Carbon Program and by creating new forest resilience programs); and, 2) pay and incentivize farmers to apply silvopasture, cover crops, no till, and the best management practices described in the Healthy Soils Action Plan.

Category 6: Operationalize nature-based solutions for new and redevelopment.

Create incentives for reforming local ordinances, bylaws, and permitting processes to ensure no net loss of ecosystem services through protection and maximization of green infrastructure/nature-based solutions in all new and redevelopment, and combine gray/green infrastructure where needed. Some examples include Open Space Residential Design, Natural Resource Protection Zoning by right, Transfer of Development Rights, green infrastructure and natural climate solutions design requirements in subdivision regulations and site plan review, and tree retention ordinances with unavoidable tree removals requiring payments into a local fund for tree planting. Make adoption of these rules a requirement for continued qualification as a Municipal Vulnerability Preparedness community, Green Community, other existing grant programs, and create new state incentives for communities to adopt these rules and to incorporate these principles into municipal projects.