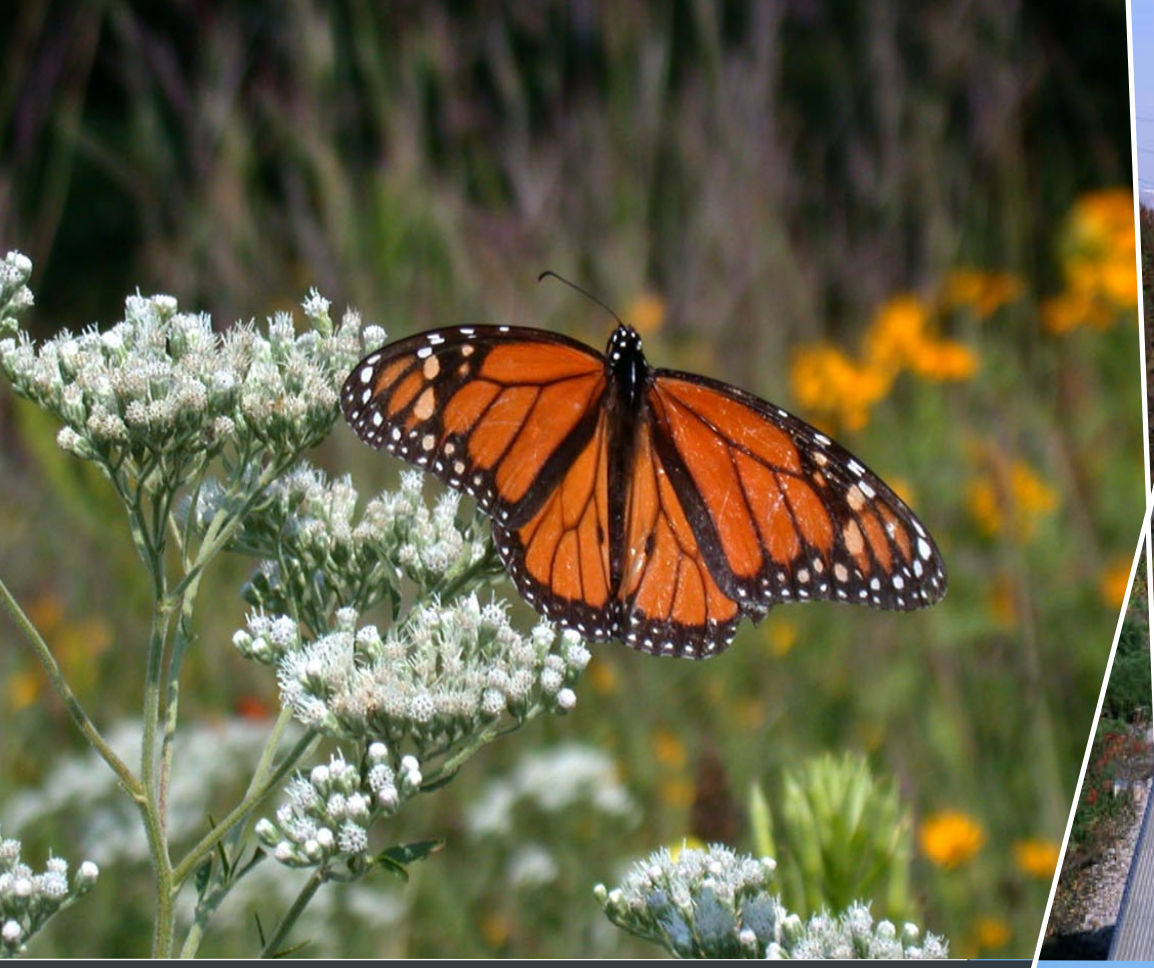

Nationwide Candidate Conservation Agreement for Monarch Butterfly on Energy and Transportation Lands

An integrated Candidate Conservation Agreement with Assurances (CCAA) and Candidate Conservation Agreement (CCA)

April 2019

Document Information

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Executive Summary

This Nationwide Candidate Conservation Agreement with Assurances for the Monarch Butterfly on Energy and Transportation Lands with an integrated Candidate Conservation Agreement (CCAA/CCA or Agreement) represents a unique collaboration between the University of Illinois at Chicago (UIC), the U.S. Fish and Wildlife Service (the "Service"), and more than 30 interested entities from the energy and transportation sectors. These interested companies and organizations represent entities managing lands associated with electric power generation, electric transmission and distribution, oil and gas transmission and distribution, and renewable energy development, as well as a network of individual state departments of transportation, with support from the Federal Highways Administration (FHWA), who were involved in the conceptualization and preparation of this Agreement (Appendix A).

This Agreement embodies the landscape-scale conservation vision that has been recognized as being needed for monarch butterflies. The technical paper titled, *Restoring monarch butterfly habitat in the Midwestern US: 'All hands on deck.'* (Thogmartin et al. 2017) outlined scenarios under which conservation from multiple land management sectors was necessary to meet population targets outlined for the species. Similarly, many of the conservation ideas and goals within this Agreement follow those outlined in the Mid-America Monarch Conservation Strategy 2018-2038 v. 1.0 (MAMCS; MAFWA 2018) and the Western Association Monarch Conservation Plan (WAFWA 2018), as well as associated state plans for monarch conservation and pollinator protection. Each of these conservation plans also recognizes that energy and transportation lands, including owned parcels and easement-held rights-of-way, are important components of the landscape conservation required to achieve monarch population goals.

Implementation of this Agreement is directed by the two integrated conservation agreements consisting of this Candidate Conservation Agreement with Assurances (CCAA) for activities conducted on non-Federal lands and an integrated Candidate Conservation Agreement (CCA) for conservation measures and covered activities implemented on Federal lands, or under other Federal permits or authorization. The CCAA/CCA is a voluntary agreement intended to provide a net conservation benefit to monarch butterflies and to address the potential effects of maintenance and modernization activities within energy and transportation lands on monarch butterfly and their populations. This Agreement encompasses monarch habitat within the species range across the lower 48 states of the U.S. (covered area; Figure 4-1. Migration Range Map of Monarchs (from Xerces Society 2018a)). Within this Agreement, Partners may enroll their energy and transportation lands (enrolled lands) that are included within the covered area described in Section 4.1. Within the enrolled lands, Partners then commit to adopting a targeted amount of conservation measures based on the extent of lands enrolled (adopted acres). Conservation measures consist of activities described in Section 6 of this Agreement that are expected to sustain, enhance, and restore conditions favorable for monarch breeding and foraging. The net conservation benefit resulting from this Agreement is the on-the-ground conservation of the Partners' adopted acres maintaining a network of monarch habitat across both non-Federal and Federal lands. Signatories to this Agreement receive assurances, on non-Federal lands, from the Service that additional conservation measures beyond those in the Agreement will not be required and restrictions or limitations will not be imposed upon them should the species become listed in the future.

The Agreement will be administered by UIC, as the Programmatic Administrator and Permit Holder, with regulatory oversight by the Service. The Programmatic Administrator will be responsible for working with members of the Agreement (Partners) to enroll each respective Partner's lands into the Agreement using Certificates of Inclusion issued by the Programmatic Administrator after verifying an Applicant's eligibility (see Appendix B). These certificates will extend regulatory assurances provided by the Enhancement of Survival permit and facilitate cooperation from the Partners to provide conservation benefits to the monarch. Through implementation, this Agreement will promote conservation and management of the monarch and

its habitat by providing a mechanism to reduce and/or potentially remove key threats related to maintenance and modernization of the nation's energy and transportation infrastructure. The Partners will implement conservation measures described in this Agreement on their enrolled lands and as specified within their individual Certificates of Inclusion.

This Agreement incorporates adaptive management principles to help address uncertain and unforeseen aspects of implementation over the duration of the Agreement. Using adaptive management principles, and with the consent of the Partners and the Service, this Agreement may be amended to address emerging and changing conservation needs.

This programmatic CCAA/CCA includes:

- A general description of responsibilities of all involved participating agencies and Partners, and the area covered under the programmatic CCAA/CCA;
- Background and general threats to monarchs, the goals of this Agreement, and the conservation measures needed to reduce or potentially remove those identified threats in line with that goal;
- Expected benefits of prescribed actions in relation to the five threat factors the Service is required to evaluate when considering whether or not to list a species; and
- Assurances, monitoring, annual reporting, and discussion on level of impact (or take, if listed) that is likely to occur from activities on enrolled lands.

This Agreement encourages involvement in voluntary conservation, which has potential to support the creation of a widespread network of lands managed to benefit monarch habitat across the nation. In doing so, the infrastructure needed for energy and transportation can voluntarily help achieve biological conservation goals for the monarch, and play an important role in long-term conservation on these working lands.

Acronyms

BMP	Best Management Practice
CCA	Candidate Conservation Agreement
CCAA	Candidate Conservation Agreement with Assurances
CFR	Code of Federal Regulations
EIS	Environmental Impact Statement
EOS	Enhancement of Survival
FERC	Federal Energy Regulatory Commission
IPM	Integrated Pest Management
IVM	Integrated Vegetation Management
MAFWA	Midwest Association of Fish and Wildlife Agencies
MAMCS	Mid-American Monarch Conservation Strategy
NERC	North American Electric Reliability Corporation
PHMSA	Pipeline and Hazardous Materials Safety Administration
PIPA	Pipelines and Informed Planning Alliance
UIC	University of Illinois at Chicago
USFWS	U.S. Fish and Wildlife Service
WAFWA	Western Association of Fish and Wildlife Agencies

Definitions

Administrative Fees – Fees that a Partner is required to pay annually when enrolling lands in the Agreement by executing the Certificate of Inclusion. Fees support the permit administration, reporting requirements, and the Partners' collaboration needed to manage the Agreement implementation and reporting requirements.

Adopted Acres – Within this Agreement, adopted acres are those lands within the enrolled lands where conservation measures are used to create, enhance, restore, sustain, or maintain habitat that supports monarch butterfly breeding and/or foraging requirements as documented by effectiveness monitoring in representative sampling. Adopted acres are the primary measure of Net Conservation Benefit within this Agreement.

Adaptive Management – A method for examining alternative strategies for meeting measurable goals and objectives and then, if necessary, adjusting future management actions according to what is learned to provide a Net Conservation Benefit.

Adoption Rate - Adoption rates represent the percentage of total enrolled lands expected of individual Partners under this Agreement on which conservation measures are implemented to provide a Net Conservation Benefit. Adoption rates vary by sector with consideration for the conservation management opportunities and constraints associated with each sector.

Agreement – When capitalized, Agreement refers to the Nationwide Candidate Conservation Agreement with Assurances for Monarch Butterfly on Energy and Transportation Lands.

Applicants – Non-Federal entities or organizations that manage lands associated with energy and transportation uses that are interested in participation within the CCAA/CCA and undertake the application steps detailed within the Agreement. Eligible Applicants include non-Federal organizations and private or publicly owned companies managing lands associated with energy and transportation infrastructure within the Covered Area. Eligible Applicants have the authority and control to implement conservation measures throughout their system of enrolled lands through their property rights (e.g., fee-title ownership, land management and access permits, easements, etc.) or statutory authority. Applicants may be enrolled in this Agreement through a Certificate of Inclusion. Once an Applicant receives a signed Certificate of Inclusion, they formally become a Partner.

Assurances- On non-Federal lands, Partners receive assurances from the Service that additional conservation measures above and beyond those contained in the Agreement will not be required, and that additional land, water, or resource use limitations will not be imposed upon them should the species become listed in the future.

Candidate Conservation Agreement (CCA) – An agreement signed by the Service, and other Federal or State agencies, local governments, Tribes, businesses, organizations, or a citizen that identifies specific conservation measures that the participants will voluntarily undertake to conserve the covered species. There are no specific requirements for entering into a CCA and no standard has to be met; no incidental take permit or assurances are provided under these Agreements.

Candidate Conservation Agreement with Assurances (CCAA) – Voluntary conservation agreements between the Service and one or more non-Federal property owners. Property owners commit to implement mutually agreed- upon conservation measures for a proposed, or candidate, or other at-risk species. On non-Federal lands, the property owners receive assurances from the Service that additional conservation measures above and beyond those contained in the Agreement will not be required, and that additional

land, water, or resource use limitations will not be imposed upon them should the species become listed in the future. For this particular CCAA/CCA, non-Federal property owners are referred to as "Partners."

Certificate of Inclusion – A certificate documenting the Partner's voluntary agreement to enroll specified property in the CCAA/CCA. Certificates of inclusion convey take authority and assurances on non-Federal enrolled land, and document the Partners' participation in the Agreement, allowing for regulatory predictability under the programmatic Conference Opinion for monarch butterflies on Federal lands. Through the Certificate of Inclusion, the Partner voluntarily commits to implement specific conservation actions and to otherwise comply with the terms and conditions of the Certificate of Inclusion, CCAA/CCA and the EOS Permit.

Changed Circumstances – Changes in circumstances affecting a species or geographic area covered by the Agreement that can reasonably be anticipated and planned for by the Parties.

Complete Application- Conforms to the overarching programmatic CCAA/CCA and contains all the information necessary for Programmatic Administrator and the Service to determine that the CCAA Policy, standard, and permit issuance criteria have been met.

Construction – Construction and earth-moving activities limited in size and scope to areas within existing enrolled lands are covered under this Agreement. These activities may be associated with specific maintenance tasks, or construction for infrastructure upgrades or improvement. Also see definitions for Modernization and New Construction for distinctions relative to this Agreement.

Covered Activities – Energy and transportation land management, maintenance, and modernization activities on enrolled lands that have the potential to cause specific threats to monarchs. Covered activities are not reasonably certain to result in incidental take of other ESA listed animals, or are conducted in compliance with the terms and conditions of existing incidental take statements (Section 7), or Section 10 permits. All covered activities are conducted in accordance with applicable State and Federal laws, and with existing permits, easements, and agreements that allow the Partners to access and manage enrolled lands, and that may condition the manner by which they may carry out those activities. If the monarch is listed under as endangered or threatened under the ESA, incidental take of monarchs that occurs as a result of covered activities carried out by a Partner who is adhering to the terms of the Certificate of Inclusion, will be authorized under the EOS Permit and Biological Opinion. See Section 5 of this Agreement for additional detail and examples of covered activities.

Covered Area – The area/lands included in the programmatic Section 7 consultation and eligible for enrollment into the CCAA/CCA and EOS Permit. The covered area for this Agreement is represented by lands managed by energy and transportation partners within the migratory and breeding range of the monarch butterfly across the lower 48 states of the U.S. The covered area excludes documented overwintering sites.

The covered area is the full geographic extent under which the Agreement is applicable. Enrolled Lands are lands that the Partners enroll within this broader area. The covered area includes the geographic extent to which Partners can add, remove, modify, or amend the Agreement to encompass enrolled lands. See Section 4.1 (Covered Area) for additional details.

Conservation Measures – Measures that aim to conserve and enhance the survival of the monarch butterfly and its habitat by addressing identified key threats within the covered area, as described in Section 6 of the Agreement.

Easement – A legal right to cross or otherwise use someone else's land for a specified purpose. Easements may specify specific terms and conditions which allow, or prohibit, specified activities. In some instances, easement holders may issue permits to other parties to support or operate appropriate uses within an easement.

Eligible Lands – Non-Federal and Federal lands, properties, easements, within the covered area on which conservation measures or covered activities may occur and be enrolled in this CCAA/CCA through a Certificate of Inclusion.

Emergency – An unforeseen combination of circumstances or the resulting state that calls for immediate action**.**

Enhancement of Survival Permit (EOS Permit) – Permit issued pursuant to Section 10(a)(1)(A) of the ESA. The Permit becomes effective upon any final rule listing the monarch, if or when applicable. If the monarch is listed, the Permit will provide incidental take authority for covered activities of Partners enrolled under the CCAA/CCA through a Certificate of Inclusion. The EOS Permit will convey incidental take coverage to Partners (including their authorized representatives) for their covered activities on non-Federal lands (within the sideboards of their existing owned lands, as well as leases, easements, and permits). However, Partners do not receive assurances for activities on Federal lands.

Enrolled Lands – The lands (either owned, leased, permitted, or managed easements) within the covered area and identified by the signed Certificate of Inclusion of all Parties. Eligible lands for enrollment include any non-Federal or Federal lands, properties, leases, and easements within the covered area on which conservation measures or covered activities may occur. To the extent that Federal lands are enrolled, the assurances provided under this CCAA/CCA would not apply on those lands. Partner specific estimates of enrolled lands will be included as part of each application, and modified in Certificates of Inclusion annually, as necessary. See Section 4 for additional information.

Enrollment Period – An Applicant may enroll eligible lands in the CCAA/CCA up until the effective date of any final rule listing the monarch as threatened or endangered under the ESA. If a completed application for a Certificate of Inclusion is received during the enrollment period, the Applicant may still be enrolled (and a Certificate of Inclusion issued) after the effective date of a listing decision. Applications will not be accepted after the enrollment period. Partners participating in the Agreement as of the time of listing are allowed to add, remove, or modify lands included in their enrolled lands commitments during and after any listing decision. See Section 4 (Enrolled Lands) for additional details.

Harass – An intentional or negligent act or omission that creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. See 50 CFR § 17.3. Harass is one component of the legal definition of “take” under the ESA.

Harm – An act that kills or injures wildlife. Such an act may include significant habitat modification or degradation, which results in injury of or death to wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. See 50 CFR § 17.3. Harm is one component of the legal definition of “take” under the ESA.

Lease – A contract where a landlord agrees to give a leasee the exclusive right to inhabit or occupy lands or real property. Leases typically gives the lessee the exclusive right to use the property.

Maintenance – Work on enrolled lands that is planned and performed on a routine basis to maintain and preserve the condition of the energy or transportation system or to respond to specific conditions and events that restore these systems to an adequate level of service.

Modernization – Construction and other land disturbing activities involving the repair, replacement, and upgrading of existing infrastructure substantially within on existing enrolled lands. Examples include, but are not limited to, road surface repair, bridge construction and replacement, lane widening, interchange modification or construction, transmission line rebuilds, pipeline replacements, renewable energy infrastructure construction and modifications, and similar activities. See additional examples and descriptions under Section 5 (Covered Activities).

Net Conservation Benefit – According to the 2016 revision to the CCAA Policy, 81 FR 95164 (December 27, 2016), the Service defines net conservation benefit (for CCAA) as the cumulative benefits of the CCAA's specific conservation measures designed to improve the status of a covered species by removing or minimizing threats so that populations are stabilized, the number of individuals is increased, or habitat is improved. Net conservation benefit within this Agreement are the results of voluntary conservation actions undertaken through the Agreement.

Within this Agreement, adoption rates are used to help define the net conservation benefit expected from Partners in each participating sector. For the purpose of this Agreement, we consider the adoption rates to represent the *percentage of total enrolled lands* on which conservation measures are implemented to sustain or enhance habitat for monarchs.

New Construction - Construction and other land disturbing activities that either a) occurs substantially outside of enrolled lands, or b) any project or activity determined through an EIS to pose significant environmental, socioeconomic, historic or cultural impacts is considered as new construction. Examples include, but are not limited to, large construction projects pending complete project easement or land acquisitions, or projects triggering an EIS threshold due to planned impacts, such as large interstate highways, pipelines, transmission lines, new rail routes, or similar. New construction is excluded from covered activities. This term does *not* include activities that solely involve the repair, upgrade, or replacement of existing facilities substantially within existing energy and transportation lands.

New Lands – Lands located within the covered area that a Partner enrolls in the Agreement by modifying its Certificate of Inclusion through written notification to the Programmatic Administrator. A summary of modifications made over the previous calendar year will be included in annual reporting. A Certificate of Inclusion may be modified to enroll new lands at any time over the duration of this Agreement. The intent of this Agreement is to allow a Certificate of Inclusion to be modified to enroll new lands after a listing, on an annual basis as part of compliance reporting.

Notice of Noncompliance – A written notice from the Programmatic Administrator and/or the Service to the Partner identifying an alleged failure to implement the terms and conditions of the Agreement, including but not limited to, agreed upon avoidance or minimization measures, conservation measures, compliance reporting, effectiveness monitoring, or to pay fees.

Operations – Activities involved in the day to day functions of the conditions and services provided by the energy and transportation lands.

Partners – Companies, agencies, and other organizations working in the energy or transportation sectors that are landowners or manage vegetation through an easement, permit, or other access and management type agreement, who voluntarily agree to the terms and conditions of approval described in the Certificate of Inclusion under the Agreement that must be adhered to for the permitted activity on enrolled lands, as described in Section 3.3.

Parties – The Parties to the CCAA/CCA are the Service, Programmatic Administrator, and Partners holding approved Certificates of Inclusion.

Permit – Broadly refers to an official document giving someone authorization to do something. Landowners may permit Partners to conduct certain activities at specified locations. Similarly, Partners may authorize representatives or contractors to conduct work on their behalf under a permit.

Permit Holder – The entity to which the EOS Permit is issued by the Service. For the purposes of this programmatic CCAA/CCA, the Programmatic Administrator is the EOS Permit holder.

Potentially Flowering Nectar Plants – For the purposes of effectiveness monitoring, potentially flowering nectar plants include all flowering plants that can provide available nectar for monarchs at some point

throughout the growing season, including primarily forbs that (at the time of monitoring) have already, are currently, or not yet bloomed.

Programmatic Administrator – The organization that will hold the EOS Permit issued in association with this CCAA/CCA, subject to Service oversight consistent with 50 CFR § 13.21(e)(2). The Programmatic Administrator will maintain positions for program administration to facilitate enrollment of Applicants in the CCAA/CCA and distribute information for conservation efforts through coordination with other state and Federal agency staff and outreach to Partners, and landowners.

Project – For energy and transportation activities, a project consists of the Partner's implementation of activities conservation measures described under the Covered Activities section. Depending on the type of project, its scope may be site-specific, or more broadly applicable to the network of enrolled lands.

Restoration – For the purposes of this document, restoration means the process of restoring or reclaiming an impacted or disturbed area to a desired vegetation type. A variety of management activities may be implemented to accomplish restoration, including post-construction or maintenance re-vegetating, decommissioning, removing infrastructure and re-vegetating with vegetation beneficial to monarch in those areas affected by a covered activity.

Right-of-way – The legal right, established by usage or grant, to pass along a specific route through grounds or property belonging to another. The legal rights associated with specific rights-of-way is often specified in easements maintained between the right-of-way manager and the landowner for transportation or energy purposes.

Suitable Habitat – For the purposes of this Agreement, suitable habitat for monarchs consists of lands that provide either milkweed or potentially flowering nectar plants that may support monarch breeding or foraging needs at times of the year when monarchs are present. The presence of suitable habitat is verified through the sampling conducted via effectiveness monitoring, which validates the presence of baseline expectations for milkweed presence or minimum expected cover for potentially flowering nectar plants.

Supplemental Measures – Activities that do not directly address key threats identified, but still have important partnership and logistical contributions to the undertaking of this Agreement and monarch conservation. In comparison to standard conservation measures, supplemental measures do not directly result in an on-the-ground benefit (i.e. adopted acres), and therefore do not contribute directly to net conservation benefit.

Take – Under the ESA Section 3(18), "take" is defined as harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, collecting any species protected under the ESA or attempting to engage in any such conduct.

Terminated Partner or Lands – A Partner or associated lands removed from enrollment in the Agreement pursuant to an amendment of the Certificate of Inclusion or termination of the Certificate of Inclusion.

Two Week Notice – Written notice to the Partner from the Programmatic Administrator, the Service, or their designee providing a minimum of two weeks advance notice of planned access to enrolled lands for purposes of conducting habitat suitability evaluations, effectiveness monitoring, or review of compliance. All applicable safety trainings and appropriate measures will be communicated to the Programmatic Administrator, the Service, or their designee by the Partner in a timely manner prior to site access. Any and all representatives of the Programmatic Administrator, the Service, or their designee must adhere to all Partner-specific and site specific health and safety compliance requirements, including associated training, certifications (if applicable), protocols, and other requirements.

Unforeseen Circumstances – Changes in circumstances affecting a species or geographic area covered by a conservation plan that could not reasonably have been anticipated at the time of the conservation

plan's negotiation and development, and that result in a substantial and adverse change in the status of the covered species.

1 Introduction

This Nationwide Candidate Conservation Agreement with Assurances for the Monarch Butterfly on Energy and Transportation Lands with an integrated Candidate Conservation Agreement (CCAA/CCA or Agreement) was developed through a unique collaborative effort between the University of Illinois at Chicago (UIC), U.S. Fish and Wildlife Service (the "Service"), and a partnership of more than 30 interested entities from the energy and transportation sectors. These interested companies and organizations represent entities managing lands associated with electric power generation, electric transmission and distribution, oil and gas transmission and distribution, and renewable energy development, as well as a network of individual state departments of transportation, with support from the Federal Highways Administration (FHWA), and who were involved in the conceptualization and preparation of this Agreement. Any non-Federal landowner that manages lands associated with energy and transportation uses as described in this Agreement may choose to enroll property as a "Partner".

This Agreement includes conservation measures that reduce or potentially remove key threats to the monarch butterfly posed by maintenance and modernization activities that occur on rights-of-way and lands associated with energy and transportation infrastructure. With each additional Partner that enrolls, a greater net conservation benefit to monarch butterflies and their habitat will occur. Each enrollment adds adopted acres on-the-ground, and is another step towards creating widespread conservation throughout the network of Partner lands. With more "hands on deck" and a variety of sectors contributing to landscape level conservation, more habitat will be created or sustained. In doing so, such efforts reduce the potential for the need to list the monarch butterfly. Through this Agreement, the Programmatic Administrator will work with Partners who voluntarily commit to implementing conservation actions that will reduce and/or potentially remove threats to this species.

If and when a species becomes listed under the Endangered Species Act (ESA), as amended (16 USC § 1531, et seq.), that listing action triggers a prohibition against "take" of the listed species, i.e., a prohibition against activities that harass, harm, pursue, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct of listed species, otherwise Section 7 or Section 10 consultation is initiated. However, under the ESA Section 10(a)(1)(A), the Service may issue a permit authorizing incidental take of a listed species when the activities covered by the permit enhance the survival of the species.

The Service has determined that a 10(a)(1)(A) Enhancement of Survival Permit (EOS Permit) can be issued to persons or entities that enter into a Candidate Conservation Agreement with Assurances with the Service. Application requirements and issuance criteria for EOS permits and CCAAs are found in the Code of Regulations (CFR) at 50 CFR 17.22(d) and 17.32 (d), respectively. A CCAA is an agreement under which participating landowners or easement holders voluntarily agree to undertake management activities on enrolled lands to conserve species that are a) proposed for listing under the ESA, b) candidates for listing, or c) that may become candidates, and when the proposed activities enhance the survival of the species, for example, by restoring, or maintaining habitat benefiting such species.

If the species addressed in the Agreement is later listed under the ESA, the EOS Permit becomes effective, and authorizes take of the species that is incidental to otherwise lawful activities on enrolled lands as specified in the Agreement, provided the activities are performed in accordance with the Agreement's terms. A CCAA and the associated EOS Permit incentivizes conservation efforts by providing incidental take coverage for the target covered species, and regulatory assurances on non-Federal lands. As long as Partners comply with the terms of this CCAA and their Certificate of Inclusion, they receive assurances that they will not be required to undertake any additional conservation measures for the monarch on the enrolled areas other than those agreed to, even if new information indicates that additional or revised conservation measures are needed for the covered species (monarch), and they will not be subject to additional resource use or land-use restrictions on non-Federal lands.

As required by its CCAA Policy, 81 FR 95164 (December 27, 2016), the Service will determine whether the implementation of the terms of the CCAA is reasonably expected to provide a net conservation benefit to the affected covered species. The basis for this determination is set out in Section 12 of this CCAA/CCA (Expected Benefits). However, this does not predetermine the outcome of the Service's final listing decision. The Service's final listing decision will be based on an assessment of the current and projected future status of the species and threats to its continued existence range-wide, using the best available scientific and commercial data, under the five- factor framework set out in ESA Section 4(a). Conservation efforts such as this Agreement will be evaluated by the Service as part of this determination in accordance with Service Policy for Evaluation of Conservation Efforts (PECE; 2003) and factored into the listing decision as appropriate.

This Agreement, effective and binding on the date of last signature under Section 18 (Notices and Reports), is between UIC and the Service. Partners will be incorporated into this Agreement via signed Certificates of Inclusion issued by UIC as the Programmatic Administrator.

1.1 Authority

Sections 2, 7, and 10 of the ESA, as amended, allow the Service to enter into this Agreement. Section 2 of the ESA states that, "encouraging interested persons or entities, through Federal financial assistance and a system of incentives, to develop and maintain conservation programs is a key to safeguarding the nation's heritage in fish, wildlife, and plants." Section 7 of the ESA requires the Service to review programs that it administers and to utilize such programs to promote the purposes of the ESA. By entering into this Agreement, the Service is utilizing its candidate conservation programs to further the conservation of the nation's fish and wildlife. Lastly, Section 10(a)(1)(A) of the ESA authorizes the issuance of EOS permits for acts that would otherwise be prohibited by Section 9 if such acts are expected to enhance the propagation or survival of the affected species.

1.2 Purpose and Goal of this CCAA/CCA

This CCAA/CCA represents an unprecedented opportunity in terms of scale and scope for collaborative conservation. More than 30 initial organizations involved in the development of the Agreement collectively manage millions of acres of rights-of-way and other associated lands across the lower 48 states. Over the duration of this Agreement, we envision that the acreage expected for enrollment could potentially double. Considering this potential interest, this Agreement presents a valuable opportunity to connect available habitats, provide diverse breeding and foraging habitat, and offer areas that are generally safe havens from major disturbances or future development.

> *The goal of this CCAA/CCA is to encourage participation in voluntary conservation on energy and transportation lands that results in a net benefit to monarchs.*

With this goal in mind, the conservation potential of the Agreement anticipates the enrollment of up to 26 million acres of energy and transportation lands, which could contribute over 300 million stems of milkweed, and 2.3 million acres of monarch foraging habitat, over the coming decades.[1] However, this potential is based on broad estimates of potential involvement in the Agreement. Actual on-the-ground contributions will be determined by the enrolled lands and adopted acres targets included in Partner applications.

The Parties, in a collaborative effort organized by UIC, have pursued this programmatic CCAA. This programmatic CCAA led by UIC is aligned with the intent of the Rights-of-Way as Habitat Working Group (Working Group) facilitated by UIC's Energy Resources Center. The Working Group provides educational and networking opportunities, leverages knowledge and resources across sectors, and serves as a central

[1] See Appendix C (Supplemental Information) for additional details regarding development of this conservation potential estimate.

point for coordination and information exchange on managed habitat in the transportation and energy sectors. The Working Group builds broad industry engagement in strategies that will benefit not only the monarch butterfly but also model conservation collaboration for other pollinator species of concern. The development of joint conservation agreements (such as this CCAA/CCA) is one such strategy that promotes voluntary conservation action among non-Federal landowners.

Implementation of this Agreement is directed by the two integrated conservation agreements consisting of this Candidate Conservation Agreement with Assurances (CCAA) for activities conducted on non-Federal lands and an integrated Conservation Agreement (CCA) for conservation measures and covered activities implemented on Federal lands, or under other Federal permits or authorization. This Agreement includes both Federal and non-Federal lands to support its administrative and biological goals. Energy and transportation lands eligible for enrollment cross both Federal and non-Federal lands, making a comprehensive approach necessary for consistency. Biologically, conservation for monarchs requires widespread landscape-scale conservation (Thogmartin et al. 2017).

1.3 Intent of the Agreement and Comprehensive Strategy

The partners involved in the development of this Agreement defined an objective statement focused on collectively working towards the goal outlined previously.

Together, the cooperating partners through the development of the CCAA for monarch butterfly conservation will strive to:

- Enhance and expand available monarch habitat by adopting appropriate conservation measures that promote sustainable breeding (milkweed) and foraging (nectar plants) habitat.
- Maintain a public-private partnership between the Service, transportation, and energy sector managers to facilitate voluntary conservation and communicate its benefits.
- Ensure regulatory certainty and maximize operational flexibility for ongoing rights-of-way and facilities management activities in the event of listing, or by precluding the need to list.

To accomplish this, partners involved with the Agreement kept these objectives in mind as the comprehensive approach framework was developed and finalized. The intent of this Agreement is to promote conservation measures that reduce or remove key threats to the monarch on the lands Partners manage through proactive consideration and appropriate vegetation management practices. In doing so, this Agreement also seeks to create regulatory certainty for partners involved. By committing upfront to voluntary conservation for the species, the Agreement can provide energy and transportation land managers certainty that current maintenance and modernization practices, covered within this Agreement, can continue in the event the Service lists the monarch.

Broad, non-traditional, conservation partnerships are needed to achieve the scale and long-term timeframe of habitat restoration needed to conserve the North American monarch populations. As described in the MAMCS (MAFWA 2018a), the consensus from the scientific community suggests that all sectors of land management can contribute to this conservation effort in an “All Hands on Deck” approach (Thogmartin et al. 2017, MAFWA 2018a). This Agreement is intended to implement such an approach envisioned by these conservation initiatives. Through implementation, this Agreement embodies the intent of the “All Hands on Deck” technical paper, the MAMCS and its regional and state counterparts (in development), and UIC’s Rights-of-Way as Habitat Working Group.

Development of this Agreement considered alternative approaches, such as submitting individual CCAA/CCA and permit requests, or formatting the Agreement as an umbrella CCAA/CCA. See Appendix C (Supplemental Information) for additional information regarding selection of the programmatic Agreement format.

2 Background and Purpose

2.1 Background Development

In August 2014, the Service was petitioned by a partnership of Center for Biological Diversity, Center for Food Safety, Xerces Society, and Dr. Lincoln Brower to list the monarch butterfly under the Endangered Species Act (Center for Biological Diversity et al. 2014). In the petition, the Service was asked to designate critical habitat for the monarch butterfly concurrently; to consider any significant portion of range when making a listing determination; and to develop a rule under section 4(d) of the ESA (''4(d) rule'') allowing activities that promote conservation of the subspecies (Center for Biological Diversity et al. 2014). The Service determined that the petition presented substantial scientific or commercial information indicating that the petitioned actions may be warranted and published a Notice of Petition Findings and Initiation of Status Review (Notice) in the Federal Register on December 31, 2014 (79 Fed. Reg. CFR 78777). In the meantime, concerted efforts to conserve the monarch butterfly—including developing conservation plans and demonstrating commitments to habitat creation, enhancement, and protection—are informing the Service's species status assessment and helping to address the widespread declines in other pollinator populations. This CCAA/CCA is closely aligned with the broad monarch conservation strategy identified in "All Hands on Deck" (Thogmartin et al. 2017), which envisions conservation contributions from multiple land use sectors. Another such strategy includes the MAMCS (v1.0, 2018-2038), recently prepared by the Midwest Association of Fish and Wildlife Agencies (MAFWA 2018a), which specifically recognizes the opportunity for conservation benefits within the rights-of-way sectors, and the Working Group's role in bringing partners together. The CCAA/CCA also supports the Western America Monarch Conservation Plan, development by the Western Association of Fish and Wildlife Agencies (WAFWA 2018), as well as associated state plans for monarch conservation and pollinator protection. The Agreement is one way to demonstrate the significant interest and investment in monarch habitat conservation by the transportation and energy sectors.

2.2 Species and Management Needs

2.2.1 Population and Trends

Monarch, *Danaus plexippus plexippus* (Linneaus, 1758), is a species of butterfly globally distributed throughout approximately 90 countries and island nations. These butterflies are well known for their phenomenal long-distance migration that occurs over multiple generations in North American populations. Descendants of these migratory monarch populations expanded from North America to other areas of the world where milkweed (their obligate host plant) was already present or introduced. With the year-round presence of milkweed and suitable temperatures, many of these new monarch populations no longer annually migrate.

Currently, three known monarch populations occur within North America. Two North American populations are migratory and located east and west of the Rocky Mountains. Both have been monitored since the mid-to-late 1990s. The third population is a non-migratory population located in southern Florida. Although exact numbers of individuals are not known throughout all populations worldwide, the largest population of monarchs is the eastern North American population. Monitoring data for the eastern North American population dating back to 1994 estimated monarchs numbering consistently in the hundreds of millions throughout the 1990s and early 2000s (Figure 2-1). Data for the western North American population dating back to 1997, compared to historical data, documented approximate past population sizes of over 10 million (Monarch watch, 2018). The third population of monarchs are found in south Florida and live in areas where the climate permits year-round nectar resources and breeding, thereby negating the need to migrate. Other portions of the southern and western U.S. contain areas where year-round breeding and monarch presence may occur. These non-migratory monarchs show genetic differentiation from the migratory North American

monarchs, even though there is an annual influx of individuals from the eastern monarch population (Zhan et al. 2014, Pfieler et al. 2016).

Figure 2-1. Area Occupied (in hectares) by Eastern North American Monarch Butterflies at Overwintering Sites in Mexico

Actual hectare measurement displayed above each bar. Year displayed is the beginning year for the winter (e.g., 2017 represents the number for the winter of 2017-2018). Data from Monarch Watch (2018)

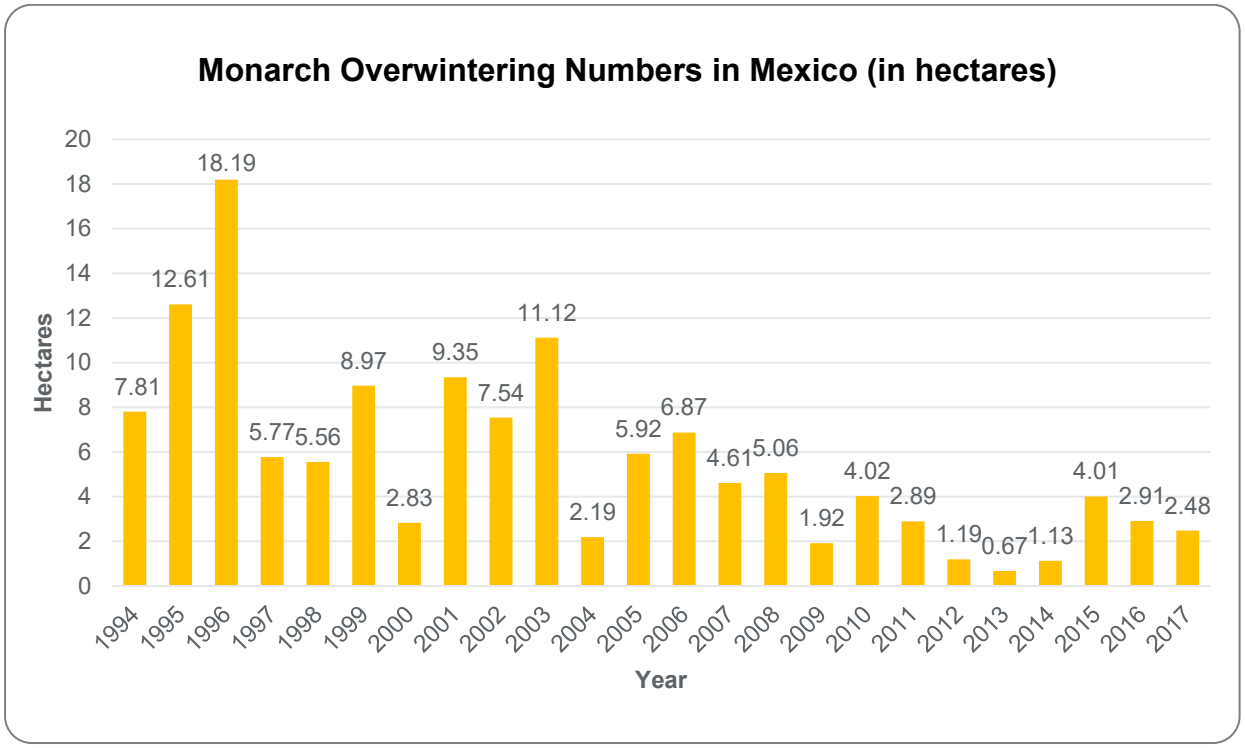
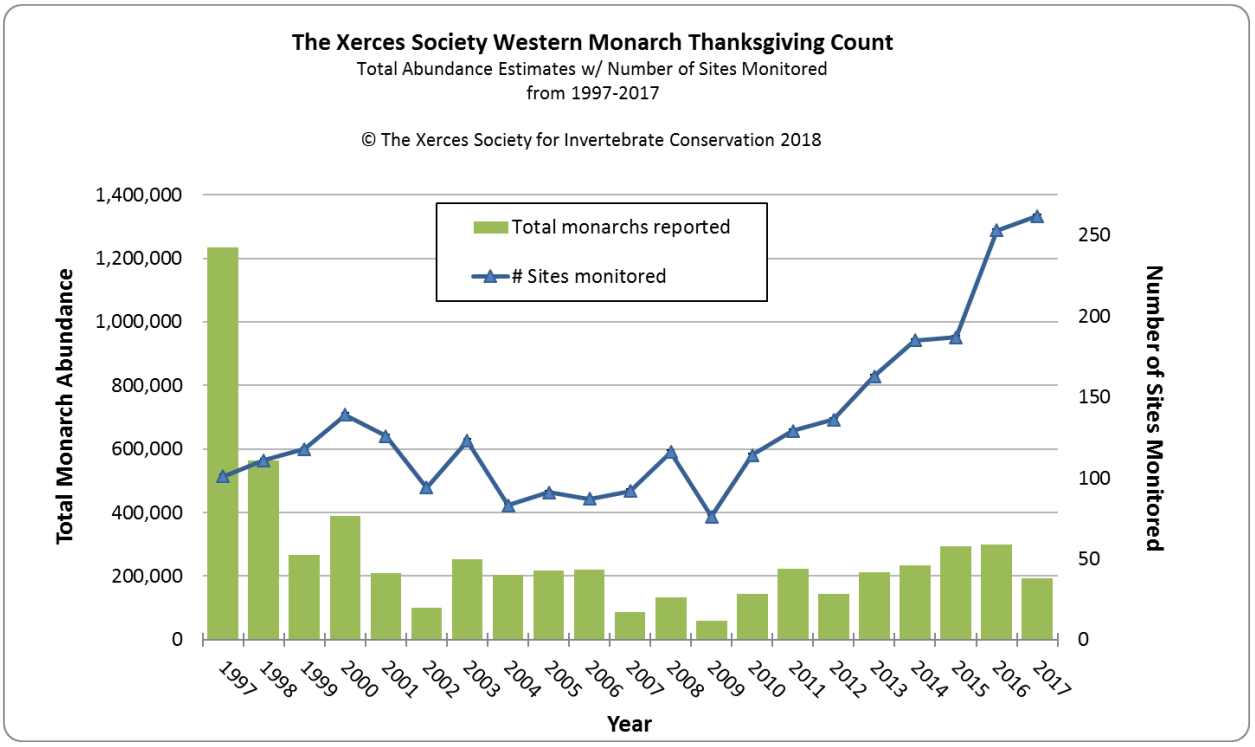


Figure 2-2. Thanksgiving Counts of Western North American Monarch Butterflies Observed at Overwintering Sites.

Blue line shows the number of sites monitored for a given year. Figure from the Xerces Society for Invertebrate Conservation (2018a)



Monarchs, like many species of insects, are sensitive to environmental conditions and can experience large swings in population numbers year-to-year (Rendón-Salinas et al. 2015; Schultz et al. 2017). Thus, in order to successfully recruit over generations and years, they must be capable of withstanding large variations in population sizes. To support a strong growth rate, monarch populations require large population sizes and sufficient quantity and quality of habitat to accommodate all life stages. Both western and eastern monarchs rely on the microclimate provided by the trees at their overwintering sites (Williams and Brower 2015, Leong et al. 2004).

Individuals within migratory monarch populations may fly distances of over 3,000 km (Urquhart and Urquhart 1978). During migration to overwintering sites, most monarchs are in reproductive diapause, but continue to need blooming nectar plants throughout the migratory habitat to provide sugar that is stored as lipid reserves (Brower et al. 2015). On their return to northern latitudes in spring, monarchs are laying eggs, and thus need both nectar sources and milkweed. The presence of both resources throughout the landscape encompassed by the monarch's migratory range is needed to ensure connectivity throughout their range and maximize lifetime reproductive success (Zalucki and Lammers 2010; Miller et al. 2012). However, the specific optimal amount of habitat and its spatial distribution are not well known and more research is needed on optimal distances between habitat patches, as well as preferred patch sizes and spatial distribution (Stenoien et al. 2016). Under the conservation measures proposed in this Agreement, overall habitat patch availability will increase throughout the landscape.

2.2.2 Addressing Key Threats within the Agreement

Though many factors have combined to affect populations of monarch butterflies, by far the most detrimental influences on monarchs are all related to habitat (Thogmartin et al. 2017a). On energy and transportation lands, the applicable key threats applicable are:

Threat 1: Loss of habitat resulting from land conversion

Threat 2: Loss of habitat resulting from herbicide use

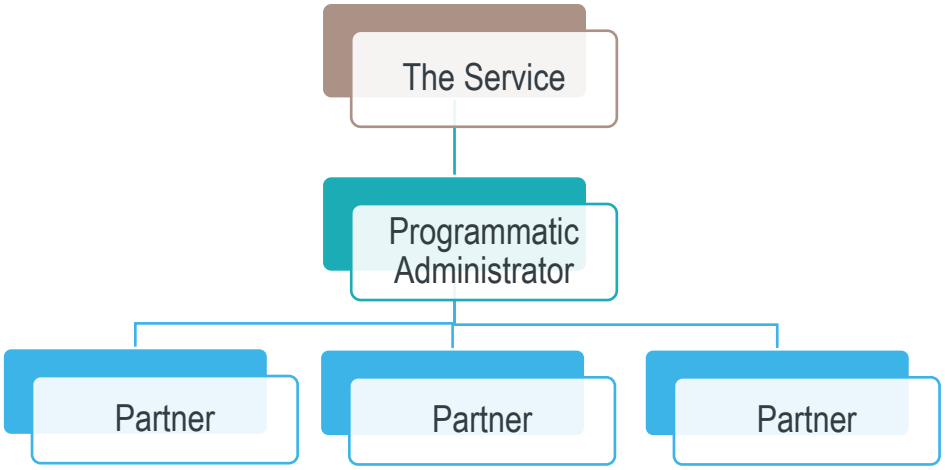
Threat 3: Loss of habitat resulting from mowing

According to the CCAA Policy, 81 FR 95164 (December 27, 2016), Applicants will not be required to address every threat on their enrolled lands. However, the Applicant will be required to address the key threat(s) to the covered species that are under the landowner's control in order to participate in a CCAA and achieve a net conservation benefit for that species. Habitat restoration, management, and maintenance are the areas of greatest authority and control for participating Partners where landownership, easement rights, and/or operational requirements allow. Providing diverse, resilient, and appropriately-connected habitats through the adopted acres across the migratory range of monarchs will help address potential impacts of the identified threats to the North American monarch populations.

3 Parties Involved

This section briefly describes the Parties that will enter into this Agreement together. The obligations of each party are summarized in Section 7 (Obligations of the Parties). The Parties encompassed by this Agreement include the Service, the Programmatic Administrator, and Partners (Figure 3-1).

Figure 3-1. The Relationship of Parties Included within the Agreement.



3.1 The Programmatic Administrator

The Programmatic Administrator will hold the EOS Permit issued in association with this Agreement, subject to Service oversight consistent with 50 CFR § 13.21(e)(2). The Programmatic Administrator will maintain positions for program administration to facilitate enrollment of Applicants in the CCAA/CCA and distribute information for conservation efforts through coordination with other state and Federal agency staff and

outreach to Partners and landowners. The Programmatic Administrator will also serve as the fiscal agent for this Agreement, including management of a non-wasting endowment to fund permit and program administration activities that will benefit the monarch through coordination of annual Partner reporting and collaboration that addresses habitat restoration, enhancement, and the removal of threats.

The University of Illinois-Chicago (UIC) is applying for the EOS Permit that will establish this Agreement. The University of Illinois System (including UIC) is a body corporate and politic of the State of Illinois, and is a 501(c)(3) organization. As part of UIC, the Energy Resources Center (ERC), located within the College of Engineering at UIC, will serve as the lead department. The ERC is an interdisciplinary public service, research, and special projects organization that works to improve energy efficiency and the environment. Originally created to be a "fast response" team of experts, the ERC currently provides technical assistance, sophisticated modeling capabilities, educational outreach, and program implementation across the public and private sectors. The ERC is committed to providing the most comprehensive and up-to-date solutions to the energy and environmental problems affecting institutional, industrial, residential, and commercial sectors.

The ERC organizes the Rights-of-Way as Habitat Working Group (Working Group) that formed in 2015 as a forum for industry to collaborate and share ideas on habitat conservation on working landscapes, particularly within transportation and utility rights-of-way. Today, more than 200 transportation, energy, government, and non-profit organizations across the U.S. and Canada are engaged in the Working Group. The Working Group provides educational and networking opportunities, leverages knowledge and resources across sectors, and serves as a central point for coordination and information exchange on managed habitat in the transportation and energy sectors. The Working Group builds broad industry engagement in strategies that will benefit not only the monarch butterfly but also model conservation collaboration for other pollinator species of concern. The development of the Agreement is one such strategy that promotes voluntary conservation action among non-Federal landowners. At the Working Group meeting in October 2017, industry representatives agreed to collaborate in the development of a CCAA/CCA for the monarch butterfly. In December 2017, UIC initiated facilitation to support the development of a collaborative CCAA/CCA prior to the Service's 12-month finding for the butterfly.

3.2 U.S. Fish and Wildlife Service

The Service, by delegation from the Secretary of the Interior, is responsible for the implementation and enforcement of the Endangered Species Act with respect to certain species, including the monarch if it is listed. The Service is authorized to enter into this Agreement and to issue the associated EOS Permit by 50 CFR §§ 17.22(d), 17.32(d) and its CCAA Policy, 81 FR 95164 (December 27, 2016). The Service is responsible for overseeing the administration of this Agreement and for monitoring and enforcing the terms of this Agreement and EOS Permit as necessary.

3.3 Partners

The Partners in this Agreement are non-Federal landowners that manage lands associated with energy and transportation uses and which choose to enroll property in this Agreement. The Applicants eligible to become a Partner in this Agreement are any non-Federal person or entity with a fee simple, leasehold, easement, or other property interest on lands managed for energy and transportation purposes. Partners must be able to carry out the conservation measures and covered activities described in this Agreement and the attached Certificate of Inclusion, subject to applicable local and state law, on enrolled lands within the extent of the covered area. By executing a Certificate of Inclusion (see attached) or a version thereof, the Partner agrees to the obligations and responsibilities identified in the Certificate of Inclusion and this Agreement.

4 Enrolled Lands

Applicants may enroll properties in the Agreement, including owned, leased, and easement lands, and lands owned by permits and/or other agreements within the covered area as set forth in this section.

4.1 Covered Area

This Agreement encompasses a covered area consisting of energy and transportation lands within the monarch butterfly's range across the lower 48 states of the U.S. Within this covered area, Partners may enroll their energy and transportation lands (as enrolled lands). Enrolled lands may include both non-Federal and Federal lands, as follows:

- Non-Federal enrolled lands are the non-Federal areas over which the Agreement assurances apply and on which incidental take of the monarch is authorized by the Service under the EOS permit, should the species be listed.
- Enrolled lands on Federal lands are those where a non-Federal Partner maintains a property interest (via easements, leases, or permits) located on Federal lands for support of energy and transportation infrastructure, which may include work associated with conservation measures or covered activities described within this Agreement. Assurances and incidental take are not authorized through the EOS permit on CCA lands (i.e. Federal lands), but Partners and other Federal agencies reviewing their activities receive regulatory predictability through the Section 7 consultation conducted in association with this Agreement.

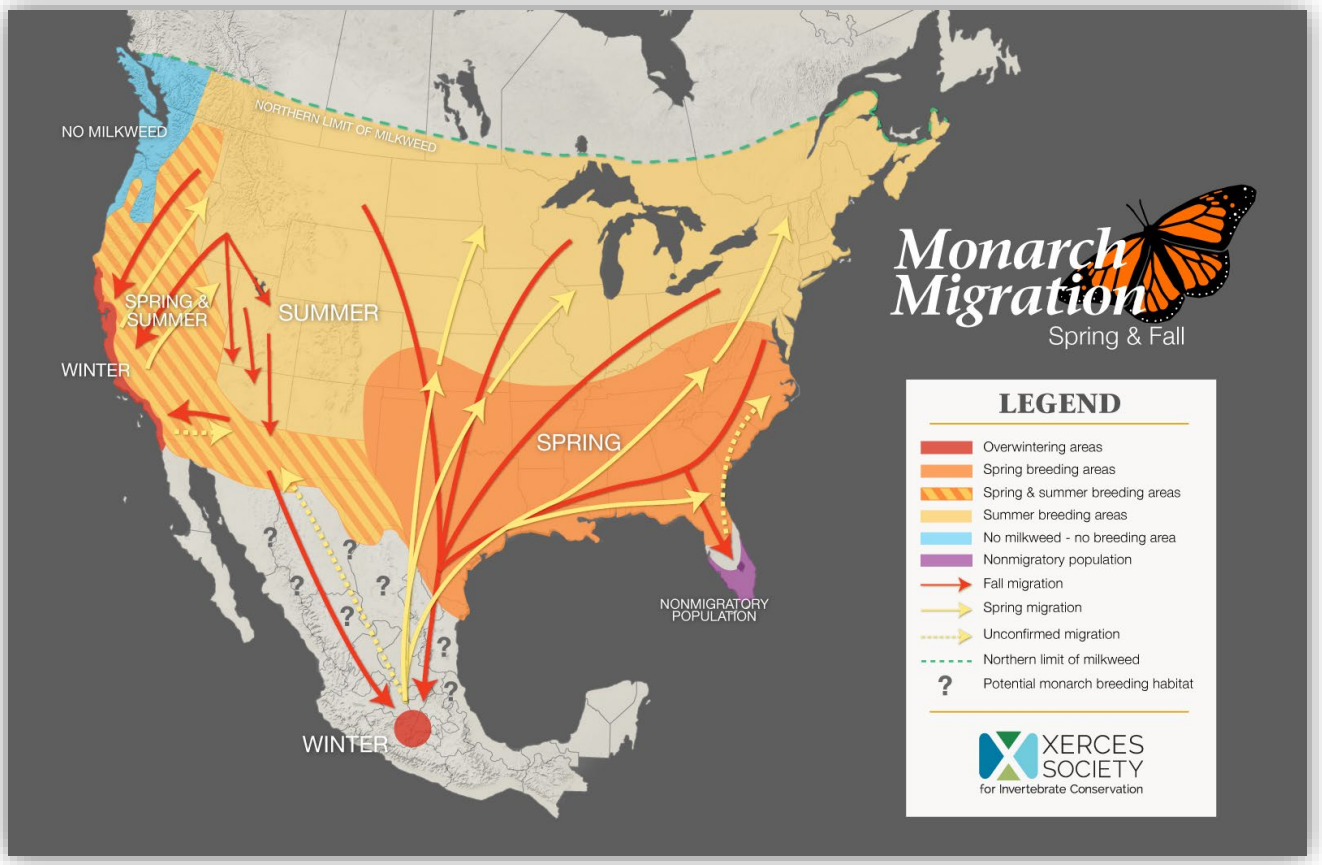
Federal lands may be enrolled only to the extent that the non-Federal Partners maintain easements, leases, or permits on Federal lands for energy or transportation infrastructure that allow for conservation measure implementation. For purposes of this Agreement, the covered area is defined as lands managed by energy and transportation partners within the migratory, non-migratory, breeding, and overwintering range of the monarch butterfly within the lower 48 states of the continental U.S. (Figure 4-1). Lands managed by Partners may include those owned in fee title, as well as those lands on which Partners maintain leases, easements or other agreements that allow them to conduct the conservation measures and/or covered activities described in this Agreement.

The scope of the covered area excludes documented overwintering sites such as overwintering groves along the California coast, and other documented overwintering sites. Western monarchs use ecologically different habitat throughout both their breeding and migratory habitat as well as their overwintering grounds (Brower et al. 1995). Differences in breeding habitat include climate (Zalucki and Rochester 2004) and availability and abundance of native nectar and native milkweed plants (Borders and Lee-Mäder 2015). Due to the ecological differences of these sites, and considerations for impacts outside the scope of the lands supporting breeding and migratory forage habitat, documented overwintering sites are considered outside the scope of the covered area for this Agreement. Monarchs do also occasionally overwinter incidentally in other locations across the southern U.S. These incidental overwintering locations may be non-specific or transient from year-to-year. For the purposes of this Agreement, only documented overwintering sites repeatedly relied upon for monarchs are excluded from the covered area.

Enrollment of lands under this agreement is voluntary. The participants reasonably expect that monarch butterflies may occur in all or a portion of habitats on enrolled lands as a result of management actions undertaken through this agreement. This Agreement will cover those properties that have existing, historic or potential suitable habitat for monarchs across their range (Figure 4-1). Enrolled lands may include all or some combination of suitable habitat types, or areas with the potential to create those habitats.

An application for a Certificate of Inclusion will be completed and signed to enroll proposed lands. Each application will include the required elements summarized in Section 4.4 (Enrollment Process).

Figure 4-1. Monarch Migration Range Map (Xerces Society 2018a)



4.2 Enrollment Period

Eligible Applicants may be enrolled at any time before an effective date of a final rule listing the monarch as threatened or endangered under the ESA. If a complete application for a Certificate of Inclusion is received during the enrollment period, the Applicant may still be enrolled, and a Certificate of Inclusion issued, after the effective date of a listing decision. Applications will not be accepted after the effective date of a final listing rule. Enrollment through the process described below in Section 4.4 must be completed by the effective date of the final rule except as provided by Section 4.3.

Eligible lands that were enrolled in a Certificate of Inclusion during the enrollment period may also be transferred to a new or different Certificate of Inclusion as a result of a change in landownership (provided the new owner agrees to the terms and conditions of the Certificate of Inclusion, EOS permit, and the permit transfer conditions contained at 50 CFR 13.25 are met) at any time during the duration of this Agreement pursuant to the provisions in Section 9 (Succession and Transfer).

4.3 Post-listing Enrollment

Currently the Service does not propose, nor does it have any policies that provide for, post-listing enrollment of new Applicants with new lands in a CCAA. If the Service develops a future policy that allows enrollment of lands after listing, the Programmatic Administrator would need to initiate a request to amend this Agreement and related Certificates of Inclusion. This would be done consistently with any potential criteria that may be developed if the Service allows post-listing enrollments in the future.

For the purposes of this Agreement, lands owned, leased, easement-held, or otherwise managed by existing Partners, including lands acquired post-listing, can be added, transferred, or removed, to/from the existing enrolled lands as a modification to encourage consistent land management, maintain enrollment, adoption of conservation measures, and increased habitat managed for monarchs. Changes in enrolled lands (added or removed) will be reported in Partner annual reports and modifications to the Partner's Certificate of Inclusion according to the requirements summarized elsewhere within this Agreement (Sections 4.5, 9.2, and 14.1)).

4.4 Enrollment Process

Enrollment in the Agreement will follow the steps outlined below.

1. Pre-application Outreach: An interested Applicant will initially contact Programmatic Administrator to discuss enrolling eligible lands. The Applicant shall provide Programmatic Administrator with sufficient information regarding the property or lands it seeks to enroll for Programmatic Administrator to verify if they are located in the covered area and eligible for enrollment. The Applicant will also review the Agreement obligations, define their anticipated enrolled lands, and identify the adoption rate(s) applicable to the lands they are enrolling. See Section 6.2 for more information regarding adoption rates.
2. Application Preparation: The Applicant will collect the following information to help characterize the lands it plans to enroll:
    a. For the portion, or full extent, of the lands to be enrolled, a description of their use and operation, and the estimated acreage included. The Applicant will also supply a total estimated acreage of lands proposed for enrollment, including a calculation of adopted acres by sector, the estimated acres encompassed by them, and the applicable adoption rate(s), to be enrolled in the Certificate of Inclusion (see Appendix B).
    b. A map(s) or GIS shapefiles of the extent of lands proposed for enrollment that identifies areas by fee simple, easement, leasehold, or other property interest.
    c. The calculated sum of adopted acres for which the Applicant will be responsible for using the expected adoption rates outlined for each sector (see Section 6).
    d. A description of current and planned conservation measures, how they address key threats for the species, outlined in and known opportunities or constraints to implementing the conservation measures described in Section 6 (Conservation Measures).
    e. Timeline for achieving the adopted acres target specified in the application. Once approved, Partners have up to five years from the date of their fully executed Certificate of Inclusion to achieve the required adopted acres target. The application will outline the timeline for achieving the adopted acres target, and forecast the expected annual adopted acres target(s) that can be achieved in the interim period (no longer than 5 years) until the full adoption rate can be achieved.
    f. A short description (1-2 paragraphs) summarizing existing information on habitat availability on enrolled lands, and their current or potential suitability.
    g. A summary of any constraints that limit conservation measure implementation or ability to address key threats.
    h. The proposed schedule for effectiveness monitoring as described in Section 14 (Monitoring Provisions).
    i. Acknowledgement that, as a Partner, a CCAA/CCA implementation plan will be completed within one year from the date of their fully executed Certificate of Inclusion. A CCAA/CCA implementation plan will consist of a short plan created by the Partner describing:

i. Roles and responsibilities - who (within their organization) is involved in implementation of the conservation measures, and applicable communication structure, and

ii. How the Partner intends to implement the conservation measures, tracking, monitoring, and reporting required in the Agreement

> general timing and prescriptions for treatments,

> timing expectations for tracking, monitoring, and reporting,

> adopted acres target ramp up periods and targets (if applicable),

> adherence to any applicable quality control procedures internal to the Partner organization, and

> funding for implementation (whether funding for conservation measures and other requirements comes from capital expenditures or operations and maintenance budgets).

An existing IVM plan (if consistent with conservation measures proposed in the application) may suffice for this description, or provide the basis for one.

j. Acknowledgement that, as a Partner,

i. Organizations are responsible for their own compliance with applicable state and Federal laws related to listed species, historic and cultural resources, and other environmental resource protection. The Service's guidelines for complying with Section 106 of the National Historic Preservation Act are included as part of Appendix C (Supplemental Information), and

ii. The organization will communicate and coordinate with underlying landowners (as applicable), and follow terms and conditions of EOS Permit.

This information will be used to process and prioritize the application's review by the Programmatic Administrator, and to identify individualized needs of Applicants that may be needed to fully implement the Agreement. Once compiled, the Applicant will supply the application package to the Programmatic Administrator and the Service.

If the Applicant is constrained by factors outside of management control, or not anticipated during the development of this Agreement (for example, if an established adoption rate doesn't exist for an Applicant's sector), the Applicant may apply for a variance from the Programmatic Administrator. Factors "outside of management control" may include, but are not limited to, land use within easements (lack of available habitat), regulatory constraints (precluding use of some conservation measures), or operational constraints (lack of available land as habitat due to operational requirements). In doing so, the Applicant will be required to demonstrate those constraints, why their circumstance is unique from the other Partners who are able to achieve the standard adoption rate, and calculate their expected contribution to the Agreement (demonstrating that they can still achieve a net conservation benefit to monarch butterflies). See Section 6.2.2 (Adoption Rate Variances) for more details.

If the Applicant is able to achieve the adopted acres target resulting from the expected adoption rate(s), but unable to do so in its first full calendar year of implementation, the Applicant can propose an appropriate implementation timeline (up to five years) for achieving their adopted acres target. The Partner's CCAA/CCA implementation plan would be expected to outline the timeline for achieving the adopted acres target, and forecast the expected annual adopted acres target(s) that can be achieved over the interim period. See Section 6 for more details.

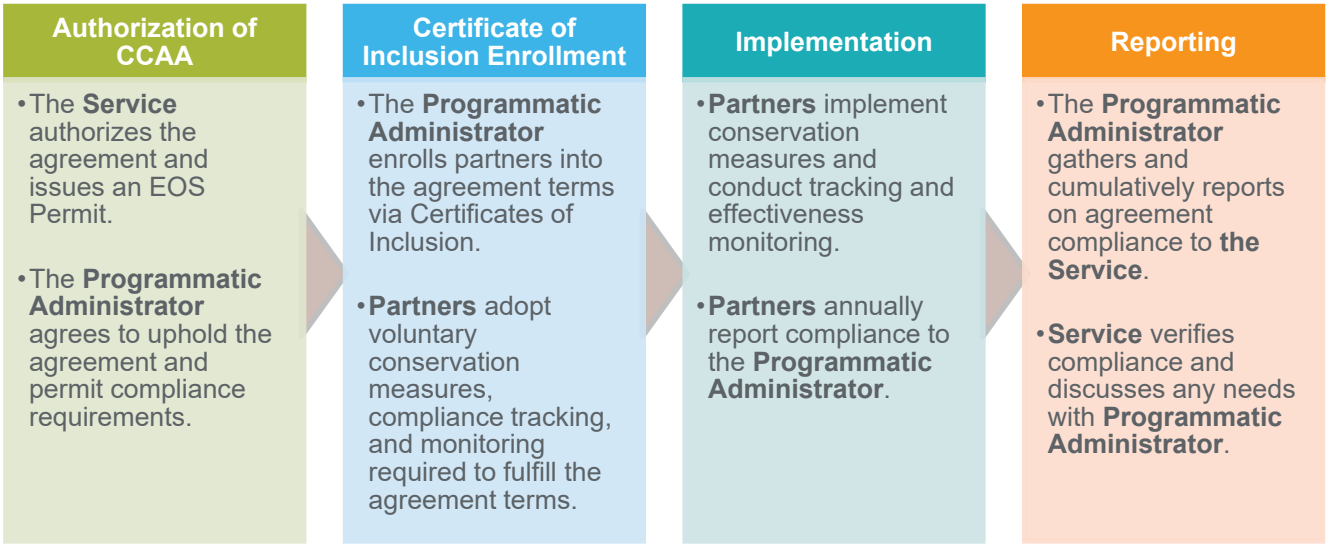
3. Application Review: The Programmatic Administrator will prioritize applications (if necessary) received by application date, by the expected net conservation benefit, and other decision factors determined by the Programmatic Administrator, if applicable. The Programmatic Administrator will review applications and be responsible (with support from the Agreement Advisory Committee and the Service, as warranted) for the final decisions on application approvals.

4. Certificate of Inclusion Issuance: Once the individual application is verified for completion and in line with the expectations of this Agreement, the Programmatic Administrator will provide the Applicant with an approved Certificate of Inclusion (see Appendix B) under the Service-approved EOS Permit (which takes effect if the monarch is listed under ESA) and programmatic Biological Opinion. Upon execution of the Certificate of Inclusion by both the Applicant and the Programmatic Administrator, the Applicant officially becomes a Partner under this Agreement. The application will remain on file for the duration of the Partner's involvement in the Agreement. Within 90 days from the date the Applicant executes the Certificate of Inclusion, the Applicant will remit to the Programmatic Administrator, the administrative fees as described elsewhere in Section 17 (Administrative Fees).

In most cases, Applicants are expected to consist of single companies or state transportation agencies. However, some Partners may already operate contractually, or in conjunction, with other companies or transportation agencies (i.e. generation and transmission cooperatives, energy corporations with subsidiary companies, and local road authorities that operate in conjunction with state transportation agencies). Where preferred for operational flexibility, applications can consist of consortiums of several organizations provided that a) the primary Applicant can demonstrate authority or control (through contracts, organizational structure, or other means) over the subsidiary Applicants, b) the enrolled lands and adopted acres estimated account for the full extent of all Applicants included, c) all other application requirements can be provided for all subsidiary Applicants, and d) the terms and conditions of this Agreement can be upheld by all Partners included. Consortium applications are subject to all other requirements (tracking, monitoring, and reporting) of the enrollment process and the Agreement.

Once the Agreement is authorized and a Certificate of Inclusion is issued, the Partner implements the conservation measures they have committed to under the Agreement, and then tracks, reports, and monitors their contributions to the Agreement according to the requirements described herein. The enrollment and implementation process are summarized in Figure 4-2.

Figure 4-2. Overview of the Agreement Implementation



4.5 Changes to Enrolled Lands

After the Certificate of Inclusion's effective date, Partners and the Programmatic Administrator will update the Partner's description of lands to reflect approved additions to enrolled lands, plus any removal of enrolled lands resulting from transfer of ownership, voluntary removal by the Partner or termination of enrollment as a result of noncompliance as provided in Sections 7, 8, and 9 of the Agreement. The Programmatic Administrator, and Service, will ensure enrolled lands are within the context and limits of the

programmatic consultation and that net conservation benefit is still being met. Lands enrolled within the context of the consultation are considered a minor change. The Programmatic Administrator will summarize the collective program changes in enrolled lands to the Service through annual reporting requirements.

As an example, changes in enrolled lands proposed by the Partners will be processed by the Programmatic Administrator as a modification to the Partner's Certificate of Inclusion. Energy and transportation lands occasionally transfer between entities for administrative, logistical, or operational development purposes. Maintaining consistency in management of conservation measures and regulatory assurances over time is an important requirement for participation by these industry Partners. Doing so minimizes management confusion, inconsistency in conservation practices, and compliance risks. In turn, this promotes ongoing engagement by Partners and commitment to conservation measures and benefits produced by this Agreement.

These changes will be documented in writing by Partners via annual compliance reporting (see Section 14.1). The Programmatic Administrator will then review the updated description and verify the changes through appropriate document review. If the documentation provided is acceptable and determined to comply with the Agreement and EOS Permit, the Programmatic Administrator will acknowledge the change via an updated Certificate of Inclusion reflecting the changes in enrolled lands. The Programmatic Administrator will include a cumulative summary of changes to enrolled lands during annual reporting to the Service. However, approval of the updated enrolled lands by the Programmatic Administrator prior to the submittal of the annual report is not required provided the revisions are consistent with the terms of the Certificates of Inclusion, the EOS permit, the programmatic consultation, and this Agreement.

4.6 Description of Lands Covered

This section provides a brief description of the types of lands considered under the term "energy and transportation lands" as well as summarizes the operational considerations, as well as opportunities and constraints for monarch conservation on these lands. This Agreement addresses these myriad opportunities and constraints through the adaptive management flexibility to strategically place conservation measures where they benefit monarchs and where land use and authorities are compatible. Enrolled partners have options for shifting placement of conservation measures over time to address conservation needs of the species, interests of other underlying or adjacent landowners, local laws, regulations, or other constraints that may limit the ability to apply conservation measures in a given area. The following descriptions of lands were initially adapted from the draft MAMCS (MAFWA 2018a and 2018b). Energy and transportation partners involved in development of this Agreement reviewed those descriptions, as applicable, and amended and expanded as necessary specific to this CCAA.

Transportation and utility rights-of-way are ubiquitous across the North American landscape, crisscrossing our mountains, forests, grasslands, deserts, farms, parks, and cities. Though often overlooked as terrestrial habitat, energy and utility rights-of-way comprise about 12 million acres of land in North America (Peterson et al. 2015 as cited by MAFWA 2018a), and transportation rights-of-way, including those along roads and railroads, represent even greater acreage of habitat. State DOT-managed roadsides alone consist of over 17 million acres of land in the United States (Hopwood et al. 2015). Vegetation within the majority of both energy and transportation land is generally managed to prevent the growth of trees and other large woody vegetation. This results in land that is in a perpetual state of arrested early successional habitat, thus held in grassland, meadow, prairie, or shrub-scrub type communities (Lanham & Whitehead 2011). Early successional habitats are in decline across North America due to changes in land use and vegetation management practices; however, energy and transportation lands present an incredible opportunity to provide valuable wildlife habitat to species that depend on early successional plant communities and structures, such as monarch butterflies and other pollinators. This Agreement acknowledges the important role these lands have in monarch conservation by:

- **Sustaining suitable habitat**: While not protected in the sense of permanent conservation lands, many owned lands and rights-of-way easements, by their designated operations and widths required for safety and security, help prevent many acres of natural lands from future conversion or development. As a result, these lands can be areas of sustained, managed areas for pollinators.
- **Enhancing and improving habitat**: Vegetation management is a regular requirement for nearly all lands and easements enrolled in this Agreement. By committing to the conservation measures required to address key threats to monarchs on their lands, Partners will conduct vegetation management in a manner that addresses needs for monarchs in areas that sustain potentially suitable habitat.
- **Restoring and expanding habitat**: Partners enrolling in this agreement are tasked with building, maintaining, and upgrading the energy and transportation infrastructure of the U.S. While restoring habitat may not be a primary function of their operations, actions such as seeding and planting of native species, and using vegetation management to convert lands into suitable habitat (where allowed by land ownership and operational constraints), have the potential to restore and expand acres of habitat available.

Strategies for increasing or improving monarch and pollinator habitat on energy and transportation lands will vary depending on the ownership, safety concerns and regulations, and competing vegetation management objectives in any particular location. In addition to linear rights-of-way, energy and transportation lands also include individual parcels that may contain infrastructure associated with rights-of-way operations. Energy sector lands may include parcels for generation sites, substations, pump stations, operation centers, or other office or storage facilities. Transportation lands may include parcels dedicated to facilities such as rest areas, local storage and maintenance, and regional operations and management. Parcels are also obtained and maintained in preparation of future project needs. Many of these parcels contain lands that can be managed in a similar manner to rights-of-ways and help sustain suitable habitat for monarchs.

Energy and transportation lands are similar in the way they are managed in comparison to lands managed by other sectors or purposes. Across energy and transportation lands, similarities include:

- **Common management objectives:** Partners have lands that can be managed to maintain habitat for, and practices can be modified to benefit, monarch butterflies while supporting common operations, maintenance, and modernization activities associated with energy and transportation infrastructure.
- **Authority and control:** Partners have ability to manage vegetation and address the same key threats on lands they have management interests in, whether fee-owned, leased, easement-held, or by permit.

While power companies have management responsibility over the lands, they may or may not have full ownership over the sites. However, via a range of possible land interests (fee-owned, leased, easement-held, or by permit) they have control to implement vegetation management, and ability to adapt some of those practices as conservation measures.

4.6.1 Electric Utility Rights-of-Way

Electric utility rights-of-way can take many forms, as infrastructure specifics range from high voltage transmission power lines, switch stations and substations, to lower voltage distribution power lines. Depending on the voltage of the power line, the width of the right-of-way can vary to meet engineering and construction standards that change depending on the voltage and type of line in any particular location.

Transmission Power Line Rights-of-Way

Transmission power lines are high-voltage facilities that provide the bulk movement of electricity from a generation site, such as a power plant, wind farm, or solar array, to an electrical substation. The distinction between transmission and distribution lines is largely determined by their function on the overall system. Transmission lines can have lower voltage, especially those serving small, more isolated, customers. Transmission lines form a network, between the generation site and distribution substation, which provides a path for power to flow through a large area or region (Warwick 2002).

As mentioned above, the widths of the rights-of-ways for transmission lines can vary by voltage. Technical references (FAC-003 and its most up to date version) from the North American Electric Reliability Corporation (NERC) lists the minimum distance from centerline of the circuit to the edge of the active transmission rights-of-way. These widths typically range anywhere from less than 75 feet, and up to 200 feet in minimum total rights-of-way width.

While some electric rights-of-ways may occur on fee-owned lands, typically, electric rights-of-ways acquire rights from a landowner through an easement to locate the transmission line on their private property. This provides the utility the right to construct, operate, maintain, and access the utility lines on the land. Easement agreements generally require implementation of rights-of-way best management practices designed to ensure that the structures and wires are kept clear of other structures and vegetation that may interfere with electric reliability. Landowners granting those easements may continue to operate the property at their discretion as long as it is not prohibited in the easement document. This can create constraints in restoration and maintenance of rights-of-way vegetation if maintenance and care of natural land cover supporting pollinators does not align with the landowner's interest. In some cases, easements may only allow use of certain management tools (such as mowing or brush removal) or pose some other restriction. Such restrictions may impact which key threats are within the control of the utility. For the purposes of this Agreement, Partners are expected to implement conservation measures, to the extent they can anticipate, in areas where adopted acres will persist. Therefore, successful implementation of the Agreement and its conservation measures requires coordination and communication with local landowners.

Transmission line rights-of-ways are commonly maintained on a vegetation management rotation that can typically range between three to seven years (shorter or longer depending on type of vegetation and other issues) and may include mowing, herbicide treatment and/or selective vegetation control. Rotation time is developed to ensure that required minimum vegetation clearance distances are maintained. With appropriate vegetation management, these locations can provide significant habitat opportunities for monarchs and other pollinators.

Many integrated vegetation management practices used on transmission line rights-of-way are compatible with providing habitat for monarchs. Selection of the appropriate tools within the context of integrated vegetation management is dependent not just on pollinator biological needs, but system safety and reliability, plus any other applicable easement restrictions, as well.

Standard vegetation management practices on transmission rights-of-way include brush removal, mowing, targeted herbicide treatments, and removal of tall-growing woody vegetation. In addition to standard vegetation management, maintenance and modernization activities may result in periodic soil disturbance through grading and excavation. In these locations, revegetating the area with a native seed mix can help re-establish native species in locations where they have been historically lost.

Transmission lines pose an expansive opportunity for monarch conservation. With rights-of-way spanning "cross-country", their parcels and easements intersect many areas of natural vegetation that can be maintained, temporarily undisturbed or set aside, and improved to benefit monarchs.

Distribution Power Line Rights-of-Way

Distribution power lines are lower in voltage than most transmission power lines, providing the last leg of the electricity's journey to the end users, including homes and businesses. Distribution lines are typically

the link between substations receiving power from the high-voltage transmission lines, and the end user. These linear rights-of-way are much smaller than the transmission line rights-of-way (usually around 20 to 30 feet wide), and can be found in both congested urban areas and more open rural areas. Distribution poles and lines are often located within existing road rights-of-way or developed lands. If the distribution line is located within a road right-of-way, the owner of the road holds title to, and may maintain the vegetation within, the easement (such as a state or municipal transportation department). Occasionally a distribution line is located on "cross-country" easements (i.e. linear corridors not adjacent to a road).

Similar to transmission line maintenance, rotations are developed to maintain required minimum vegetation clearance distances to avoid unscheduled outages of electric power. If distribution rights-of-ways are within an easement owned exclusively by the utility, they are commonly kept on a mowing and spraying rotation that can range between one to five years. This rotation also includes tree trimming where necessary to ensure overhead lines remain clear of branches. Also similar to transmission line rights-of-way, distribution rights-of-way may be acquired through an easement.

Maintaining vegetation via easements presents the same challenges for rights-of-way restoration and maintenance for pollinator habitat (i.e. the easement-granting landowner maintains ultimate control of those lands). However, unlike transmission lines, there is a greater degree of overlap with distribution and other rights-of-way and developed lands. In many cases, the entity overlapping the distribution easement (e.g. DOTs or private landowners) maintains primary management control over vegetation. This overlap inhibits the ability for distribution managers to control and manage vegetation within distribution rights-of-way. As a result, compared to other enrolled land types, distribution lines pose limited ability to control key threats for monarchs through vegetation management conservation measures. Where they are co-located with other Partners in this Agreement, this Agreement allows for Partners to collaborate on conservation measures to ensure success. Partners will note where overlap of conservation measures occur with other Partners in their annual compliance reporting.

4.6.2 Substation Parcels

Substations can include switching stations, collector stations, and distribution stations. All serve the purpose of either providing reliability backup, changing electricity flow, or changing voltages from a high-voltage to a lower voltage or vice versa. Generally, these fenced-in stations are installed on a crushed rock pad to ensure proper drainage, and that the electrically-charged structures stay dry and safe. Vegetation growth is typically managed to little or no growth within the fenced, crushed rock pad as it compromises the safety of personnel working at the site. Therefore, substations are typically on annual maintenance schedules that require the application of a sterilant herbicide to prevent vegetation growth throughout the station. Substations can be of various sizes depending on the voltage and location.

Many stations may be located on larger pieces of property than is required for the station. These parcels may provide open space buffer zones outside of the fenced-in station, areas that are not covered in crushed rock, and may potentially be enhanced or planted into pollinator habitat. Local municipalities may require screening vegetation via either ordinances or construction permits, but there may be opportunities to coordinate with municipalities to restore to pollinator habitat.

4.6.3 Electric Generation Sites

Electric power generation constitutes land managed for the generation of electricity and includes acreage surrounding power plants and substations, along with separately owned parcels ranging from one to 10,000 acres. Some lands maintained for current (or future) generation needs, include land previously mined for coal, recreation areas, and property leased to farmers, service centers and other buildings for employees and equipment, among others. With the power sector adopting more renewable energy sources, those lands are also becoming important considerations for habitat management. Generation sites consist of power plants powered by fuels, as well as renewable energy such as solar arrays, or wind farms.

Similar to substations, many electric generation sites are managed free of vegetation in areas where operations are conducted. However, these sites often contain buffer areas that can be actively managed or

passively maintained for monarch habitat. On power plant lands (coal, gas, nuclear, or hydro), these areas may be located in buffer zones or adjacent lands not currently associated with plant operations.

Wind generation sites are usually sited entirely via easements with landowners, allowing the company little to no legal ability to manage vegetation outside of the immediate turbine and access road area. Oftentimes, easements may prevent the possibility of achieving the generation sector adoption rate (Described in Section 6). These sites may not be appropriate for enrollment in the CCAA/CCA. However there may be limited potential for localized habitat restoration along access roads, or at the operations and maintenance building, which may allow for eligibility.

Solar sites provide an opportunity to support pollinators, including monarchs, and solar companies are recognizing the benefit of restoring native vegetation. Areas surrounding solar panel arrays are often maintained with gravel or in low-growing vegetation such as mowed lawn grasses. Restoring solar site perimeters may enhance or restore the vegetative buffer to adjacent lands, which can in-turn provide a cost-benefit, as well as other positive environmental and socio-economic impacts to surrounding lands. Restoring native vegetation and sustaining diverse plant communities on solar sites, and other generation sites, could be a primary conservation benefit of these lands.

From a site perspective, there are constraints to the species selected for groundcover planting due to the infrastructure of the solar farm itself. Factors to consider include: shading risk (land topography, panel height and weed growth), disturbed vs. undisturbed land, wetlands buffers, native distribution of seed mix, bloom time and color, drought resistance, animals benefitted, soil moisture content and drought tolerance, supplier, cost of installation and maintenance, and the seeding rate. Other constraints on site-wide pollinator friendly habitat include safety concerns, maintenance needs and landowner needs. Neighbors or the surrounding community may have concerns regarding bee stings and other safety-related incidents to the presence of pollinator habitat.

Management of company-owned property may have limitations mandated by safety and security requirements. Examples include buffer areas around a power plant that must be managed to ensure the plant itself is accessible, physically safe, and emergency response ready. Companies that own generation facilities may proactively purchase additional lands around their facilities to serve as additional buffer lands, or when tentatively planning future projects. Such land acquisition may occur over years. Local municipal zoning requirements may also affect property management.

Some energy generation facilities, such as wind farms and solar facilities may be sited entirely on easement with private landowners. These easements extend for the life of the generation facility (typically expected to be 20 to 30 years) and require the removal of all facilities at the end of the easement life. Depending on the terms of these agreements, company management of property surrounding the turbines or solar arrays may or may not be allowed in the easement. In situations where vegetation management rights are outside of the Partner's control, those lands may not be appropriate to enroll in the CCAA/CCA since the key threats are outside the control of the Partner.

4.6.4 Oil and Gas Rights-of-Way

Similar to electric transmission and distribution, oil and gas rights-of-way commonly have a defined width according to diameter and pressure of the pipeline. A right-of-way easement allows the utility company to keep the easement clear of any trees or other structures that may interfere with the ability to operate and maintain the integrity of the pipeline, perform essential maintenance, or place additional lines in the rights-of-way. Access to the rights-of-way must always remain available to the utility company to walk or drive the entire line and perform safety inspections. Pipelines and their rights-of-way exist throughout the country in both urban and rural areas. Easement ownership for these structures depends on the location of the pipeline. Similar to electric rights-of-way, pipelines may be located or co-located within road rights-of-way owned by others, or may be on private land in an easement owned exclusively by the utility. Similar to electric utilities, the oil and gas rights-of-ways are comprised of larger (intrastate, interstate and

interregional) transmission routes that transport high volumes to the smaller distribution network of smaller pipelines that ultimately end at homes, businesses, and other customers.

The rights-of-way associated with pipelines is generally an easement on private property and is either not owned by the utility, or is within road rights-of-way where easements are held by a state or local transportation department. Typically, the utility acquires rights from private landowners through an easement to locate the pipeline on their property. This provides the utility the right to construct, operate, maintain, and access the utility lines on the land. As long as current land practices promote appropriate vegetation management according to rights-of-way best management practices, the landowner may continue to operate the property at their discretion as long as it is not prohibited by the easement document. Generally, a pipeline easement does not allow the planting of woody vegetation due to potential interference of root systems with pipes, or placement of structures over the top of the easement for safety.

While there are no specific regulations that require pipeline operators to manage vegetation on rights-of-way, the Pipeline and Hazardous Materials Safety Administration (PHMSA), through the Pipelines and Informed Planning Alliance (PIPA), has recommended practices that were developed by teams of industry representative stakeholders who agree on the practices. Pipeline safety is a main focus of these regulations.

All stakeholders are encouraged to become aware of, and implement, the PIPA recommended practices where appropriate. One such recommended practice is BL12, “Notify Stakeholders of Rights-of-way Maintenance Activities.” Within this recommended practice is a discussion regarding the basis for maintaining the rights-of-way, specifically addressing vegetation management requirements. The PIPA states, “The transmission pipeline operator must maintain the rights-of-way vegetation so that it will not hinder pipeline inspection and maintenance activities.” As with other rights-of-way, managing for these activities requires the company to manage vegetation in a state of grasslands, or other open habitat, which many be suitable to monarchs.

Many natural gas distribution companies have assets that meet the definition of a transmission class pipeline and therefore fall under the above guidance. Similar to transmission class pipelines, there are no specific regulations for vegetation management on natural gas distribution rights-of-way or recommended practices specific for distribution pipelines. However, vegetation management on gas distribution rights-of-way is determined by understanding the requirements of distribution integrity management plans focused on safety and maintenance. Many of these activities are administered most effectively in clear rights-of-way, free of obstructions and woody vegetation encroachment.

The width of a pipeline rights-of-way depends on the diameter and pressure of the line and the number of lines in a given rights-of-way. Rights-of-way widths can vary, but are not arbitrary. The widths must meet engineering or construction standards for safe operation and maintenance. Therefore, rights-of-way for smaller distribution lines can range from five to 25 feet wide while typical transmission lines usually consist of 50-foot permanent rights-of-way. Often a temporary construction easement adjacent to the permanent 50-foot easement is used during the construction of the pipeline and may vary from 25 to 100 feet wide. When construction is complete, this temporary construction easement is voided and then returned to the landowner, restored to its previous, preconstruction condition.

Oil and Gas Transmission

FERC (2016) defines transmission as, “moving bulk energy products from where they are produced or generated to distribution lines that carry the energy products to consumers.”” (FERC 2016). For pipelines, large diameter transmission lines deliver gasoline, home heating oil, crude oil or natural gas. These are usually operated under high pressure in order to move large quantities of product throughout the nation to local stations where the product may either be used at the site, or diverted into smaller “distribution” lines. Larger cross-country transmission pipelines are usually easier to locate as they have above ground posts marking the easement. These posts are seen most often at locations where the pipeline crosses under

roads. The location of all underground facilities are recorded in property easements, in utility records, and can be field identified through contacting the appropriate “digger’s hotline” depending on locale.

Management of oil and gas easements requires maintaining open grasslands, or other land cover free of woody vegetation that can hinder access, or pose risks to safety and security. In doing so, many oil and gas transmission rights-of-way may offer similar conservation opportunities as electric transmission.

Oil and Gas Distribution

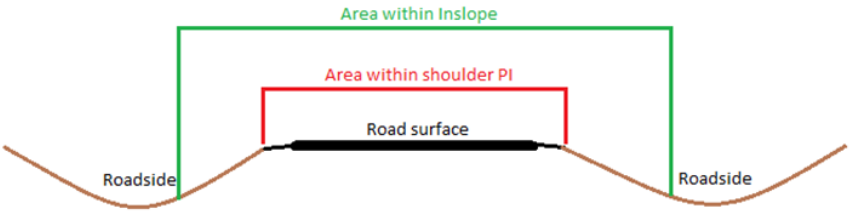
Natural gas is delivered directly to homes in relatively small diameter distribution lines buried under the street and through private yards directly to homes and businesses through pipes that are only a few inches in diameter. These distribution rights-of-ways on private land are typically small, and rarely have above ground markers showing where the easement occurs, making them less obvious. Prior to the end users property, distribution lines are commonly placed on existing rights-of-way for other utilities or transportation. As a result, those primary easement holders, or landowners, actively manage vegetation in these areas. Consequently, very little active management of vegetation occurs within oil and gas distribution networks as distribution companies generally lack the control (or need) to manage vegetation in their easements. This, again, is similar to how electric distribution operates and manages lands.

4.6.5 Transportation Rights-of-Way

Transportation networks consist of the interstates, highways, local roads, and railroads used daily for commuter transportation, as well as the movement of goods and services. As reflected by the previous discussion of energy lands, transportation rights-of-way and their associated lands are comprised of fee-owned lands, easements, and other access agreements across road and rail networks of various sizes.

Management and maintenance of these transportation networks are focused on the efficient movement of traffic with safety their primary focus. For this reason, roadsides (and to a similar extent rail) is managed with consideration for several zones. Figure 4-3 illustrates how these zones are generally situated relative to roadsides. Each state and local road authority may maintain these areas differently based on local laws and regulations.

Figure 4-3. Operational Rights-of-Way Zones Used for Initial Categorization of Activities. Illustration provided by MnDOT.



Road surface:	Road pavement or other traveled surface.
Area within shoulder point of intersection (PI):	Zone that includes the road surface itself, as well as an unvegetated shoulder. The shoulder may consist of gravel, crushed stone, concrete, or other hard surface generally free of vegetation.
Area within inslope:	Inslope (or foreslope) is used to facilitate the draining of water from a road surface to an inside ditch. Width of this area will vary by road size. Vegetation in this area is generally frequently managed with mowing to short heights (<6-inches) and the application of chemical herbicides to control weeds.
Roadside:	Remaining area, or horizontal width, of road rights-of-way located outside of the area within the inslope. Width of this area will vary by road size. For the purposes of the Agreement, this is the zone that contains most unmanaged area of vegetation in the rights-of-way.

The transportation corridors also vary in their width and management control depending on their context. Corridors located in suburban and rural landscapes typically contain more diverse land cover, which allows for greater conservation opportunity under this Agreement. By comparison, corridors in urban landscapes may be constrained by adjacent land uses, and therefore be limited in its ability to maintain or restore vegetation for pollinators. Frequently managed cleared areas (clear zones) adjacent to pavement provide for the safety of the motoring public. Adjusting mowing standards, i.e. strategic and rotational mowing, or delayed roadside mowing could provide habitat opportunities for monarchs. Areas outside of routine management or excess rights-of-way parcels provide a significant opportunity for additional habitat.

Access-controlled Roadways (interstates and tollways)

Routinely mowed areas range from 15 to 30-feet adjacent to pavement and/or gravel shoulders, and are routinely maintained by mowing to provide for the safety of the motoring public. These areas adjacent to pavement are not generally considered suitable habitat for monarchs; however, these areas are sometimes left unmaintained and may offer high potential habitat that extends from the routinely mowed area to the access control fence, including median areas and interchange infields. The area inside the access control limits is generally protected from mowing and disturbances outside of authorized personnel. Due to their protected nature, these areas are considered to be the highest value habitat areas within the highway transportation system when properly managed.

Highways (U.S. or state marked routes)

Similar to access-controlled highways, U.S. and state highways also maintain areas of low height vegetation or bare ground (clear zones free from obstructions) adjacent to pavement to allow motor vehicles to recover if they leave the pavement. These areas are not generally considered suitable habitat for monarchs. Areas

outside of the clear zone offer potential habitat that extends from the clear zone to the right-of-way boundary. In states where rural highways are typically not controlled by fencing, those areas are often subject to 'volunteer' mowing by others. If properly signed and maintained, those areas are primarily maintained by the transportation agency, and the potential for viable habitat is more likely.

Managed areas (signed and protected remnant vegetation, threatened and endangered species areas, waysides, and excess rights-of-way) already exist along rural, non-access controlled highways. These locations may be signed to identify the asset and to prohibit mowing or spraying. These areas are typically mapped and protected by policy within all sectors of transportation agencies.

County and Local Roadways

These roads include county, township, or other roads not designated as an interstate, U.S., or state marked route. The right-of-way width varies significantly but is often between 30 to 75-feet in total width, including both pavement and shoulders. These rights-of-way can be managed by a county, municipality (township, village, city), or their contractors.

Railroad Rights-of-Way

The nation's rail network has been used for more than 150 years. It delivers approximately one-third of the nation's exports and delivers five million tons of freight and approximately 85,000 passengers each day (ASCE 2017a). Vegetation is typically managed along rail rights-of-way using herbicide treatments of the trackbed base (i.e. ballast) to facilitate required inspections, decrease fire potential, maintain safe walking areas for train inspections, and provide visual clearance for motorists and pedestrians so they can safely view approaching trains.

As noted, many energy companies and transportation agencies own and/or manage many different types of land beyond the rights-of-way as well. Similarly, railroad companies often own non-operating properties, which consist of unused portions of railyards, abandoned railroad tracks, or other properties that are not currently in operation, which pose opportune locations for habitat conservation projects where resources are available.

Much like highway rights-of-way, railroad rights-of-way generally consist of an area immediately adjacent to the track where vegetation is routinely managed to control for safety. This area does not present much opportunity for monarch habitat due to its frequent management interval.

However, the remainder of the rail rights-of-way beyond this area adjacent to the track are managed less frequently and therefore could serve as potential monarch habitat. Current management includes occasional mowing, brush removal, and/or broadcast herbicide use. Adapting these measures through scheduled vegetation removal, or targeted herbicide treatments may pose potential improvements for monarch habitat.

Transportation Parcels

In addition to roadsides, state DOTs may also maintain large parcels that can benefit monarchs. Rest areas, storage and maintenance facilities, and wetland or other mitigation sites all have potential for suitable habitat that can be enhanced for the benefit or monarchs. These areas often provide opportunities for restoring natural vegetation or enhancing existing areas of natural vegetation to provide habitat. They may be highly visible to the public, such as rest areas along roadsides, which are great locations for possible monarch butterfly waystation plantings and have great potential for public involvement and outreach. These areas may have large tracts of land with habitat potential where the public can park without the safety concerns of the roadway. Other lands may have conservation potential, but are less visible, such as excess undeveloped land previously purchased for building or future rights-of-way development, picnic areas, and some mitigation sites.

Transportation rights-of-way have been identified as an important potential source of monarch and pollinator habitat across the country; yet, many worry if such habitat areas might prove to be an ecological trap – a location appearing to provide valuable habitat for wildlife yet ultimately resulting in population loss. As for many animals, vehicles are a source of mortality for monarch butterflies. Limited research suggests that monarch mortality levels due to collisions are low, but that mortality increases significantly during fall migration (McKenna et al. 2001). Some recent research suggests that the extent of mortality varies depending on land use adjacent to these corridors (Keilsohn et al. 2018).

However, research also suggests that roadside monarch habitat provides a net benefit, despite losses due to collisions. Research in the U.S. and Europe has found that the number of butterflies killed by vehicle collisions is a small proportion of overall populations (0.6 to 10%), though mortality rates depend on species and their natural history and flight capabilities (Munguira and Thomas 1992; McKenna et al. 2001; Ries et al. 2001; Rao and Girish 2007; Zielin et al. 2010; Skórka et al. 2013; Munoz et al. 2015). Reducing roadside mowing at particular times of the year can reduce butterfly mortality, as can enhancing the diversity and abundance of wildflowers on roadsides (Munguira and Thomas 1992; Ries et al. 2001; Skórka et al. 2013). A recent study on how roads affect the structure of butterfly communities in grassland patches (Skórka et al. 2018) found that:

1. Grassland patches located near roads are at least as good of habitat for butterflies, and as comparable in quality, to reference grassland patches,
2. Roads create a gradient of local environmental conditions that increases variation in the abundance of certain species and perhaps increases total species richness in grassland patches located along roads, and
3. The impact of roads on butterflies is at least partially independent of the effect of plants on butterflies. In other words, the direct impact of road mortality is probably spatially limited to butterflies living in close proximity to roads (i.e. on a road verge; within several feet).

In a previous study looking at butterfly road mortality and the suitability of road edges as habitat, Skórka et al. (2013) found road edges and borders that were of high conservation value resulted in low mortality (approximately 5 percent of the total population).). The study recommended conservation actions including the sowing of flowering plant seeds, less frequent mowing, and maintaining a high grassland cover along roads as factors resulting in improved conservation value of road edges for butterflies. Similar benefits were highlighted by a study completed in the Upper Midwest of the U.S. (Kasten et al. 2016), which suggested that roadsides have conservation potential for monarchs, especially when other habitat is scarce, and if beneficial management practices are enacted.

There are multiple benefits of establishing and managing roadside vegetation for monarch and pollinator habitat. Monarch butterflies will inevitably cross many miles of roadsides and rights-of-way throughout their migratory journeys. Opportunities for establishing pollinator waystations at other properties managed by transportation departments allow civic-minded communities to build useful habitats and increase community engagement and awareness around monarch and pollinator conservation more generally.

5 Covered Activities

If the monarch is listed, no additional conservation measures or land, water, or resource use restrictions for the monarch, beyond those voluntarily agreed to and described in Sections 5 and 6 of this CCAA, will be required on enrolled property as long as the enrolled landowner is in full compliance with the individual Certificates of Inclusion, the Agreement, and Section 10(a)(1)(A) permit. These assurances will be authorized with the issuance of an EOS permit under Section 10(a)(1)(A) of the ESA. If all permit issuance criteria are met in accordance with 50 CFR §§ 17.22(d)(2) and 17.32(d)(2), the Service would issue a permit to authorize incidental take associated with the covered activities described below and occurring on enrolled energy and transportation lands.

This CCAA applies to energy and transportation lands associated with maintenance and modernization of associated infrastructure. New construction of energy and transportation infrastructure outside of enrolled lands are considered outside the scope of this Agreement. New construction activities are often of greater impact, and therefore pose more regulatory complexity than the covered activities associated with maintenance and modernization. As described in the Definitions section, maintenance, modernization, and new construction are defined as:

> **Maintenance –** Work on enrolled lands that is planned and performed on a routine basis to maintain and preserve the condition of the energy or transportation system or to respond to specific conditions and events that restore these systems to an adequate level of service.
>
> **Modernization** – Construction and other land disturbing activities involving the repair, replacement, and upgrading of existing infrastructure on existing enrolled lands. Examples include, but are not limited to, road surface repair, bridge construction and replacement, lane widening, interchange modification or construction, transmission line rebuilds, pipeline replacements, renewable energy infrastructure construction and modifications, and similar activities.
>
> **New Construction** - Construction and other land disturbing activities that either a) occurs substantially outside of enrolled lands, or b) any project or activity determined through an EIS to pose significant environmental, socioeconomic, historic or cultural impacts is considered as new construction. Examples include, but are not limited to, large construction projects pending complete project easement or land acquisitions, or projects triggering an EIS threshold due to planned impacts, such as large interstate highways, pipelines, transmission lines, new rail routes, or similar. New construction is excluded from covered activities. This term does *not* include activities that solely involve the repair, upgrade, or replacement of existing facilities substantially within existing energy and transportation lands.

Each requires vegetation management to address incompatible vegetation for safety, reliability, emergency response, and security. As described in Section 4, rights-of-way consist of linear corridors that maintain infrastructure dedicated to the delivery of energy commodities such as gas, electricity, or oil, as well as transportation corridors important to travel and commerce. Each type of right-of-way contains their own potential requirement for vegetation management. Facilities that support energy and transportation infrastructure range in size and type of operational support, each with its own management considerations. Most covered activities occurring along rights-of-way and other lands are temporary in their duration and relatively minor or infrequent in their impacts. These temporary losses will therefore quickly be regained through conservation measures and natural site regeneration, resulting in no-net-loss of habitat for most impacts along energy and transportation lands.

Other covered maintenance and modernization activities may yield some amount of permanent habitat loss through land conversion, or placement of infrastructure including, but not limited to, signs, safety features,

poles, storage areas, substations, and pumps. Ongoing management of energy and transportation lands requires periodic enhancement and construction to maintain and modernize infrastructure.

Much of the nation's energy and transportation lands have been in operation for decades. Continual operation of these important components of infrastructure require maintenance and modernization to be conducted in accordance with state and Federal laws that are intended to ensure no or negligible environmental disturbance. The expected degree of loss, or take, over the course of this Agreement is described further in Section 8 (Expected Impacts or Take). The expected impacts or take associated with this agreement were analyzed through the Service's Section 7 process. Only the activities and impacts included in the Section 7 analysis are covered by the EOS permit and associated COIs.This Agreement and the associated EOS Permit cover maintenance and modernization activities consistent with other parts of this document that will occur through activities described below (Covered Activities).

5.1 General Operations and Access Activities

Operation of the rights-of-way and facilities on energy and transportation lands for their intended use is fundamental to their role in America's energy and transportation infrastructure. Access is an important requirement for rights-of-way as they are routinely accessed for inspections, construction, maintenance, and emergency prevention and response.

General operation includes operation of the energy and transportation infrastructure for which the system was engineered. Operations include, but are not limited to, the generation, transmission and distribution of electricity, oil, gas, or other energy commodity. It also includes the operation and management of road, highway, and rail routes used for the transport of goods, as well as the general public.

Vehicle and equipment access includes, but are not limited to, vehicle operation and access along rights-of-way using trucks, ATVs, UTVs, amphibious vehicles, mechanized mowers, side trimmers, harvesters, chippers, drill rigs, bucket trucks, loaders, dump trucks, concrete trucks, reel trailers, wire pullers, mat trucks, cranes, and other vehicles used to access areas of rights-of-way and parcels to conduct ongoing maintenance and modernization.

Maintenance of existing roads and access routes includes, but are not limited to, periodic grading and vegetation clearing; fence and guardrail repair or replacement; periodic installation, maintenance, and removal of temporary matting for construction access; and occasional repair and replacement of structures and equipment in areas devoid of vegetation including substations, compressor stations, and communication facilities. On transportation lands, ongoing road maintenance may include, but are not limited to, routine maintenance activities such as paving, shoulder repairs, sealcoating, concrete repair, de-icing, and snow removal.

Surveys and inspections include, but are not limited to, routine line inspection (aerial and ground patrols), surveying and staking, and exploratory soil boring. Surveying is conducted on a routine basis for different needs and typically involves vehicle access (described earlier) and localized, temporary vegetation removal.

Emergency response activities involve unplanned access and work activities associated with prevention of, or responding to, emergency response and outage repair needs.

5.2 Vegetation Management Activities

Vegetation management is routinely conducted on existing rights-of-way and owned lands to ensure safe and reliable operation of infrastructure, and allow access needed for inspections, maintenance, and emergency response. Vegetation management activities can either be considered a conservation measure (see Section 6, Conservation Measures) or a covered activity, as described in more detail here. This distinction is dependent on the timing, site conditions, management objectives, and techniques used. For example, mowing conducted during the growing season and without consideration for timing relative to monarchs, can result in extensive losses of habitat and direct mortality. However, if the same mowing

activity is undertaken with timing considerations to avoid these impacts to monarchs and their habitat, then it can be beneficial as a conservation measure.

Activities such as mowing and herbicide use could be considered either covered activities or conservation measures. To distinguish between the two, the Partner should evaluate:

a) Does the activity have the consideration of monarch habitat as part of the site or treatment management objectives (e.g. consideration for sustaining blooming nectar plants, along with other maintenance objectives such as safety, security, and reliability)?

b) Does the activity likely benefit the monarch butterfly in the area being treated (e.g. will it sustain or enhance the presence of diverse, flowering plants as suitable habitat)?

c) Does the activity attempt to avoid or minimize loss or negative impacts to suitable habitat and monarchs during the growing season when monarchs may be present?

If the answer is yes to all three considerations, then the activity would be considered a conservation measure. If the answer to any of these conditions is 'no', then the activity would likely be considered a covered activity.

Conservation measures to benefit suitable habitat as described in Section 6 (Conservation Measures) are vegetation management activities undertaken to benefit monarchs and their habitat. Implementing conservation measures requires access to the enrolled lands and poses potential temporary impacts to habitat while activities are being conducted. Conservation measures are comprised of various vegetation management activities including targeted use of herbicides, removal of dense woody vegetation, prescribed burning, seeding of native species and associated site preparation, control of invasive or defined noxious weed species, and other measures. It also includes maintaining suitable habitat idle lands, or set-asides, or lands that sustain suitable habitat throughout the growing season without being disturbed by any other maintenance or modernization activity.

Vegetation management that may impact habitat includes vegetation management activities conducted for maintenance purposes outside the scope or intent of those defined as conservation measures. The primary distinction between vegetation management (as a covered activity) and similar actions (as conservation measures) is whether an activity is conducted within suitable habitat and/or a manner that either benefits or impacts habitat for monarchs. This includes vegetation management activities such as targeted broadcast application of herbicides in areas of suitable habitat, mowing in areas of suitable habitat during the growing season to remove woody vegetation or create temporary access routes, periodic mowing and haying, and vegetation management applicable to other legal or regulatory requirements that may be incompatible with habitat. Vegetation removal can also include activities such as tree removal, side trimming, pruning, and hazard tree removals, hand clearing with chainsaws and brush cutters, disposal of cut material through burning, chipping, dragging, and hauling, and additional vegetation management controls that may be considered as part of integrated vegetation management planning and implementation protocols in accordance with ANSI A300 guidelines, or Partner-specific vegetation management procedures.

5.3 Maintenance and Modernization Construction Activities on Energy and Transportation Lands

Much of the nation's energy and transportation infrastructure is more than a half-century old. Most electric transmission and distribution lines were built in the 1950s and 1960s with a 50-year life expectancy. In addition, as energy uses change, so does the need for upgrades in technology and capacity to meet the continued demands of the nation. Natural gas consumption increased by over 24% from 2005 to 2015, and is continuing to rise. Since 2013, oil and natural gas pipeline construction has continued to access new sources for both crude oil, natural gas, and other commodities (ASCE 2017b). Similarly, the nation's road system is extensive and heavily traveled. Approximately 4.1 million miles of roadway, of which three (3) million miles are rural roads, intersect the nation (FHWA 2016).

Maintenance and modernization construction activities on existing energy and transportation lands addresses the ongoing need to maintain and improve the existing energy and transportation infrastructure of the nation. These activities consist of routine maintenance needs, as well as occasional upgrading and improvement (i.e. modernization) of the infrastructure on rights-of-way and parcels.

Maintenance and modernization activities include the following types of activities:

Structural maintenance includes structural repairs, replacement, and maintenance. Within energy lands this includes, but is not limited to, guyed wire replacement, culvert replacement, pole wrapping or painting, gas leak repairs, structural testing and treatments, above and below ground structural replacements, and woodpecker assessments and patching. On transportation lands this includes, but is not limited to, pavement repair, mill and overlays, shoulder repairs, painting and striping, guardrail installation or replacement, lighting installation or replacement, manhole/inlet cleaning, installation and maintenance of curb and gutter, culvert installation and maintenance, bridges and piers, scour aprons, cattle grates, and similar structures.

Facilities management and maintenance includes vegetation maintenance on naturalized facilities such as mowing, invasive weed control, and other maintenance on ash landfills, stormwater management facilities, and undeveloped lands, as well as routine vegetation maintenance of developed lands such as mowing and invasive weed control. It also includes the building, facility, and structural maintenance on service centers, generation stations, and substations, and general facilities building and maintenance within developed areas.

Temporary staging and storage involves use of temporary staging and material storage areas for construction. It may also involve use of construction matting or other access pads in wetlands, waterway crossings or other environmentally sensitive areas. Temporary staging and storage areas are removed and vegetation is typically restored following construction.

Construction facility repairs, upgrades, and replacement within existing parcels or rights-of-way include planned or emergency repair, replacement, and upgrades to existing facilities (e.g., to replace components that have reached the end of their useful life), and replacement of existing facilities substantially within Partner-owned energy or transportation lands. On energy lands, this includes, but is not limited to, construction of structures and pipe segments, re-conductoring, burying lines (conductors, fiber optic, or other), adding or modifying overhead lines or pole attachments, demolition and removal of existing structures and pipe segments, construction of substations, and installation of new structures or pipe within existing rights-of-way. On transportation lands, this includes, but is not limited to: pavement replacement; roadway construction or repair; bridge and culvert widening, extensions, or replacement; lane and shoulder widening or extension; construction of pathways (bike lanes, sidewalks, trails, or other paths); rail replacement; construction of noise walls or retaining walls; burying lines (conductors, fiber optic, or other); adding or modifying overhead pole attachments; bank stabilization activities that are hard armoring through rip rap, concrete, sheet piling, or similar methods that are unlikely to allow vegetation establishment; and, construction within the existing rights-of-way, such as including rest areas, roundabouts, interchanges, truck escape ramps, weigh stations, spoils disposal or waste management areas, and similar facilities.

For both energy and transportation lands, these activities also includes facility construction and building maintenance, including small buildings, lighting, storage areas, and stormwater facilities maintenance; grading and excavation; installation and maintenance of erosion control BMPs, site clean-up and restoration, including grading and reseeding on existing rights-of-ways.

Maintenance and modernization activities do ***not*** include “new construction” of transportation or energy infrastructure. As defined in this Agreement, new construction includes a) activities that either occur substantially outside of enrolled lands, or b) any project or activity determined through an EIS to pose significant environmental, socioeconomic, historic or cultural impacts. Examples include, but are not limited to, large construction projects pending complete project easement or land acquisitions, or projects triggering an EIS threshold due to planned impacts, such as large interstate highways, pipelines, transmission lines, new rail routes, or similar. Any activities that fall within this definition of “new construction” are excluded

from covered activities. Actions that pose threats of loss to other listed species, or environmental impacts determined to be significant as part of an EIS, are considered outside the scope of this Agreement. For example, if a Partner wants to expand a roadway, utility line, or pipeline into a new area outside of enrolled lands, the Partner would have to (outside of the CCAA/CCA) obtain all necessary land acquisitions, permits, and other regulatory approvals, complete construction of those new lands or rights-of-way, and then enroll those lands into the CCAA/CCA.

6 Conservation Measures

6.1 Key Threats to Monarchs

As described in Section 2.2.2. the key threats to monarch butterflies addressed with this Agreement include:

Threat 1: Loss of habitat resulting from land conversion

Threat 2: Loss of habitat resulting from herbicide use

Threat 3: Loss of habitat resulting from mowing

The conservation measures proposed within this section address the key threats on energy and transportation lands by increasing milkweed and blooming nectar plants, enhancing habitat and nectar resources, and mitigating negative impacts of mowing and herbicide use on habitat and nectar resources. Recognizing the need for monarch conservation, numerous agencies and organizations have already developed series of best management practices and conservation plans for monarchs and other pollinators (CEC 2018, MDA 2014, Monarch Joint Venture undated, USDA 2015, USFWS 2015, Xerces Society 2018b). Many of these resources contain conservation measures applicable for use on energy and transportation lands. These and other resources have been considered in the development of the conservation measures included in this Agreement.

We anticipate that these conservation measures can, in some cases, also address conservation measures established for other listed species (such as rusty patched bumble bee). In doing so, implementation of conservation measures under this Agreement can be applied in a way that benefits, and/or avoids or minimizes impact to other species. As described in Section 5 (Covered Activities), some vegetation management activities may be considered either a covered activity or a conservation measure, depending on how the activity influences a site, and its suitable habitat. See the discussion in Section 5 (Covered Activities) for additional discussion on that distinction.

6.2 Adoption Rates

6.2.1 Adoption Rates Proposed

Adoption rates recommended within this CCAA/CCA were developed with consideration of a combination of the rates presented in “All Hands on Deck” (AHOD, Thogmartin et al. 2017) as well as industry-elicited adoption rates developed in conjunction with the Agreement. Thogmartin et al. (2017) developed conservation adoption rates targeting sufficient milkweed to support monarch conservation goals across a range of land use sectors. Several rates were developed for sector-specific rights-of-way and considered the likelihood of conservation success due to biological factors, and the feasibility/practicality of sectors implementing the management actions. Adoption rates within Thogmartin et al. (2017) generally range from 5 to 20 percent depending on the land use or sector type. Similarly, the MAMCS also identifies adoption rates for land use sectors based on targets for conservation need (MAFWA 2018).

Within this Agreement, adoption rates are used to help define the net conservation benefit expected from Partners in each participating sector. For the purpose of this Agreement, we consider the adoption rates to represent the *percentage of total enrolled lands* on which conservation measures are implemented to

create, enhance, restore, sustain, or maintain habitat for monarchs. The habitat on adopted acres may be either breeding habitat (e.g. areas containing milkweed) or foraging habitat (e.g. areas with nectaring plants). The net conservation benefit resulting from this Agreement is the on-the-ground conservation of the Partners adopted acres maintaining a network of monarch habitat across both non-Federal and Federal lands.

Over the life of the Agreement, the Programmatic Administrator will maintain the flexibility to enroll Partners under this Agreement that maintain other facilities related to, or supporting, energy and transportation infrastructure. Eligible applicants conduct activities and conservation actions aligned with the accompanying programmatic consultation. To be enrolled, the other sectors (or Partners) acknowledge that they a) can only obtain incidental take coverage for covered activities that align with those described in Section 5 of the Agreement and the accompanying programmatic consultation and b) must commit to conservation actions aligned with those outlined in Section 6 of the Agreement at the adoption rate applicable to their land use. The Programmatic Administrator will determine the appropriate adoption rate applicable to that Partner using Table 6-1.

In the event a Partner maintains lands that are related to, but not defined by, the sectors listed in Table 6-1, the Fish and Wildlife Service will determine whether the applicant's activities and landscape context fall within the scope of the existing consultation. If they determine that the applicant is congruous, they will define a suitable adoption rate in alignment with the rationale and approach outlined within this Agreement (As explained in Section 6.2.2 any variance to adoption rates will not fall below 60% of adoption rate in Table 6-1). If an applicant does not fall within the scope of the existing consultation, the Programmatic Administrator will decide whether or not to apply for an amendment to the EOS permit and CCAA/CCA.

The approach used to define adoption rates is summarized in more detail within Appendix C (Supplemental Information), the adoption rate proposed for each sector Partner is presented in Table 6-1.

Table 6-1. Sector-specific Adoption Rates Required for Enrollment in the Agreement.

Adoption Rate Approach	Transmission	Distribution	Generation	Highways (Interstate, U.S., State)	Highways (County, Local)	Rail
CCAA/CCA Adoption Rates	18%	1%	9%	8%	5%	5%

Applicants will summarize the full extent, or estimated acreage, of their enrolled lands by sector within the application. Enrolled lands included may consist of both linear rights-of-way, as well as leased lands, and fee-owned parcels managed across each sector category. Enrolled lands that potentially overlap with other Partners may still be included in individual Partner estimates of enrolled lands and adopted acres. To encourage participation and avoid coverage concerns, we encourage these Partners to enroll these overlapping acres, and work together to the extent practical to implement conservation measures. Tracking used for the Agreement will help define when or where overlap may exist. The same adoption rate is applicable across all land interest types managed in that sector by an Applicant. Applicants will estimate the required adopted acres (i.e., lands managed or sustained through conservation measures) by multiplying the acreage of enrolled lands by sector-specific adoption rate(s). Applicants managing lands associated with multiple sectors (e.g. a utility managing both generation facilities and transmission rights-of-way) will calculate adopted acres by breaking down enrolled lands within each sector. The resulting adopted acres are lands upon which the Partner implements one or more of the conservation measures, as applicable, for the key threats identified pursuant to in this Agreement. Adopted acres may vary in their location from year-to-year, or they may be maintained in the same location provided that conservation measures are implemented in that location on an annual basis.

The sum of the sector-specific adopted acres target equals the net conservation benefit target for that Applicant (or Partner, once approved). Within the Agreement, the Partner is committed to meeting (or exceeding) the annual adopted acres target resulting from the adoption rates. Adopted acres are accounted for on an annual calendar year basis, and not cumulatively year-over-year. For Partners managing multiple sector types, voluntary conservation measures can be applied across all sector land types as the Partner deems appropriate, to achieve the total sum of adopted acres. So a Partner managing both generation and transmission lands may achieve the combined adopted acres target, on an annual basis, through conservation measures applied cumulatively across both sectors in their application and Certificate of Inclusion.

6.2.2 Adoption Rate Variances

Adoption rates proposed within this agreement are set at a level that a) is consistent with conservation expectations for attaining monarch conservation goals (Thogmartin et al. 2017 and MAFWA 2018), b) provides a net conservation benefit target for participation, and c) is based upon estimates of what is attainable, provided by a panel of industry partners. These proposed rates reflect the range of landscapes, management abilities, and constraints facing each individual sector.

Variances below the Adopted Acres Targets

While we expect most Applicants should be able to achieve the adopted acres targets set by the proposed adoption rates, we also acknowledge that there may be some scenarios we did not anticipate when establishing adoption rates. Some Applicants may have a genuine inability to meet the adoption rate expectation due to one or more constraints on their management control. Such constraints include, but are not limited to:

- Physical constraints, such as enrolled lands encompassing densely urbanized or highly agricultural lands or managed easement widths that are too narrow, constrained, or unvegetated to perform conservation, or
- Regulatory constraints, such as mandated requirements for vegetation management that is incompatible with the degree of conservation adoption rates expected.

Such constraints are unique and outside the scope of what was anticipated during the development of the adoption rate targets used here. If an Applicant cannot meet a sector-specific adoption rate, they can either a) re-evaluate the extent of enrolled lands to be more strategic in which lands are enrolled, or b) request a variance on that adoption rate. Due to the added administrative requirements associated with variance review and approval, variance requests will be considered after other standard Partner applications (adhering to the proposed sector-specific adoption rates) are completed. Additionally, because of the added administrative time needed to consider variance targets, an additional administrative fee may be considered as well.

In some cases, an Applicant may prefer to re-evaluate the extent of enrolled lands included in their application to only enroll parts of the system where adoption rates can be achieved by excluding areas of minimal incidental take risk or conservation benefit. Such areas may include densely urbanized land that have minimal, or no, potential for milkweed or nectar plant habitat. In these re-evaluations, the Service may be asked to advise on what lands may be considered of minimal incidental take risk or conservation benefit.

To be considered, variances below the standard adoption rates must be at least 60 percent of the standard sector-specific adoption rates applicable to their sector(s) included in the application. For example, the bare minimum adoption rate - i.e., the lowest rate allowed with a variance - for a state highway or interstate highway partner would be 4.8 percent, or 60 percent of the standard 8 percent adoption rate for the sector. This bare minimum adoption rate threshold aligns with the minimum adoption rates for these sectors, or similar land covers, as presented in Thogmartin et al. (2017), accounts for net benefit well above expected losses of habitat, and helps establish a minimum threshold for net benefit and consideration for enrollment in the Agreement.

Applicants requesting a variance will need to provide additional information, as listed below, to the Programmatic Administrator for review and consideration.

- A description of the constraint(s) preventing enrollment using the sector-specific adoption rate.
- Supporting documentation of the constraint(s) through maps, legal documents, easement examples, land cover analysis, or other pertinent information.
- Justification that the Applicant can demonstrate a net conservation benefit to monarchs, including an estimate of the anticipated adoption rate, the expected adopted acres target, and annual maximum incidental take threshold using a methodology provided by, or equivalent to, the Programmatic Administrator and the Service.

Variance applications should answer the following series of questions to identify the estimated adoption rate that can be provided:

1) What percent of your entire system (i.e. enrolled lands) undergoes vegetation management?
2) Of the percentage identified in Question 1, what amount (percent of the percent) of this land would be feasible to implement active conservation measures on in a typical year?
3) Of the percentage identified in Question 1, what amount (percent of the percent) of this land is likely available as unmanaged suitable habitat, or temporary set-aside or idle lands, in a typical year (i.e., lands in between management cycles)?
4) Multiply the percent from Question 1 by the sum of the percents from Questions 2 and 3, i.e., [Percent managed] x [Percent of annually managed lands + Percent of idle lands]. This yields a potential adoption rate based on the scenario provided.
5) Considering routine maintenance and modernization of your system, what is the maximum amount (in percent) of permanent habitat loss that you'd expect to occur annually?

Any application containing a proposed variance will be reviewed for completeness and confidence in the constraints presented. The Programmatic Administrator and the Advisory Committee reserve the right to request additional information, or propose a suggested alternative adoption rate that is appropriate for the context of the Applicant, fair and equitable to other CCAA/CCA Partners, and achieves the net conservation benefit expected under the Agreement.

Variances Exceeding the Adopted Acres Targets

Some Partners may manage their enrolled lands and adopted acres contributions in a manner that allows them to exceed the adopted acres targets set by the sector-specific adoption rates. This Agreement encourages conservation contributions above and beyond the minimum expected adoption rates. Adopted acres exceeding the minimum target should be reported by Partners in their annual compliance reporting and tracking.

In acknowledgement of the additional contributions, the Programmatic Administrator will work with the Advisory Committee and Partners to identify incentives that encourage ongoing additional contributions. Such incentives may include, but are not limited to, considerations for:

- Future "crediting" of excess adopted acres above and beyond the minimum expectation through development of a credit-sharing system
- Reduced annual administrative fees
- Reduced compliance reporting requirements
- Precluding the need for additional monitoring requirements on excess acres, unless those acres are applied to a credit-sharing system.

- Social media or public recognition of above-and-beyond contributions by the Programmatic Administrator, U.S. Fish and Wildlife Service, or other organizations and Federal entities.

If determined by the Advisory Committee to be necessary, a system of accounting or "crediting" extra contributions, or their offset of variance requests, may be developed at some point during the administration of the Agreement. Such incentives would be developed by the Programmatic Administrator, working with the Advisory Committee and Partners, to establish clear, measurable targets for such recognition of added conservation. As necessary, the Programmatic Administrator would review the collective variances, both above and below the expected adoption rates, to verify that collective net conservation benefit of the Agreement is maintained.

6.3 Specific Conservation Measures

The conservation measures in this Agreement were designed to meet the net conservation benefit standard specifically for lands managed by the energy and transportation sectors. Unlike many other lands in the U.S., those lands are already actively managed to prevent the growth of trees and woody vegetation. This results in lands that are generally maintained as grassland, meadow, prairie, or shrub-scrub type habitats, all of which provide habitat for species that depend on early successional plant communities and structures, such as monarch butterflies. As described in Section 5 (Covered Activities), these lands maintain infrastructure dedicated to delivering energy commodities and transportation corridors for travel and commerce. Most covered activities occurring on these lands are temporary and infrequent in their impacts. The conservation measures in this Agreement were tailored to address these unique characteristics of energy and transportation lands and the covered activities. Other sectors (e.g., agriculture) and landowners may adopt conservation measures for the monarch butterfly that differ from those in this Agreement, as the activities that occur on their lands may be different. The Parties recognize that this CCAA/CCA does not set expectations nor implied standards for any future conservation agreements or management measures for the monarch butterfly. Thus, for example, a monarch butterfly conservation agreement for agricultural lands may have a different set of conservation measures tailored to agricultural activities and the conservation needs of the species on those lands.

Each Partner enrolling in this Agreement will identify the suite of applicable conservation measures that:

a) Address each of the key threats identified within control of the Partner;

b) Can be implemented over the course of the agreement by the Partner; and

c) Can be conducted on enough lands to achieve the adopted acres target resulting from the applicable adoption rate(s).

Each key threat identified will be addressed, within the control of the Partner, by selecting one or more corresponding conservation measures. The Service and Programmatic Administrator recognize each Partner manages a unique system of lands and that conservation measure implementation will be based on site-specific conditions. Partners are expected to select one or more conservation measures to address each key threat within their control and achieve the expected annual adopted acres target. Conservation measures would be selected during the initial application, and can be modified through modification of the Certificate of Inclusion. The Service recognizes not all conservation measures listed for a particular threat will be appropriate for a given property. Site-specific conservation measures will be based on the key threats present and the management ability of the Partner towards those threats.

For example, under this Agreement, a right-of-way manager conducting routine mowing and broadcast herbicide treatments under *conventional* management would be required to address two key threats (e.g. habitat loss from herbicide use and mowing in suitable habitat) on their adopted acres. To comply with the Agreement, that land manager would select applicable conservation measures that address key threats and operational needs (such as conservation mowing and targeted herbicide use). These conservation measures would then be implemented across those adopted acres to the extent needed to achieve the adopted acres target they are committed to within the Partner's Certificate of Inclusion. In regards to

implementation of conservation measures, Partners will describe local or regional considerations, define roles and responsibilities, and how specific measures would be conducted, on adopted acres across their enrolled lands as part of their CCAA/CCA implementation plan.

Table 6-2 describes proposed conservation measures, intended purpose, and implementation examples. Location specifics, Partner management abilities, and/or management constraints will dictate the implementation of specific conservation measures on enrolled lands. For all conservation measures employed by a Partner, the Partner will detail in their CCAA/CCA implementation plan how they plan on using BMP guidance available on the Monarch CCAA/CCA Toolbox website (under development) to implement monarch conservation strategies, and update implementation as appropriate. The Monarch CCAA/CCA Toolbox is anticipated to be housed by the Rights-of-Way as Habitat Working Group website, and provide information resources that are informed by the Service and other conservation partners to provide a one-stop location for CCAA/CCA Partners.

Table 6-3 includes a list of 'supplemental measures'. Supplemental conservation measures are activities that do not directly address key threats identified, but still have important partnership and logistical contributions to the undertaking of this Agreement and monarch conservation. However, as activities, they do not directly result in an on-the-ground benefit (i.e. adopted acres). These supplemental measures are completely voluntary but may be reported on during annual compliance reporting. Annual reporting of supplemental conservation measures has the benefit of documenting additional Partner efforts and investments, providing more in-depth monitoring to answer important management questions, and build confidence in the implementation of the Agreement.

Table 6-2. Conservation Measures and Descriptions

Key Threats Addressed	Conservation Measure	Purpose	Description	Examples
General habitat loss and degradation	Seeding and planting to restore or create habitat	Active planting of an area to promote preferred native floral resources for monarch breeding and/or foraging.	Completing seeding or planting projects that create areas of suitable habitat with milkweed and/or floral resources available throughout the growing season. Seed mixes should be free of invasive or aggressive non-native species that inhibit species diversity when established.	• Establish native seed mixes containing a diversity of native wildflowers, including milkweed, as appropriate. • Apply native seed mixes in bare soil areas, including those recently cleared, graded, or disturbed. • Landscape facilities with native flowering plants that act as nectar resources. • Implement enhancement projects that increase the habitat available (special partnership habitat restoration projects – both on/off Partner lands, and post-construction enhanced seeding where appropriate)
General habitat loss and degradation	Controlled grazing to promote suitable habitat	Use of controlled grazing to sustain open early successional habitats suitable for monarchs.	Implement grazing within suitable habitat using BMPs that minimize impacts to monarchs.	• Minimize use of grazing in existing monarch habitat during peak monarch breeding and migration periods while considering the long-term goal of improving habitat for the species and promoting fall nectar plants. • Ensure coordination at the site specific and/or state specific level(s) as needed to determine overall practice applicability, seasonality, frequency, location, and timing of practice implementation.

Key Threats Addressed	Conservation Measure	Purpose	Description	Examples
General habitat loss and degradation	Brush removal to promote suitable habitat	Management or removal of woody (non-herbaceous) plants including those that are invasive or listed as a noxious weed.	Removal of dense brush using forestry mowing, chainsaws, or other mechanical methods to promote more open grassland habitat types. Maintenance of brush management involves monitoring for regrowth or reoccurrence of brush.	• Removal of woody plants in densely covered shrub areas not containing suitable habitat (e.g. shrub thickets, invasive species colonies). • Removal of woody plants in areas containing suitable habitat when monarchs are not likely present. • Removal of woody plants by hand at any time of the year.
General habitat loss and degradation	Suitable habitat idle lands, or set-asides	Sustain areas of relatively undisturbed suitable habitat throughout the portions of the growing season when monarchs may be present.	Maintaining areas of suitable habitat annually that will be undisturbed by temporary losses from construction, maintenance, or vegetation management in any given year. These areas may change spatially on an annual basis as new habitat becomes available and maintenance needs occur.	• Sustaining idle lands in between vegetation management treatments or cycles. • Designating special habitat 'preserves' in areas that will be protected from construction or maintenance. These may include special restoration projects, high quality areas, or other location designated by the CCAA/CCA Partner. • Minimize disruption to/disturbance of existing monarch habitat during peak monarch breeding and migration periods.

Key Threats Addressed	Conservation Measure	Purpose	Description	Examples
Habitat loss and degradation from mowing of suitable habitat	Conservation mowing to enhance floral resource habitat	Mowing in a manner that promotes habitat and minimizes impacts based on monarch breeding and migration activity.	Conduct mowing and/or haying practices in a manner consistent with the intent and recommendations outlined in published BMPs for monarchs, and in conjunction with operational needs. Timing may be informed by published guidance, annual monitoring documented by Journey North, or in consultation with the Programmatic Administrator or USFWS CCAA/CCA Coordinator.	• Conduct mowing in suitable habitat where possible in conjunction with recommended practices by Monarch Joint Venture, Xerces Society, FHWA BMPs for pollinators, mowing BMPs (pages 18-25), and/or Federal agencies BMPs for Mowing and Pollinators (p. 29) • Mowing or haying at a periodic rotation (e.g. less frequently than annually), or based on an Applicant-defined IVM strategy that is within the targets set for net conservation benefit. • Conduct training for mower operators to help identify and avoid milkweed and blooming nectar plants during operations.
Habitat loss and degradation from herbicide use in suitable habitat.	Targeted herbicide treatments	Herbicide applied to control undesirable vegetation and restore native or desired plant communities, and enhance suitable habitat.	Targeted application of herbicides completed in a manner that applies chemicals to a specific plant or group of plants while avoiding herbicides contacting off-target vegetation.	• Spot spraying of ecologically invasive, defined noxious weeds, or incompatible woody vegetation to promote a diversity of nectar plants. • Keep broadcast applications limited to active use facilities, or areas within spans containing non-contributing lands with little or no available milkweed and/or blooming nectar resources. • Targeted herbicide treatments applied in conjunction with other conservation measures such as site preparation for native seed mix installations, or follow up treatment of previously-mowed dense brush.

Table 6-3. Supplemental Measures and Descriptions

Supplemental Measure	Purpose	Description	Examples
Spatially-focused conservation delivery	Use spatial modeling to prioritize areas for implementing conservation	Focusing conservation measure implementation on defined priority areas based on science-based modeling tools.	• Use spatial tools, scoring assessments, or decision models (i.e. Roadsides as Habitat Tool, Working Group Scorecard, POWR Model, or similar) to identify suitable habitat areas to focus conservation and restoration efforts.
Invasive species prevention best management practices	Minimize the spread of invasive species into areas of suitable habitat.	Use invasive species prevention measures to prevent the spread of noxious weeds and invasive species in areas of suitable habitat.	• Clean equipment after use in invasive weed areas, • Time mowing for periods before weeds flower, • Tailor management timing to prevent seed establishment and plant distribution.
Incorporate pollinator habitat-focused objectives into integrated vegetation management operations	Define objectives for considering monarch habitat requirements while conducting vegetation management activities.	Implement IVM approach to considering monarch habitat needs as an objective for vegetation management that helps determine on-the-ground measures as appropriate. Implementation may involve one or more other conservation measures.	• Develop/incorporate monarch habitat-specific objectives, targets, and thresholds into the Applicant's IVM planning procedures to guide vegetation management activities within areas of suitable habitat. IVM planning will be done in accordance with ANSI 300 or other applicable guidelines. • Review and implement associated conservation measures as determined by site assessment and ability to support monarch habitat objectives. These may include mechanical, chemical, biological, or a combination of these techniques. Post-treatment measures may be needed to achieve the pollinator-focused IVM objective(s).

Supplemental Measure	Purpose	Description	Examples
Additional pollinator habitat monitoring	Collect and evaluate additional information regarding suitable habitat quality and management response to supplement ongoing management decisions.	Conducting additional pollinator habitat monitoring protocols beyond those required for CCAA/CCA effectiveness monitoring.	• Conduct more in-depth monarch or pollinator focused monitoring efforts to better characterize habitat available and understand management response. Examples include, but are not limited to: o Rights-of-Way as Habitat Working Group Scorecard o Monarch Joint Venture Integrated Monarch Monitoring Program (IMMP) o Monarch Joint Venture Habitat Scorecard o Monarch Joint Venture Roadsides as Habitat Protocol o Xerces Monarch Breeding and Milkweed Survey o Xerces Western Monarch Thanksgiving Count o Applicant-developed protocols that evaluate monarch breeding and foraging requirements.
Promote supplemental landowner pollinator conservation efforts	Leverage the conservation targets of the CCAA/CCA to implement additional conservation through partnerships.	Promote voluntary pollinator conservation through landowner outreach programs, small grant programs, and pollinator garden planting projects.	• Provide Applicant-funded small grants to community projects that restore habitat or promote native pollinator plantings, or Monarch-related education. • Fund or facilitate installation of monarch waysides or pollinator gardens.

7 Obligations of the Parties

7.1 Programmatic Administrator

The Programmatic Administrator agrees to:

1. Hold and maintain compliance to their obligations under the 10(a)(1)(A) Enhancement of Survival Permit issued under the Agreement.
2. Work with potential Applicants and the Service to develop mutually agreeable applications that adhere to the terms and conditions of the Agreement, and help enrolled Partners by administering a program for Certificates of Inclusion.
3. Foster collaboration amongst Partners by sharing information, as appropriate, on various aspects of the Agreement implementation (effectiveness of conservation measures, best practices for tracking/reporting, emerging technologies or science, or similar), maintaining a resource website, and helping connect Partners who have potential to collaborate on conservation measures.
4. Suspend, in whole or in part, or revoke, the Certificate of Inclusion of Partners found to be in non-compliance with the requirements of the Agreement. The Programmatic Administrator or Service may suspend or revoke the Certificate of Inclusion for cause in accordance with the laws and regulations in force at the time of such suspension or revocation (50 CFR 13.28(a)). If the Programmatic Administrator or the Service determines that a Partner is violating the terms of the Agreement or their Partner-specific CCAA/CCA implementation plan, written notice shall be sent to the Partner advising of the nature of the violation and identifying corrective actions required to bring the Partner back into compliance with the Agreement. Take authorization and the regulatory assurances associated with the Certificate of Inclusion may be suspended or revoked if the Partner does not remedy the violation within thirty (30) days, or any other deadline as specified in the notice, after receipt of the notice. Notices of compliance violations will be copied to the Service. Remedy of the violation will be completed in accordance with Section 16 of this Agreement.
5. Facilitate an Advisory Committee comprised of Partners that represent the participants in this Agreement. Rely upon the Advisory Committee to inform and support decision making over the duration of the Agreement as warranted. At the request of the Programmatic Administrator, the Advisory Committee may inform decisions related to enrollment approval, modifications or amendments to the Agreement, termination, suspension, or transfers under the Agreement, or other topics requiring consideration.
6. Assemble annual reports for activities under this Agreement by March 31 for the previous calendar year. Reports will include results of compliance tracking, effectiveness monitoring, challenges noted during implementation or administration, adaptive management triggers observed, and the number of Partners participating through Certificates of Inclusion and the total acres of managed adopted acres and total lands enrolled under this agreement.

7.2 U.S. Fish and Wildlife Service

The Service agrees to:

1. Issue a 10(a)(1)(A) Enhancement of Survival Permit with a delayed effective date in the event that the monarch is federally listed as threatened or endangered under the Federal Endangered Species Act, the Service will update the permit date to reflect the date a listing decision becomes effective.
2. Not require Partners to carry out additional conservation measures for monarchs on enrolled non-Federal land beyond those of this Agreement or impose additional incidental take restrictions for monarchs on enrolled non-Federal land beyond those identified in the draft Enhancement of Survival Permit.
3. Work with the Programmatic Administrator and Partners to provide technical assistance and ensure the best information is available to inform ongoing implementation, and advise when and if any adaptive management triggers require follow up actions.
4. Review and issue decisions on modification or addendum requests within 30 days of receipt, to the extent practicable.
5. Provide oversight on the issuance of Certificates of Inclusion and approval of Partner applications in consultation with the Programmatic Administrator.
6. Provide the Programmatic Administrator, and update as needed, a memorandum that can be distributed to Partners describing the considerations for Federal enrolled lands by non-Federal Partners that are covered by incidental take authorization but not assurances. This memo is intended to document the Service's Conference Opinion and applicability to agency consultations regarding covered activities.
7. Suspend, in whole or part, or revoke, the Certificate of Inclusion of Partners found to be in non-compliance with the requirements of the agreement. The Programmatic Administrator or Service may suspend or revoke the Certificate of Inclusion for cause in accordance with the laws and regulations in force at the time of such suspension or revocation (50 CFR 13.28(a)). If the Programmatic Administrator or the Service determines that a Partner is violating the terms of the agreement, written notice shall be sent to the Partner advising them of the nature of the violation and identifying corrective actions required to bring the Partner back into compliance with the agreement. Take authorization and the regulatory assurances associated with the Certificate of Inclusion may be suspended or revoked if the Partner does not remedy the violation in accordance with Section 16 of the Agreement. Notices of compliance violations will be copied to the Service.
8. Suspend, in whole or in part, or revoke the EOS Permit if the permit terms are not being properly implemented.
9. Annually review the compiled monitoring and reporting on the implementation and effectiveness of the CCAA/CCA. The Service will advise the Programmatic Administrator on any recommendations, or required changes in conservation strategy considering the adaptive management scenarios in Section 10 of this Agreement, or other changed circumstances.

7.3 CCAA/CCA Partners

In order to meet the requirements of this CCAA/CCA and provide a net conservation benefit to the monarch, all Partners need to adhere to the following actions for their enrolled lands:

1. Abide by all terms of this agreement, including specific management strategies for each conservation measure as designated in the application to minimize risk of harm to monarchs on enrolled lands. Terms also include provisions associated with reporting, paying fees, and alerting the Programmatic Administrator/Service if there are compliance issues and/or unforeseen/changed circumstances.
2. Implement Partner-selected conservation measures across the required adopted acres target within five years following the full execution of an individual Certificate of Inclusion and annually thereafter, regardless of whether the monarch butterfly has been listed at the time of full execution of this CCAA/CCA. The Applicant will propose the expected interim adopted acres to be met annually until the full adopted acres target is achieved (within five years).
3. Within one year following the full execution of an individual Certificate of Inclusion, submit a CCAA/CCA implementation plan to the Programmatic Administrator to document Partner-specific considerations for implementation and compliance documentation.
4. Achieve the target for expected adopted acres annually based on the sector-specific adoption rates, or an approved variance, within the first five years of enrollment, and annually thereafter over the duration of the Partner's enrollment within the Agreement. Should actual annual implementation tracked be below the annual adopted acres target(s) identified, then the Partner will adhere to the appropriate scenarios highlighted in Section 10 of this Agreement (Adaptive Management).
5. Track the location (statewide or finer scale) of where and date when (final month) conservation measures are implemented for compliance verification as described in Section 10 (Responsibilities of Partners).
6. Complete annual compliance reporting and effectiveness monitoring reporting, as specified in the initial application. Compliance reporting will be submitted annually to the Programmatic Administrator according to provisions in Section 14 (Monitoring Provisions).
7. Conduct effectiveness monitoring within a subset of locations where conservation measures are being implemented for compliance verification as described in Section 14 (Monitoring Provisions).
8. Provide the Service and the Programmatic Administrator, or their agreed upon representatives, access to the enrolled property to identify or monitor monarchs and their habitat, evaluate conservation measures, and monitor effectiveness and compliance with individual Partners at mutually agreeable times. All applicable safety trainings and appropriate measures will be communicated to the Programmatic Administrator, the Service, or their designee by the Partner in a timely manner prior to site access. Any and all representatives of the Programmatic Administrator, the Service, or their designee must adhere to all Partner-specific and site-specific health and safety compliance requirements, including associated training, certifications (if applicable), and protocols.
9. Allow the Programmatic Administrator to share, as requested, with the Service or other CCAA/CCA Partners, habitat and other planning or monitoring information related to the enrolled properties. Information sharing will not include any confidential business or proprietary information per the terms and conditions specified in Section 8 (Confidentiality).

7.4 Agreement Advisory Committee

The Programmatic Administrator will be supported in decision making by an Advisory Committee. This team will consist of Partners in good standing that will review, discuss, and advise the Programmatic Administrator on questions that arise over the duration of the Agreement

1. The Advisory Committee will adhere to the terms and conditions of the bylaws agreed upon by that decision-making body at the time of its formation.
2. If applicable over the life of the Agreement, Partners will voluntarily participate on the Advisory Committee to inform and support decision making over the duration of the Agreement as warranted.
3. At the request of the Programmatic Administrator, the Advisory Committee may inform decisions related to enrollment approval, modifications or amendments to the Agreement, termination, suspension, or transfers under the Agreement, or other topics requiring consideration.

8 Confidentiality

The Parties recognize that energy and transportation infrastructure information is confidential and sensitive business information held and not routinely disclosed and may be exempt from disclosure under the Federal or Illinois Freedom of Information Act (FOIA). Such confidential, proprietary, and sensitive business information includes but is not limited to the following:

- Any maps depicting lands enrolled by an individual Partner that specifically identify the Partner, or specific location of lands;
- Information describing critical infrastructure information, or critical energy/electric infrastructure information designations;
- Identifying information about an individual Partner's acreage and its specific location or position; or
- Any information that contains proprietary business information as identified and designated by the Partner supplying that information.

Accordingly, the Programmatic Administrator shall limit access to the foregoing information to only employees or agents of the Programmatic Administrator, and the Partner that provided the information, unless otherwise authorized in writing by the Partner, or as may be required by law, court order or administrative action. The Programmatic Administrator shall only allow such access to the information via methods allowed by the applicable Partner(s) and solely for the purpose of allowing the relevant and particular information for monitoring and reporting, as described herein. The Programmatic Administrator will not authorize anyone to download, possess, or distribute the information, unless otherwise authorized in writing by the Partner.

The Service and the Programmatic Administrator shall take all reasonable steps to maintain confidentiality under the relevant laws, as well as the Service and the Programmatic Administrator, and their employees and/or agents. Neither the Service nor the Programmatic Administrator are responsible for any information ultimately subject to disclosure under the relevant public open record laws.

For disputes and resolutions being reviewed by the Advisory Committee, the Programmatic Administrator will take similar confidentiality measures when considering the sharing of information with Partners acting within the capacity of the Advisory Committee and involved with reviews or compliance considerations being considered. The Programmatic Administrator shall only allow such access to the information via methods allowed by the applicable Partner(s) and solely for the purpose of allowing the relevant and particular information for the specified request provided in writing.

If the Service, or the Programmatic Administrator, receives a request under the Federal or Illinois Freedom of Information Act for information identified as potentially confidential in this section, and has responsive documents in its possession containing such information, and as time allows, the Service or the Programmatic Administrator will consult with the Partner that submitted the information and provide an opportunity for the Partner to object to disclosure prior to determining if the information is exempt from disclosure pursuant to the Freedom of Information Act, pursuant to applicable exemptions in the Federal or Illinois Act. Additional information regarding the Service's process for responding to Freedom of Information Act requests for possibly confidential information is set out at 43 CFR 2.26-2.36 (2013).

9 Duration of Agreement and Permit

9.1 Duration

The CCAA/CCA, including any commitments related to funding under Service programs, will be in effect for 50 years following its approval and signing by the Service and the Programmatic Administrator, unless terminated or revoked before that time. This Agreement targets this extended duration to minimize the potential for unnecessary amendments or disruptions in coverage resulting from a shorter duration. Partners enrolling in this Agreement under a Certificate of Inclusion will be asked to commit to an initial implementation period for a minimum of five (5) years. Participation in this Agreement is ultimately voluntary, and Partners can terminate their participation at any time.

The Section 10(a)(1)(A) permit authorizing take of the species will become effective on the date of the final rule listing the monarch and will expire when this Agreement expires or is otherwise suspended or terminated. However, the EOS Permit and Agreement may be extended beyond the specified terms prior to permit expiration through the permit renewal process and with agreement of the Parties.

9.2 Modification of the Agreement

Any of the Parties may propose modifications or amendments to this Agreement by providing written notice to, and obtaining the written concurrence of, the other Parties. Such notice shall include a statement of the proposed modification, the reason for it, and its expected results. Modifications or amendments to the Agreement would require Service approval and their consideration on whether a requested change may be a minor or major amendment to the Agreement.

The Service may not, through modification of the Agreement or otherwise, impose any new requirements or conditions on, or change any existing requirements or conditions applicable to, a Partner or successor in interest to the Partner to compensate for changes in the conditions or circumstances of any species or ecosystem, natural community, or habitat covered by the Agreement except as stipulated in 50 CFR 17.22(d)(5) and 17.32(d)(5).

9.3 Amendment of the 10(a)(1)(A) Enhancement of Survival Permit

The EOS Permit may be amended to accommodate changed circumstances in accordance with all applicable legal requirements, including but not limited to the ESA, the National Environmental Policy Act, and the Service's permit regulations at 50 CFR 13 and 50 CFR 17. The Partner proposing the amendment shall provide a statement describing the proposed amendment, the reasons for it, and its expected results. The Parties will use their best efforts to respond to proposed amendments within 90 days of receipt of such notice. Proposed amendments will become effective upon fulfillment of the legal requirements stated above.

9.4 Renewal

The Programmatic Administrator will encourage all Partners to participate for extended periods. However, in order to include Partners desiring a shorter commitment, this Agreement allows an optional 5-year minimum commitment for those Partners that prefer an initial shorter enrollment term with potential future renewal will be considered.

The Programmatic Administrator will contact all Partners at least 90 days prior to expiration of their Certificate of Inclusion. The Partner can either request a Certificate of Inclusion renewal or allow their Certificate of Inclusion to expire. If the Partner renews the Certificate of Inclusion before the expiration date, the existing commitments and assurances will continue. If the Partner does not wish to renew, it may simply let the Certificate of Inclusion expire. Once expired, the conservation measures may cease, and the Partner will no longer receive the assurances provided by the EOS Permit. If the Partner wishes to renew after their original Certificate of Inclusion term has expired, the Programmatic Administrator will decide whether an "as-is" renewal is acceptable or if changed circumstances merit modifications to the Certificate of Inclusion. Changed circumstances may include modifications and updates to the original management guidelines contained in this CCAA/CCA. If the Programmatic Administrator decides to terminate this Agreement or not to renew upon expiration of this Agreement, the Partners have the option of negotiating a new CCAA/CCA with the Service, transitioning to an umbrella or individual CCAA/CCAs, or transferring the Programmatic Administrator role to another organization.

9.5 Termination of a Certificate of Inclusion by a Partner

This CCAA/CCA and associated Certificates of Inclusion are voluntary agreements. Partners may terminate their Certificate of Inclusion, or enrollment of specified lands in an existing Certificate of Inclusion at any time. Enrolled lands remaining within the Certificate of Inclusion will still be required to achieve the adoption rate target percentage based on the amount of enrolled lands managed within the Certificate of Inclusion. Similarly, the Partner may terminate a Certificate of Inclusion in its entirety at any time. The Programmatic Administrator may request any final tracking or reporting for any remaining conservation measures yet to be submitted (i.e. tracking, effectiveness monitoring).

Lands removed pursuant to an amendment to, or termination of, the Certificate of Inclusion are referred to as "terminated lands". The Partner must provide 30-days written notice (including email) to the Programmatic Administrator that they are voluntarily removing enrolled lands from the agreement or terminating the Certificate of Inclusion. Operations on land that is removed from a Certificate of Inclusion through total termination or by removing a portion of the land are no longer bound by the agreement or restrictions but, consequently, would no longer receive coverage under the EOS Permit, if the species is listed. Therefore, terminated lands no longer receive take authorization or assurances under the EOS Permit. Should a Partner terminate their Certificate of Inclusion after a listing of the monarch, they will no longer be eligible to re-enroll.

As provided for in the USFWS CCAA Policy (64 FR 32726) the Programmatic Administrator may terminate the EOS Permit or a Partner may terminate a Certificate of Inclusion prior to the CCAA/CCA's or Certificate of Inclusion expiration date, even if all the requirements have not been implemented and the expected benefits have not been realized. If terminating their obligations under this CCAA/CCA, the Programmatic Administrator is required to surrender the EOS Permit, thus extinguishing take authority (if any of the monarch covered species had become listed at time of termination) and the assurances granted by the permit. Likewise, if a Partner terminates the Certificate of Inclusion or is unable or unwilling to continue implementation of the conservation measures and stipulations of the Certificate of Inclusion or the CCAA/CCA and to otherwise comply with the Certificate of Inclusion, the take authority and assurances conveyed to the Partner by the EOS Permit through the Certificate of Inclusion are relinquished. A Partner must provide 30-days written notice to the Programmatic Administrator and the Service of intent to terminate a Certificate of Inclusion.

In the event of termination of a Certificate of Inclusion, either voluntary or for cause, as described in this section, any funds that have been paid by the Partner to the Programmatic Administrator prior to the time of termination will be retained by the Programmatic Administrator for ongoing monarch conservation support, including CCAA/CCA administration, and will not be refunded. The EOS Permit assurances and incidental take coverage will no longer be in effect upon termination of, or lands removed from, the Certificate of Inclusion.

9.6 Termination of the EOS Permit by the Programmatic Administrator

The Programmatic Administrator must provide 120-day written notice to the Service and all Partners to terminate the EOS Permit. Upon notice, or prior to, the Programmatic Administrator will work with the Advisory Committee, the Partners, and the Service to determine the approach to succession, transfer, or termination of the Agreement and address mutual interests of all Parties at that time. If the EOS Permit is terminated, this CCAA/CCA and the Certificates of Inclusion issued pursuant to it are also terminated.

9.7 Termination Revocation of the EOS Permit by the Service

In addition to the provisions in Sections 7 and 8 (Obligations of the Parties and Duration of the Agreement and EOS Permit) the Service may revoke the EOS Permit for cause as provided in Section 7 (Obligations of the Parties) subject to the provisions of the CCAA Policy and applicable agency regulations. If the EOS Permit is revoked, this CCAA/CCA and the Certificates of Inclusion issued pursuant to it are terminated.

9.8 Succession and Transfer

This CCAA/CCA shall be binding on and shall inure to the benefit of the Partners and their respective successors and transferees, (i.e., new owners, leases, or easement managers) in accordance with applicable regulations (50 CFR 13.24 and 13.25). Successors or transferees do not need to be existing Partners in the Agreement. However, the successors and transferees will be required to adopt the role as Partner, and adhere to the terms and conditions of the Agreement and/or its Certificates of Inclusion. The rights and obligations under this CCAA/CCA shall run with the ownership and/or management of the enrolled property and are transferable to subsequent non-Federal landowners pursuant to 50 CFR 13.25.

Eligible lands may also be transferred from one existing Certificate of Inclusion to another landowner managing energy or transportation lands as a result of a change in ownership at any time during the duration of this Agreement pursuant to the provisions in Section 9 (Duration of the Agreement and EOS Permit)).

As noted previously in Section 9.6 (Termination by the Programmatic Administrator), the Programmatic Administrator must provide 120-day written notice to the Service and all Partners to transfer or terminate the EOS Permit. Upon notice, or prior to, the Programmatic Administrator will work with the Advisory Committee, the Partners, and the Service to determine the approach to succession, transfer, or termination of the Agreement and address mutual interests of all Parties at that time.

Transfer of the Agreement may require additional consideration depending on the listing status of the monarch at the time of transfer. If the monarch is not listed at the time of transfer, then the transition of a CCAA/CCA to a new Programmatic Administrator, or Partner, is straightforward under this Agreement. If the species is listed, this Agreement and EOS Permit can be transferred to another Programmatic Administrator post-listing. However, depending on the extent of the change, an amendment might be required, which would require public notification. Alternatively, a transfer of the Agreement may also be made as a conversion into a Safe Harbor Agreement (SHA).

10 Adaptive Management

This CCAA/CCA will be in effect for 50 years following its approval and signing by the Service and the Programmatic Administrator, unless terminated or revoked before that time. Despite best efforts in its development, this agreement is unlikely to foresee all circumstances or adaptation needs that may occur over this timeframe. To acknowledge this consideration, this CCAA/CCA incorporates adaptive management principles as part of its consideration for changed circumstances (described in Section 13 (Assurances Provided). The CCAA/CCA is intended to align with and complement implementation of ongoing monarch conservation needs and Partner operational considerations.

Changes identified through evaluation of the elements described in Table 10-1 are considered changed circumstances as described in Section 12 (Assurances Provided) and affect implementation of the CCAA/CCA by adjusting conservation measures, administrative fees, or triggering an evaluation of one or more aspects of implementation. When adaptive management triggers or thresholds are achieved, the Programmatic Administrator and/or Partners will review the trigger, initial corrective action, and the anticipated response expected under the individual scenario to determine next steps. If applicable, a summary of changes will be included in the Partner's annual compliance reporting. Administrative fees may be adjusted in accordance with the provisions within this section and the Certificate of Inclusion, or as determined by the Programmatic Administrator.

Table 10-1. Adaptive Management Strategies

Evaluated Element	Information Used	Trigger(s)	Evaluation Frequency	Initial Corrective Action(s) Considered	Spatial Scale	Anticipated Response
Administrative Fee	Financial stability of program administration endowment using figures contained within the permit holder financial report.	Balance in the administrative endowment is not being sustained or is accruing beyond need.	Annually	Administrative fees are increased to a level providing sustainability or decreased if appropriate.	Range-wide	Administrative fees are increased to ensure a non-wasting endowment for administrative services or decreased if endowment is accruing beyond need.
Population Size	Results of overwintering surveys	Mexico overwintering population measured at 1.0 hectare or less.	Annually	A discussion would be triggered with the Service and conservation partners to discuss the cause of the low population and any relevance to the Agreement. Partners in the respective population's range would consider voluntary actions within a year of the monarchs leaving the wintering grounds (to support populations as quickly as possible).	Ecoregion specific or range-wide	The Service and the Programmatic Administrator will communicate population status updates to Partners. Partners will consider voluntarily opportunities to increase acres where conservation measures are implemented, or identify more strategic locations for implementing conservation measures in the landscape (e.g. placing measures in biologically important regions).

Evaluated Element	Information Used	Trigger(s)	Evaluation Frequency	Initial Corrective Action(s) Considered	Spatial Scale	Anticipated Response
New Federal Species Listings	Listing decision and associated species information	Announcement of a decision to list a species under the ESA.	At the time of, or prior to, a listing decision announcement.	The Service would conduct an intra-agency consult to determine if this Agreement could jeopardize newly listed species.	Ecoregion specific or range-wide	If potential for take was identified in the consultation update, Partners would be responsible for addressing potential take to that new species through S7 or 10 consultation, potentially including modification or amendment of this Agreement.
New Enrolled Lands	Annual reporting	New rights-of-way or parcel lands are acquired through business acquisitions, or following construction projects on new lands.	Annually	Incorporate new lands into enrolled acres under the Agreement.	Range-wide	Partner provides the Service and the Programmatic Administrator a notice of changes to enrolled lands at least 30 days prior to inclusion. Partner will summarize changes in annual compliance reporting.
Unintended Land Conversion	Annual reporting	Conversion of land cover (e.g. loss of habitat) caused by private landowners on Partner-managed easement lands.	Annually	Evaluate whether conservation measures employed in the area have been lost or impacted.	Enrolled lands	Document and summarize where unintended land conversion has occurred. Partners then consider implementing conservation measures elsewhere to maintain NCB adoption rates, or educating landowner to prevent future losses.

Evaluated Element	Information Used	Trigger(s)	Evaluation Frequency	Initial Corrective Action(s) Considered	Spatial Scale	Anticipated Response
Enrollment Exceeds the Amount Anticipated in the CCAA/CCA	Annual reporting	Enrollment in the CCAA approaches the anticipated maximum of 26 million enrolled acres.	Annually	The Programmatic Administrator will notify the Service of the Agreement enrollment in comparison to the stated goal to determine follow up considerations.	Range-wide	The Programmatic Administrator will notify the Service and determine response needed. CCAA/CCA may require modification or amendment depending on the status and trend of participation.
Changes in Seasonal Migration	Annual reporting of monarch migration observations (e.g. Monarch Watch, Journey North).	A consistent trend identifying a change in phenology for spring/fall migration.	Annual review of 5 year-over-year monthly phenology and migration records.	Service will review trend and species considerations with Partners to discuss potential for adapting conservation measures where needed.	Range-wide	Adaptation of mowing and other conservation measure timing (as needed) to ensure floral resource availability during migration.
Quality of Improved Acres	Results of effectiveness monitoring	30% or more of representative site sample plots document a lack of both milkweed or nectar plants.	Effectiveness monitoring reporting cycle	Evaluate data provided and degree of habitat response. Consider reasons for lack of response including lack of effectiveness, sampling error, or other findings.	Enrolled lands	Results of effectiveness monitoring would be reviewed by the Partner with the Programmatic Administrator, and the Service upon request. Corrective actions would be identified to address concerns as appropriate.

11 Expected Impacts or Take

11.1 Analysis Considerations

Under the ESA Sec. 3(19) "take" is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct". The Interior Secretary further defined "harm" as that "which actually injures or kills wildlife, including acts which annoy it to such an extent as to significantly disrupt essential behavioral patterns, which include, but are not limited to, breeding, feeding, or sheltering; significant environmental modification or degradation which has such effects." (50 CFR 17.3).

If the Service lists the monarch under the ESA, a variety of management and development actions will have the potential to result in take of the species. For example, direct mortality of monarchs from covered activities may occur from mowing vegetation that contains monarch eggs, larvae, or pupae, or collisions with vehicles. Off-road access, vegetation management, and construction activities may harm monarchs if they result in major disturbance to breeding and foraging. Similarly, management activities for monarch conservation purposes, such as common vegetation management practices, prescribed burning, and seeding of native seed mixes, all have the potential to result in take depending on whether or not suitable monarch exists at the management site, the timing of the management actions, and other factors.

This section is intended to summarize potential impacts or take of monarchs that is reasonably certain to occur as a result of the covered activities. The Service is preparing a Conference Opinion detailing the evaluation of impacts expected to monarchs. There are several challenges related to estimating the amount of take of monarchs that the covered activities will cause. First, the Agreement covers all of the monarch's breeding, migratory, and overwintering range across the lower 48 United States. Second, the species' presence on covered lands and their exposure to covered activities will be influenced by the time of year, variations in weather patterns among years, and on the extent and quality of habitat affected. Likely impacts on monarchs will also depend on the location and timing of the covered activities. Last, participation in the Agreement may vary over its duration, causing overall impacts to fluctuate over time.

This Service is analyzing the impacts expected to occur as a result of activities to be completed in pursuit of the overall goal summarized in Section 1.2 (Purpose and Goal of this CCAA). This includes the potential impacts likely to result from implementation of the conservation measures and covered activities. In the Conference Opinion, the Service will estimate the amount of incidental take expected to occur based on the number of estimated acres of monarch habitat that certain covered activities will affect. That is, the Service is using estimated acres of monarch habitat as a surrogate for the take of monarchs.

The extent of take that will occur will likely depend partly on the number of acres that Partners enroll under the Agreement and we do not know what that number will be at this time. Preliminary indications are that Partners may enroll up to 26 million acres, but the amount may be greater. Covered Activities are expected to harm, injure, or kill monarchs and therefore result in incidental take. The Service will evaluate the impact of Covered Activities by estimating the potential exposure of monarchs and their likely response using acres of suitable habitat on the covered lands as a surrogate for animals. Various assumptions necessary for the analysis have been made to provide a transparent and reasonable estimate of the number of monarchs subject to adverse effects including mortality.

Adoption rates, which help define our net conservation benefit within this agreement, acknowledge that milkweed and nectar plants already exist in many areas of rights-of-way and therefore, some degree of injury or harm is already occurring to monarchs. By implementing conservation according to the expected adoption rates, the restoration, enhancement, and protection of suitable habitat in this Agreement are expected to result in overall increases in habitat available and monarch populations that use them.

11.2 Take Estimation

The covered activities and conservation measures outlined in the Agreement include activities that are already occurring as part of routine maintenance and modernization on transportation and energy rights-of-way and associated lands. However, the CCAA/CCA encourages the use of integrated vegetation management and specific tools that promote diverse herbaceous groundcover that is compatible with facility and rights-of-way operations, while supporting habitat requirements for monarchs and other pollinators.

The CCAA/CCA is intended to improve vegetation maintenance practices (relative to monarchs) within these land management sectors that rely upon rights-of-way, as well as their associated facilities, and are willing to participate in this effort. Vegetation management is an on-going practice that historically focused on maintenance, safety and reliability and has not previously focused on habitat conservation. Ongoing maintenance and modernization of infrastructure is expected to be consistent with current levels of frequency, duration, and relative impacts. Considering these, the actions undertaken by this Agreement do not pose a significant change from current operations. Instead, this Agreement formalizes and promotes improvements in these operations by promoting conservation measures that adapt the timing, frequency, or method by which they are applied to improve habitat for monarchs. Actions that pose threats of loss to other listed animal species are considered outside the scope of this Agreement because we believe with a few exceptions, they have already been consulted on..

11.3 Results

We anticipate that conservation measures included in this agreement will outweigh the adverse effects including the injury or death of individuals resulting from both conservation measures and covered activities. The Service's assessment of the adverse effects or potential risks to the species and its habitat from implementation of the Agreement, are detailed within the findings of the Service's Conference Opinion regarding this Agreement.

12 Expected Benefits

12.1 Contributions to regional and national conservation goals

Within the past several years, several national efforts, and a number of corresponding state-level planning efforts have been conducted to define monarch conservation needs and priorities for implementation. One of the planning efforts leading the way, was the "All Hands on Deck" paper (Thogmartin et al. 2017), which evaluated a range of scenarios that would help restore monarch populations to the goal of having overwintering populations occupy a six-hectare area within their known wintering location in Mexico. The six-hectare goal is a short-term goal of the Service (by 2020) to indicate that sufficient habitat in the U.S. has been restored to support a monarch population occupying that overwintering area (Pollinator Health Task Force 2015). The six-hectare population size is believed to mitigate the risk of extinction (Semmens et al. 2016). As of the last overwintering count (2017-2018), monitoring of the forest area occupied by monarch butterflies documented populations that covered an estimated 2.48 hectares of forests. This represents a decrease of 14.77 percent with respect to the previous season (2.91 ha in 2016-2017, Monarch Joint Venture 2018a).

To address this goal, several regional planning efforts have been underway to define opportunities for management and restoration of monarch habitat:

- The Mid-America Monarch Conservation Strategy (MAMCS; MAFWA 2018) collaborated with state and Federal conservation and agricultural agencies, as well as numerous non-governmental organizations (NGOs) to develop the MAMCS. The intent of this plan is to help facilitate coordinated and effective actions across 16 states throughout the Midwest. In doing so, the MAMCS intends for

monarch conservation to be enhanced and increased in the heart of the eastern population's breeding and migratory range. This plan encourages states and Partners to coordinate and support effective restoration and enhancement of habitats.

The MAMCS highlights the unique challenges and opportunities for monarch conservation within several land management sectors, including private lands for agriculture and conservation, protected natural lands (Federal, state, tribal, and private organizations), rights-of-way (transportation and energy), and other energy infrastructure, as well as urban and developed lands.

- Similarly, the Western Association of Fish and Wildlife Agencies (WAFWA) has organized its own monarch working group aimed at developing a monarch conservation strategy for western states (WAFWA 2018). WAFWA represents 23 states and provinces in the western U.S. and Canada that support sound resource management and building partnerships for conservation. This plan is currently under development, but its effort underscores the importance of coordination amongst states, as well as private landowners and industry partners, for targeting monarch conservation.
- State fish and wildlife conservation agencies are the primary entities for wildlife and habitat conservation in the U.S. and have a track-record of achieving conservation success (MAMCS 2018). These agencies hold the legal authority for managing wildlife and their habitats within state borders. The conservation strategies suggested within the MAFWA and WAFWA-facilitated regional plans will be chiefly enacted by state fish and wildlife agencies and their partners. Within both strategies, individual states identify their intended strategies for achieving monarch conservation targets.

Implementation of conservation measures outlined in this agreement will contribute to these broad conservation goals and efforts, while supporting ongoing operations across the nation's energy and transportation infrastructure lands. As described in these planning efforts, monarch recovery goals likely require additional conservation from other lands and land use sectors outside of energy and transportation lands. While this Agreement has potential to contribute to these goals, it is not expected to be the only mechanism to achieving them.

12.2 Scale of Benefits

Rights-of-way and accompanying lands and parcels for roads, highways, railroads, and energy transmission and distribution play a critical role in the current landscape. While much of these lands may contain infrastructure, facilities, or routinely mowed areas as required for safety and security, portions of the lands associated with energy and transportation can support nesting and egg-laying habitat for pollinators, including monarchs, and have the potential to act as corridors for pollinator movement. These lands, which can contain areas of natural land cover with flowering plants offer sustained nectar and pollen sources for pollinators (Xerces Society 2015, Hopwood 2008, and Ries 2001). This Agreement recognizes that these lands already play an important role in monarch conservation, and can also be enhanced for additional benefits to the species.

The full extent of potential monarch habitat benefits is unknown at this time. The variability in the landscape across the national footprint, the varying degree of habitat value, and uncertainty of the number of participants and acres to be enrolled at this time, all add uncertainty as it relates to full habitat benefits. Based on current partners committed to developing the CCAA/CCA, we anticipate up to 26 million acres of transportation and energy lands could be entered into this Agreement. On these lands, we anticipate the spatial distribution and habitat patch availability of monarch habitat will increase across the landscape of those enrolled acres. Nationally, hundreds of millions of acres are potentially available to provide additional benefits to monarchs through this agreement. Under this Agreement, the Parties involved will continue to promote enrollment prior to any possible effective listing date of monarchs. Our goal anticipates enrollment of approximately double the amount of acres currently anticipated during development.

Under the CCAA/CCA, Partners will adopt a series of conservation measures (Section 6) that address key threats to the monarch butterfly. For many rights-of-way, this involves adoption of vegetation management, or other targeted vegetation management strategies. These actions will enhance and increase the presence of milkweed and blooming nectar plants through mowing or targeted use of herbicides. In addition, enhancement of vegetation through seeding and planting following land disturbance will introduce plant diversity not currently available in many locations. In doing so, we anticipate an increase in milkweed and blooming nectar plant abundance, which will increase breeding and foraging habitat for the monarch butterfly.

12.3 Conserving Habitat

Recognition of rights-of-way as habitat for monarchs and other pollinators has been growing in recent years. According to a literature review completed by Wojcik and Buchmann (2012), there is a range of research supporting the value of corridor management for pollinator conservation. Russell et al. (2005) investigated whether selective herbicide use within rights-of-way might produce higher quality habitat for native bees as compared to mowing. After studying bees collected within managed rights-of-way and nearby mowed fields at the Patuxent Wildlife Research Center (Maryland), Russell et al. (2005) found that transmission line sites had more spatially and numerically rare species than the grassy fields undergoing a similar management regime.

Wojcik and Buchmann (2012) note that many pollinators, including butterflies and bees, prefer the early successional habitats maintained in established rights-of-way for foraging. They note that the open sunny conditions are likely habitats for pollinators. Food plants used by butterflies and other pollinators often change between seasons and years due to shifts in the composition of the flowering community. This suggests that restoration and conservation focused on plant diversity is important (Menz et al. 2011 citing Dupont et al. 2009, Olesen et al. 2008, and Petanidou et al. 2008).

Within the context of rights-of-way and land management, use of integrated vegetation management and a suite of land management techniques have been found to benefit pollinators, including butterflies. For example, occasional mowing in rights-of-way (once or twice a year) has been found to increase occurrences of bees and butterflies due to increased food plant availability and openness needed for sunning purposes. Overall, mowing was found to be better than no mowing (Champagne and Bourassa 2000 and Noordijk et al. 2009). Bramble et al. (1999) similarly found greater butterfly diversity in land management systems that used herbicide treatment that specifically focused on the reduction or removal of grasses and trees.

12.4 Sustaining Landscape Level Connections

Linear corridors such as roads, railroads, and utility rights-of-way, with their maintained open vegetation create ideal landscape connections and networks of suitable habitat. Ven Geert et al. (2010) demonstrated that existing linear corridors within an intensively farmed landscape may act as functional biological corridors for pollinator movements. As a result, this study strongly encouraged restoration of landscape connections via linear corridors to facilitate pollinator movement and allow broad-scale connections of large habitat. Similarly, Menz et al. (2011) highlights the importance of restoring corridors as well as individual parcels as “stepping stones” to connect larger or more stable habitat patches across the landscape.

13 Assurances Provided

13.1 Assurances by the Service

Upon approval of the Agreement and satisfaction of all other applicable legal requirements, the Service will issue an EOS Permit, in accordance with section 10(a)(1)(A) of the ESA, to the Programmatic Administrator. The Programmatic Administrator will then extend the coverage afforded by the EOS Permit to all enrolled Partners holding a Certificate of Inclusion, authorizing incidental take of monarch butterflies. The obligations of Programmatic Administrator and the Partners become effective upon execution of the CCAA/CCA. The EOS permit will become effective as of the effective listing date of the species, should a listing occur. If the monarch becomes listed under the ESA during the term of the Agreement, incidental take would be authorized for the conservation measures and covered activities as described in this Agreement, as long as the permit conditions are followed and impacts identified as take in the permit, are maintained under the levels identified. The permit would include the ESA's regulatory assurances on enrolled non-Federal lands set forth at CFR 5050 17.22(d)(5) and 17.32(d)(5), should the species become listed.

Through this Agreement, the Service provides Partners assurances on enrolled non-Federal lands, that no additional conservation measures nor additional land, water, or resource use restrictions, beyond those voluntarily agreed to and described in the "Conservation Measures" section of this Agreement for the covered activities, will be required should the monarch become listed in the future. These assurances will be authorized with the issuance of the EOS Permit.

If changed circumstances warrant consideration of additional measures as described in Section 10 (Adaptive Management), then the Service would enter into discussions with the Partners regarding any adaptation requests. Any adaptation requests posed by the Service will be supported by documentation of the need, and the conditions associated with the adaptive management trigger(s) described in Section 10 (Adaptive Management). Any adaptation requirements will be reviewed by the Partners and finalized by the Advisory Committee and Programmatic Administrator in accordance with considerations detailed in Section 13.2 below.

This Agreement does not intend to create any new or additional ESA liabilities or compliance requirements for entities or persons not covered by the Agreement. Nonetheless, improvements to monarch butterfly habitat resulting from the CCAA/CCA could increase the abundance of the species on adjacent properties. Indeed, success of conservation measures on rights-of-way easements often require cooperation with local landowners that have lands underlying, or adjacent to, lands enrolled in the Agreement. We understand that many Partners already maintain their own processes and procedures for coordinating and communicating with such landowners. This Agreement does not alter or amend those procedures Partners have in place. Instead, we envision Partners will use their existing efforts to coordinate with underlying, or adjacent, landowners.

Acknowledging the value of coordination with landowners, the Service will make every effort to provide assistance and guidance to adjacent landowners concerned or interested in monarch conservation. There are existing programs, such as the NRCS Working Lands for Wildlife, and other sources of financial and technical assistance may be available to implement conservation practices on working lands that benefit monarchs, such as the USFWS Partners for Fish and Wildlife Program and the Bee and Butterfly Habitat Fund. The Service will also make every reasonable effort to help those adjacent property owners develop complementary agreements, or identify other measures those owners may pursue to obtain incidental take coverage for their activities that may affect the species.

13.2 Assurances Provided to Partners in Case of Changed or Unforeseen Circumstances

The assurances listed below apply to the Partner. The assurances apply on non-Federal lands only where the EOS Permit associated with the Agreement and the Certificate of Inclusion itself are being properly implemented on non-Federal land, and only with respect to species covered by the CCAA/CCA.

As defined by 50 CFR 1.B.17.3, there are two type of circumstances considered within this Agreement:

Changed circumstances are changes in circumstances affecting a species or geographic area covered by a conservation plan or agreement that can reasonably be anticipated by plan or agreement developers and the Service and that can be planned for.

Unforeseen circumstances are changes in circumstances affecting a species or geographic area covered by a conservation plan or agreement that could not reasonably have been anticipated by plan or agreement developers and the Service at the time of the conservation plan's or agreement's negotiation and development, and that result in a substantial and adverse change in the status of the covered species.

13.2.1 Changed circumstances provided for in the Agreement

If conservation measures not provided for in the Agreement are necessary to respond to changed circumstances, the Service will not require any conservation measures in addition to those provided for in the CCAA/CCA without the consent of the Partners, Advisory Committee, and Programmatic Administrator, provided the Agreement is being properly implemented.

If new measures are developed to address changed circumstances provided for in the agreement, Partners will implement the measures specified after a determination by the Parties as to which key threat(s) the new measures address, and which Partners are applicable under the changed circumstance. Implementation guidance will be provided by the Programmatic Administrator to Partners so that they may understand the nature of the changed circumstance, and relevant changes to the Agreement. Changed circumstances provided for in this CCAA/CCA include as any potential changes outlined in Table 9-1 of Section 9 (Adaptive Management).

In addition to the categories of potential changed circumstances outlined in Table 9-1, there are two more specific examples of potential changed circumstances within this CCAA/CCA. These two paragraphs are intended to supplement Table 9-1 and should in no way be construed to limit or restrict the use of the table to identify changed circumstances.

Changed Technology

Changed technology associated with energy and transportation lands recognizes that technology related to energy and transportation infrastructure is not static. Over the past 50 years, technology has greatly changed how energy is produced, delivered, and used. It has also changed how highways are designed, constructed, and maintained. We expect that techniques and technology used in the maintenance and modernization of energy and transportation lands will evolve over the duration of the CCAA/CCA. If the Programmatic Administrator, in consultation with the Partners, determines that the technology associated with covered activities or conservation measures has changed such that the new technology results in impacts to the monarch of a substantially different nature than the impacts that were included in the required analyses for the CCAA/CCA, the Programmatic Administrator will notify the Service within 30 days of that determination. The Programmatic Administrator, in consultation with the Service, would consult with Partners to determine the appropriate modification or amendment to the Agreement or Certificates of Inclusion to account for new impacts.

Emerging Science

Emerging science relating to monarch biology and habitat needs may inform future conservation, as well as potential impacts. Various aspects of monarch ecology remain uncertain, or have not been researched by empirical studies. Details of, and variations within, habitat use by monarchs across their broad geographic range are not well understood. Uncertainty also remains regarding landscape scale habitat requirements and arrangements that can provide the most beneficial conditions for the species. If the Programmatic Administrator and the Service determine that additional science on monarch ecology and conservation needs indicate impacts from covered activities may be occurring differently than those originally analyzed for this Agreement, the Programmatic Administrator will notify the Partners within 30 days of the determination to evaluate next steps needed.

13.2.2 Changed circumstances not provided for in the Agreement

If additional conservation measures are necessary to respond to changed circumstances neither the Service nor the Programmatic Administrator will require changes on non-Federal enrolled lands outside of what has been agreed upon in the Agreement and associated Certificates of Inclusion without the consent of the Partner, provided the Partner is properly implementing the Agreement and their Certificate of Inclusion.

13.2.3 Unforeseen circumstances

If additional conservation measures are necessary to respond to unforeseen circumstances, the Service may recommend additional measures of Parties, but only if such measures are limited to modifications within the agreement's intent and conservation strategy for the affected species, and only if those measures maintain the original terms of the agreement to the maximum extent possible. Additional conservation measures will not involve the commitment of additional land, water, or financial compensation, or additional restrictions on the use of land, water, or other natural resources available for development or use under the original terms of the agreement without the consent of the Partners. Should an unforeseen circumstance be identified, the modification or amendment process would be addressed in a manner similar to that described for changed circumstances.

The Service will have the burden of demonstrating that unforeseen circumstances exist, using the best scientific and commercial data available. These findings must be clearly documented and based upon reliable technical information regarding the status and habitat requirements of the monarch. The Service will consider, but not be limited to, the following factors related to the monarch:

1. Size and extent of the current range;
2. Percentage of range adversely affected by the agreement;
3. Percentage of range conserved by the agreement;
4. Ecological significance of that portion of the range affected by the agreement;
5. Level of knowledge about the monarch and the degree of specificity of the conservation program under the agreement; and,
6. Whether failure to adopt additional conservation measures would appreciably reduce the likelihood of survival and recovery of monarch.

14 Monitoring Provisions

This Agreement includes provisions for compliance tracking and evaluating the effectiveness of conservation delivery undertaken by Partners as described herein. The measures included are intended to verify the delivery of the Partner conservation obligations, allow the Programmatic Administrator and the Service to communicate the effectiveness of the agreement, and for all Parties to learn and adapt from the implementation and any changed circumstances that may occur over the CCAA/CCA's duration. In regards to implementation of monitoring provisions, Partners will describe local or regional considerations, define roles and responsibilities, and how specific provisions would be conducted, on adopted acres across their enrolled lands as part of their CCAA/CCA implementation plan.

14.1 Compliance Tracking and Reporting

The Partner is responsible for annual compliance tracking and annual reporting specified herein related to implementation of the Agreement and fulfillment of its provisions, including implementation of agreed-upon conservation measures, in accordance with the executed Certificate of Inclusion. Compliance tracking will require information on which conservation measures were implemented, as well as when and where they were undertaken. Table 14-1 summarizes the data expected to be collected by Partners in areas where conservation measures are implemented in order to document contributions to the adopted acres target for the Partner.

In many cases, conservation measures may be conducted in specific locations. These occurrences may be documented in a tracking log, or via a geospatial record. For the purposes of tracking activities, the Agreement envisions the information required by Table 14-1 would ultimately be recorded in an online geospatial database managed by Programmatic Administrator. For tracking, one of several optional methods available to Partners, including but not limited to:

- An individually maintained tracking spreadsheet (in a Microsoft Excel, Google Sheets, or similar format)
- An online geospatial database mapping tool, or
- An online database entry form.

Consistency in the data fields required would be maintained across all options considered for tracking purposes. Each Partner will select their preferred tracking method(s) based on their software platforms, operational procedures, and information technology capabilities.

Tracking does not need to occur at each individual location, or repeatedly for large or expansive areas (such as conservation mowing conducted across several counties). Some measures, such as native seed installation, prescribed fire, or planting areas are likely conducted in specific and well defined locations. Tracking individual sites is likely appropriate in these situations. However, other measures involve activities that are likely to be conducted programmatically, as part of how the Partner conducts operations. For these scenarios, the minimum scale at which a conservation measure must be tracked is statewide. This is likely the most applicable method of tracking for conservation measures that are widely adopted by Partners across their enrolled lands, such as habitat set-asides, conservation mowing, or spot herbicide treatments. For such routine implementation, tracking at each individual location can be burdensome and unnecessary. For tracking conducted on a statewide, countywide, or regional intrastate scale, Partners may be asked to provide documentation of implementation when, and if, compliance checks are conducted by the Programmatic Administrator and the Service. Documentation may include, but is not limited to, general mapped treatment locations, treatment records, documentation of departmental policies, or other forms deemed appropriate.

Table 14-1. Compliance Tracking Fields

Field Name	Description
Activity Area	Unique ID of the site (or area) upon which the activity (or activities) are being implemented.
Organization	Partner organization name responsible for implementing the conservation measure.
Acres	How many acres is the site; can be auto-filled if using online mapping tools.
State	The State in which the site is located; can be auto-filled if using online mapping tools.
County	The County (or Counties) in which the site is located; can be auto-filled if using online mapping tools.
Conservation Measure	Activity implemented. Select from dropdown menu of options populated from the conservation measure activity table.
Status	What is the implementation status of the effort: Implemented, Not Monitored, Monitoring Complete
Date Completed	Date on which effort implementation was completed, or date of last activity.
Partner Overlap	Yes/No. Indicate whether another Partner manages enrolled lands that overlap with this location.
Effectiveness Monitoring Fields (*The fields below are collected only at locations where effectiveness monitoring is conducted. See Sampling Frequency under Section 14.2.2*)	
Milkweed Present	*Required*. Are numerous milkweed plants present within the sample plot area? (Yes/No)
Milkweed Count	*Optional.* Select from a dropdown list of ranges for number of milkweed plants present in the sample area.
Nectar Resources Present	*Required*. Is greater than 10% cover of nectar plants present within the sample plot area? (Yes/No)
Nectar Resources Cover	*Optional.* Select from a dropdown list of ranges for percent cover of nectar plants present in the sample area.
Monarchs Observed	*Optional.* Yes/No. Indicate whether monarchs (adult, larvae, or eggs) were observed within the sample area at the time of survey.

Compliance tracking will be used to inform the annual compliance reporting expected by Partners. See Table 14-2 for specific requirements for annual reporting.

Annual compliance reporting will be the primary documentation summarizing the Partner's achievement of net conservation benefit, compliance with this Agreement, and any modifications proposed to the Partner's enrolled lands. In their annual report, Partners describe the implementation of the Agreement in light of their Certificate of Inclusion and CCAA/CCA implementation plan requirements. They will also summarize the acreage and type of lands added, removed, or transferred over the past calendar year. As necessary, Partners will also provide an updated estimate of their adopted acres target based on the modified acreage. This updated target will be the required target for the next year's compliance and net benefit contribution.

The Partner will also identify potential deviations experienced in implementation over the past year. Anticipated scenarios that may arise from include, but are not limited to:

- Tracked adopted acres differ from those expected in the initial Partner application, or annual report forecasts. Under this scenario, a Partner would be expected to discuss the variance with the Programmatic Administrator, evaluate reasons for not achieving adopted acres target, and establish a plan for achieving the required adopted acres.
- Implementation of conservation measures reported on does not align with the implementation strategy defined in the Partner application and CCAA implementation plan. If encountered, the Partner and Programmatic Administrator would evaluate the implementation challenges, the Partner's implementation plan, and define schedule for full implementation.

Table 14-2. Annual Compliance Reporting Expectations

Information Needed	Description	Potential Source(s) of Information
Applicant Information	Organization, Applicant contact and contact information. Include assigned Certificate of Inclusion agreement #.	Applicant knowledge and records
Summary of annual NCB contribution	A concise summary of system of lands managed over the past year in the CCAA/CCA. Describe: • Where work was conducted (system-wide, on individual parcels, any regional differences, and similar information) • Summary of conservation measures implemented. Verify if same as initial application, or any added/removed/changed based on needs. • Provide: o Tracking sheet, or shapefile, of implemented activities. o Describe any areas where implementation or benefits deviated from anticipated direction. o Summarize any unforeseen or changed circumstances that impacted annual contribution. o Summarize any supplemental efforts undertaken for education, outreach, and promotion of monarchs, the CCAA/CCA, or pollinator conservation.	Applicant knowledge, geospatial data, management records, or other tracking platform(s) used by Applicant
Summary of effectiveness monitoring conducted	A concise summary of effectiveness monitoring conducted and any summarized results. Describe: • Where monitoring was conducted (including map) • For baseline effectiveness monitoring, the method used and, if applicable, notes regarding implementation. • For supplemental effectiveness monitoring, the method(s) used and a summary of lessons learned, or any results that inform future implementation. • Summary of results including a short narrative, plus applicable tables or figures. (e.g. confirmed improvement of suitable habitat, unexpected results, and any recommendations for future implementation or monitoring)	Effectiveness monitoring data

Upcoming year annual forecast	Review and verify (or update) annual estimates of enrolled lands, adopted acres, and any adaptive management that needs to occur.	Applicant knowledge, geospatial data, management records, or other tracking platform(s) used by Applicant

Each Partner will submit required annual reports to the Programmatic Administrator by January 31 of each year or as specified in the Certificate of Inclusion. The Programmatic Administrator will then provide a compiled annual report including monitoring results and summaries of implementation status of approved Certificates of Inclusion to the Service by March 31, for the prior calendar year. This schedule may be modified as agreed upon by the Parties. The first compliance report will be submitted to the Service following the first full year of the Agreement's implementation (anticipated 2020). As a result, the first compliance report will be submitted by the Programmatic Administrator to USFWS by March 31, 2021, then annually thereafter.

14.2 Biological Effectiveness Monitoring

Biological effectiveness monitoring proposed within this Agreement has been developed in a manner that is intended to:

a) Verify the baseline expectations of effective conservation delivery communicated by the Service and upheld by Partners,

b) Minimize the administrative burden for both the Service and Partners to encourage participation in voluntary conservation, and

c) Allow for flexibility and adaptability to the wide range of habitat conditions, conservation measures, and likely results that may occur across the wide geographic range included in the agreement.

Monitoring requirements described in this section outline the baseline expectations for Partners. Effectiveness monitoring is aimed at baseline verification regarding the delivery of the Partner conservation obligations. These provisions encourage consistency across Partners, but also outline the minimal requirements, to encourage participation in the Agreement and delivery of the conservation contributions it can provide.

Partners are encouraged to incorporate supplemental monitoring described in more detail at the end of this section. These additional monitoring measures, while not required under the Agreement, can benefit Partners by addressing other important questions related to implementation, as well as add to the body of conservation knowledge. These supplemental monitoring efforts can help document changes in response from conservation measures, so Partners can adapt their management to increase efficiency, add to their benefit, and communicate the conservation successes that result from their participation. Monitoring above and beyond the baseline requirements also provides more information about the habitat on adopted acres, and gives the Programmatic Administrator and the Service greater confidence that the Agreement is functioning and delivering the results intended.

14.2.1 Biological Effectiveness Monitoring Expectations

Biological effectiveness monitoring is focused on verifying the number of adopted acres as defined in the Agreement (see Definitions) across a wide and diverse network of lands being managed. The two primary factors associated with habitat verification within energy and transportation lands across the migratory and breeding range of monarchs are either the presence of milkweeds, and/or the presence of potentially flowering nectar plants. Considering this, effectiveness monitoring required by this Agreement would answer two questions to verify that the adopted acres the Partner has committed to the Agreement contain suitable habitat for monarchs:

1. Are numerous milkweed stems present within the sample area?

2. Are potentially flowering nectar plants present across more than 10 percent of the sample area?

To be considered suitable habitat, the representative sample plot must contain either presence of more than one milkweed, or the minimum of 10 percent cover of nectar plants, during the time sampled within the growing season. Lands providing either milkweed or flowering nectar plants are considered to meet the minimum suitable habitat requirements.

For the first question, the presence of numerous milkweed, we define “numerous” as more than one milkweed plant present within the sample plot area. The sample area is of small enough size (1,500 square feet) that presence of more than one plant would indicate a minimum per acre density of milkweed of around 60 plants per acre, which is aligned with the minimum baseline condition expected for milkweed within several rights-of-way described in Thogmartin et al. (2017).

For the second question, we defined “potentially flowering nectar plants” as all flowering plants that can provide available nectar for monarchs at some point throughout the growing season, including primarily forbs that (at the time of monitoring) have already, are currently, or not yet bloomed. We considered 10 percent to be a minimum logistical threshold expected across the diverse array of potential habitats that may be managed under the Agreement – from open grasslands to desert scrub. At the time of Agreement preparation, there is no known research regarding minimum flowering plant cover required for suitable foraging habitat. Potentially flowering plants (i.e. forbs and flowering shrubs) do not need to be flowering at the time of survey. Results of this threshold is expected to identify areas of baseline suitable foraging habitat while omitting unsuitable habitat such as grasslands dominated by invasive grass species, or woody thickets too dense to support herbaceous flowering vegetation.

Section 14.2.2 describes the sample plot and sampling protocol. In the event that the cumulative results of the effectiveness monitoring is below the expected levels of habitat response identified in Section 10 of this Agreement (Adaptive Management), then the Partner will adhere to the appropriate scenarios highlighted in that same section.

14.2.2 Sampling Protocols

The extent of sampling required is considered a key concern for participation in this voluntary agreement. Requiring too much sampling is expected to result in less participation, and therefore, less conservation benefit. Too little monitoring, and the Programmatic Administrator and the Service will be unable to track and evaluate the conservation delivery obligated by Partners engaging in this agreement.

The following protocols are intended as the baseline expectation for Partners engaging in this Agreement. Each Partner will be responsible for determining how and when it is best to conduct monitoring in light of the approach detailed here.

Surveyor Experience and Background

Effectiveness monitoring surveys are intended to be quickly and efficiently conducted by Partner personnel working in the area as part of other job duties, where possible. The methods included are simplified and intended to be completed by any individual with a basic understanding of this protocol, the ability to properly identify milkweed (of any species applicable to their region), and the ability to differentiate between broadleaved flowering plants and other forms of non-nectaring vegetation such as grasses or sedges.

Timing Required

Sampling can be conducted any time during the growing season to allow for flexibility with Partner work schedules and field activities. However, to the extent possible, we encourage Partners to conduct monitoring samples during the summer and early fall, to the extent practical, as this will verify habitat requirements are present during biologically important periods, as well as minimize the potential for underestimating cover of milkweed or nectar plants.

Effectiveness monitoring is intended to describe the cumulative result of conservation measures on adopted acres. Sampling can be conducted at any time on the appropriate subset of representative areas within the adopted acres. The Partner should consider the habitat response to some conservation measures. If conducting monitoring in areas actively managed, Partners may either conduct monitoring prior to implementing conservation measures (if sustaining suitable habitat), or postpone effectiveness monitoring to an appropriate time following implementation.

Sample Plot Location and Size

Plot locations will be determined by the Partner at the time of survey. Plot locations are intended to be randomly selected in an area representative of the land condition and area. After briefly reviewing the overall site being monitored, the surveyor should direct monitoring towards representative areas for sampling – these are portions of the site that contain conditions that reflect the average condition of the overall site. To select a sample plot location randomly, we encourage the use of random site selection by Partners either via simplified methods (e.g. spinning a pencil and walking a pre-determined number of paces, rolling dice to determine the number of paces in a pre-determined direction) or, if able, through use of geospatial randomization or random number generators). It is the surveyor's responsibility to assess the full extent of the area being represented by the sample plot(s) and to ensure sampling is representative of the overall site condition.

Partners are responsible for randomly selecting the location of representative monitoring plots or transects. In doing so, Partners are encouraged to select sampling sites based on several key decision factors:

1. Location and size of the area managed by conservation measures. If implementation occurred over a large area, several sample points may be necessary to characterize the vegetative response and effectiveness. See previous discussion.
2. Type of conservation measures implemented. Most Partners will likely implement more than one conservation measure. Ensure that sampling is conducted in at least one location of each conservation measure implemented annually.
3. Geographic extent. Each Partner manages lands across a geographic extent ranging across intra or interstate boundaries. Partners are expected to select representative sites across the full geographic extent where conservation measures are implemented.

A defined sample area is important for maintaining consistency amongst Partners and adhering to the rationale regarding percent cover and associated densities or cover targets included in the minimum habitat requirements. Without conducting effectiveness in such a defined manner, the two monitoring variables would cease to have any consistent data amongst Partners, or value in assessing the presence of suitable habitat on adopted acres.

Sample plots expected for effectiveness monitoring will consist of a plot 1,500 square feet (sf) in size, sampled as either a 150 feet x 10 feet wide transect, or a 22-foot radius plot area. This plot size aligns with other monarch survey protocols currently, and potentially, used by interested Partners. It is also consistent with monarch habitat methodologies developed by Monarch Joint Venture and UIC's Rights-of-Way as Habitat Working Group that are recommended as supplemental monitoring (Caldwell and Cariveau pers. comm. 2018).

If sampling as a single random, representative plot, the observer must randomly select a 22-foot radius plot area within an area representative of the habitat condition being evaluated. For large or variable sites, several randomly selected sample plots can be sampled, then averaged to yield a cumulative average result.

If sampling a larger area, we recommend using a method similar to that outlined by the Monarch Joint Venture's draft rapid assessment protocol for roadsides, funded by the National Cooperative Highway Research Program (NCHRP; Monarch Joint Venture in development). The adapted guidelines are

considered to be recommendations for individuals conducting such sampling (Cariveau pers comm. 2018). These guidelines have been modified here to make them applicable across both transportation and energy lands of varying size and configuration:

1. Select locations of transects. Observers review the area where conservation measures will be, or has been, implemented. The goal is to observe only the plants throughout the area treated, or sustained by, a conservation measure, and depending on the width of the site and the type of vegetation present, observers may combine walking back and forth with walking linearly.

2. Define the transect boundaries. Observers mark their starting location and then walk a 150 foot (45.7 m) length along the length of the survey area, focusing only on a 10-foot width of ground along the transect, making a rectangular study area that extends in the direction of the conservation measures area being sampled. When first beginning assessments, observers may want to use a measuring tape to determine how many paces or steps equal 150 feet. Once calibrated, observers can pace this distance.

3. Consider multiple transects to characterize large or variable areas. If sampling a long, linear area such as roadsides managed by conservation mowing, or gas pipeline corridor treated by targeted herbicides, or a large individual parcel area, observers can either conduct a single plot in a randomly selected location, or cumulatively sample several locations for an overall averaged result. If sampling several locations to acquire a cumulative average result, this protocol recommends stopping approximately every 3/10th of a mile (1640 feet or 500 meters) to conduct several sampling plots, then average the cumulative results across the area being represented.

   Depending on the type of habitat encountered, greater or fewer stops may be needed to give the observer a good characterization of the area. Some areas may contain variations in large and small patches of habitat, and their interspersion. The sampling can be repeated at intervals as determined appropriate by the observer to sample throughout the area of interest.

Sampling Frequency

The frequency of sampling is expected to correspond with the extent of conservation measures required by the adopted acres target defined for each Partner according to their adoption rate and extent of enrolled lands. Partners reporting actual adopted acres above-and-beyond their minimum target are not required to monitor any additional points above the threshold associated with their adopted acres target.

Sampling frequency is intended to provide a reasonable sample size that can characterize results of conservation measures, while also being reasonably accomplished by rights-of-way and land managers who are also tasked with overseeing the safe implementation of conservation measures and covered activities, as well as sustain operations of their infrastructure. The following recommended frequency is based on expected extent of adopted acres, as well as potential Partner feedback received during development of this agreement.

Table 14-3. Sampling Frequency Expected for Biological Effectiveness Monitoring.

Estimated Adopted Acres	Anticipated No. of Samples
Less than 1,000	10
1,001 to 10,000	30
10,001 to 30,000	50
30,001 to 60,000	70
60,001 or more	70

As an example of the cumulative monitoring conducted under this Agreement, assuming that at least 30 Partners potentially participate in this Agreement, this extent of sampling is likely to result in up to 2,100 sample points evaluated by Partners on an annual basis.

14.2.3 Effectiveness Monitoring Reporting Frequency

Effectiveness monitoring reporting will be required at the end of the first year of implementation to an extent proportional to the amount of adopted acres during the initial year of enrollment. Ongoing effectiveness monitoring reporting may be provided annually on a schedule aligned with compliance tracking reporting. Alternatively, less frequent reporting on effectiveness monitoring (once every 2 or 3 years) is also allowed provided that a) the Partner still conducts the same number of sites as expected annually to account for longer monitoring duration (e.g. if conducting 30 sites in a single year, the Partner would be required to report on 90 sites if reporting every three years), and b) the Partner is currently fulfilling their obligations of this Agreement.

If frequency other than annually is desired, the Partner's desired reporting frequency must be specified in their Certificate of Inclusion application. The Programmatic Administrator and the Service reserves the ability to request more frequent reporting if deadlines are missed, reporting is incomplete, or other obligations have not been successfully met.

14.2.4 Supplemental Biological Effectiveness Monitoring

Effectiveness monitoring described within this section is focused on verifying that Partners are delivering suitable habitat within the adopted acres area managed under this Agreement. Some Partners may be interested in conducting more in-depth evaluations to learn other important information about site quality, trends over time, and management response. Other conservation organizations, industry groups, potential Applicants, and partnerships such as the Monarch Joint Venture and UIC's Rights-of-Way as Habitat Working Group, have developed monarch habitat assessment methodologies that are recommended as supplemental monitoring (Caldwell and Cariveau pers. comm. 2018). Similarly, other industry-specific efforts, such as the Pollinator Site Value Index (PSVI), have been created to inform and quantify effects of management on pollinator habitats (Haggie et al. 2018).

Effectiveness monitoring within this Agreement is not intended to replace the valuable information gained by those more detailed assessment efforts. Participation in these other monitoring protocols has the added benefit of using a consistent and accepted methodology and protocol. In using established protocols, Partners can more easily share, compare, and analyze data collected. Moreover, having documented methodology for the monitoring conducted can help inform future applications of the information gathered from these efforts.

Similarly, the two effectiveness monitoring questions required by this Agreement (e.g. milkweed and nectar plant presence) are captured by many of these other supplemental monitoring protocols. As such, completion of some supplemental monitoring can capture required data at the same time. Moreover, those protocols can help characterize specific habitat elements not evaluated within the Agreement's protocol. In doing so, these protocols can be used by Partners to evaluate aspects of habitat quality and trends over time. Such information can be valuable to Partners for improving their understanding of their conservation measure implementation, its results, and communicating its benefits to other Partners and the interested public.

15 Notification of Take Requirement

The objective of this Agreement is to maintain, conserve and secure monarch populations across their range for the duration of this Agreement. However, it is anticipated that during maintenance and management of both managed habitat and unmanaged habitat some take of monarch will occur. Upon approval of this Agreement, and satisfaction of all other applicable legal requirements, the Service will issue the EOS Permit, in accordance with Section 10(a)(I)(A) of the ESA to the enrolled Partner. This permit will become effective on the date of the final rule listing the monarch, if listed, and will authorize incidental take of monarch that results from covered activities on enrolled lands.

Although management practices will be designed to enhance and increase monarch habitat, take from covered activities may not be avoidable. Incidental take could occur as a result of the covered activities described in Section 5, as well as conservation measures in Section 6. Most of these impacts are expected to be limited and sporadic in nature. Take must be incidental to otherwise lawful activities on enrolled lands conducted in a consistent manner with this Agreement.

For purposes of this Agreement, the Service does not believe that a pre-take notification requirement is practicable or appropriate. Because the conservation measures and covered activities occur on a regular basis, many of which may be conducted outside of monarch breeding habitat, or are infrequent or temporary in their impacts, the Service expects that incidental take in the form of mortality resulting from impacts from construction activities would be minimized. Furthermore, locating individual monarchs (at all life stages) prior to impact is not practicable for Partners to implement over the course of their management activities within this agreement.

16 Disputes and Resolutions

16.1 Dispute Resolution

The Parties agree to work together in good faith to resolve any disputes, using dispute resolution procedures agreed upon by all Parties. The Agreement does not create, nor constitute a partnership, joint venture, or similar agreement between Partners or Parties. Under the programmatic CCAA/CCA, the Programmatic Administrator retains decision making authority for resolutions that pertain directly to the execution of the Agreement and its terms and conditions. The Service, issuing the EOS Permit, retains the authority to ensure implementation is upholding the Agreement and its terms and conditions. In the event a dispute arises that cannot be resolved between Parties, the dispute may be mediated by the Advisory Committee, or another agreed upon mediator. The mediator will gather information from all Parties involved in the dispute (subject to the confidentiality requirements outlined in Section 8) and provide guidance for resolving the dispute, or other suitable actions following the procedure outlined within this section.

16.1.1 Compliance Notice

In response to an alleged failure to implement a condition of this Agreement, the Programmatic Administrator may either directly contact or provide written notice to a Partner (see Compliance Notice). This notice shall require the Partner to submit, within 30 calendar days of the date of the Compliance Notice or other specified time, a written explanation or statement in response that includes: (a) corrective steps taken by the Partner and results achieved; (b) a schedule and description of corrective steps that will be taken and results expected; or (c) a statement denying that the alleged failure has occurred and additional information supporting the statement.

The Programmatic Administrator shall notify the relevant Service contact of the potential compliance issue at the time they send a written Compliance Notice to the Partner, including any consideration for protecting confidential information (Section 8, Confidentiality). The Programmatic Administrator will determine if further Service coordination is required for resolution.

The Programmatic Administrator shall respond in writing to the Partner's response and either: (a) accept the Partner's response and state that the notice is resolved (a Notice of Resolution), or (b) not accept the Partner's response.

16.1.2 Deficiency Notice

If a Partner fails to respond to a Compliance Notice or the Programmatic Administrator disagrees with the Partner's response, the Programmatic Administrator may issue a written Deficiency Notice. A Deficiency Notice shall require the Partner to provide, within 30 calendar days of the date of the Deficiency Notice or other specified time, a written explanation or statement in response that includes: (a) corrective steps taken by the Partner and results achieved; (b) a schedule and description of corrective steps that will be taken and results expected; or (c) a statement denying that the alleged failure has occurred with additional information supporting the statement and a request for discussions.

After coordination with the Advisory Committee, and the Service if necessary, the Programmatic Administrator shall respond in writing to a Partner's response and either: (a) accept the Partner's response and provide a Notice of Resolution; or (b) not accept the Partner's response.

16.1.3 Notice of Noncompliance

If a Partner fails to respond to Deficiency Notice or if the Programmatic Administrator and the Partner cannot resolve the issue through discussions, the Programmatic Administrator shall issue a Notice of Noncompliance. Notices of Noncompliance shall require the Partner to submit, within 30 calendar days of receipt of the Notice of Noncompliance or other specified time, a written explanation or statement in response that includes: (a) corrective steps taken by the Partner and results achieved; (b) a schedule and description of corrective steps that will be taken and results expected; or (c) a statement denying that the alleged failure has occurred with additional information supporting the statement and a request for discussions.

The Advisory Committee will make a recommendation to the Programmatic Administrator regarding whether to accept or not accept the Partner's response. The Programmatic Administrator, with input from the Advisory Committee, will make a determination on whether to accept or not accept the Partner's response. The Programmatic Administrator shall respond in writing to the Partner's response and either: (a) accept the Partner's response and state that the notice is resolved (a Notice of Resolution), or (b) not accept the Partner's response. If the Programmatic Administrator does not accept the Partner's response, the Notice of Noncompliance will be considered unresolved and the Partner may be subject to termination as described in Section 9 (Duration of Agreement and Permit).

16.1.4 Advisory Committee and Programmatic Administrator Review

At any time before a response is due to the Programmatic Administrator, a Partner may seek review of any Compliance Notice, Deficiency Notice, Notice of Noncompliance or proposed termination by submitting a written request to the Advisory Committee. The Programmatic Administrator and the Partner each may prepare a statement of position for review by the Advisory Committee or request a face-to-face review. The Advisory Committee shall review statements, information provided in a face-to-face and other information available to it and issue a recommendation to the Programmatic Administrator, including any recommended corrective action.

The Programmatic Administrator shall review the recommendation of the Advisory Committee, confer with the relevant Service contact, or its designee, and issue its finding and any required corrective action in writing.

The Partner and the Programmatic Administrator shall comply with the findings, and the Programmatic Administrator will issue a written Notice of Resolution once the Partner complies with its findings. If the Partner fails to implement the required corrective action within 30 calendar days of its receipt of the findings, the Programmatic Administrator shall notify the Partner in writing that the Notice of Noncompliance has not been addressed and may either provide notice to the Service, or terminate the Certificate of Inclusion of the Partner at that time.

16.1.5 Content and Service of Notices, and Management of Notices and Responses

All Compliance Notices, Deficiency Notices, and Notices of Noncompliance shall be sent either electronically, or by U.S. mail, with a return receipt, to the company representative designated in a Partner's Certificate of Inclusion. All Compliance Notices, Deficiency Notices, and Notices of Noncompliance shall concisely identify the terms or conditions of this Agreement or the Certificate of Inclusion that the Programmatic Administrator believes the Partner has not implemented.

16.2 Remedies

Each party shall have all remedies otherwise available to enforce the terms of the Agreement and the EOS Permit. No party shall be liable in damages for any breach of this Agreement, any performance or failure to perform an obligation under this Agreement, or any other cause of action arising from this Agreement.

16.3 Termination for Noncompliance

Lands enrolled under the Certificate of Inclusion may include tens or hundreds of thousands of acres. If a Partner, after Notice of Noncompliance and subsequent response (or lack thereof), still remains in Notice of Noncompliance on lands enrolled under the Certificate of Inclusion, an appropriate action may be to terminate the Certificate of Inclusion as it relates to the individual easement(s), lease(s) or parcel(s) of land on which the noncompliance occurred. Depending on the scale or scope of the violations, the failure to resolve three Notices of Noncompliance within a three-year period for lands enrolled can result in termination of some or all of the Certificate of Inclusion. The Programmatic Administrator and the Service, however, recognize that termination of the Certificate of Inclusion is a severe and dramatic action limited to unusual circumstances after all efforts to address noncompliance have been exhausted.

The Partner shall be notified in writing by the Programmatic Administrator of the proposed termination by certified or registered mail addressed to the contact name in the Certificate of Inclusion. This notice shall identify the lands for which will be terminated, the reason(s) for the termination, and inform the Partner of the right to object to the proposed termination. Upon receipt of a notice of proposed termination, the Partner may file written objection to the proposed action within 45 calendar days of the date the Partner received the notice of proposed termination. The objection must state the reasons why the Partner objects to the proposed termination and may include supporting documentation. The Advisory Committee will review the written objection and all documentation, and will issue a recommendation to the Programmatic Administrator on the proposed termination.

The Programmatic Administrator will confer with the relevant the Service CCAA/CCA Coordinator. The Programmatic Administrator will make a decision on the proposed termination within 45 calendar days after the end of the objection period and notify the Partner in writing of its decision and the reasons thereto. The Partner reserves the right to any and all legal remedies, whether at law or in equity, arising from a decision to terminate some or all of the Certificate of Inclusion.

16.4 No Third-Party Beneficiaries

This Agreement does not create any new right or interest in any member of the public as a third-party beneficiary, nor shall it authorize anyone not a party to this Agreement to maintain a suit for personal injuries or damages pursuant to the provisions of this Agreement. The duties, obligations, and responsibilities of the Parties to this Agreement with respect to third parties shall remain as imposed under existing law.

17 Administrative Fees

Each Partner will confer with the Programmatic Administrator to determine the applicable administrative fee required for participation in the Agreement. Administrative fees will be used to support ongoing administration of the EOS Permit, including technical support to the Partner, as well as compilation and reporting to the Service for annual compliance and effectiveness monitoring results.

Administrative fees set by the Programmatic Administrator will be set at a level that supports the expected range of costs required to operate the program described in this Agreement. The administrative fees required of each Partner will be calculated using a transparent and consistent method so that fees are fairly and equally considered across Partners. Calculation of fees will consider a series of factors that relate to the administrative need, as well as net conservation benefit generated by each Partner. Such factors may include, but may not be limited to, those described in Table 17-1.

Table 17-1. Factors Considered in Determining Partner-specific Administrative Fees

Administrative Fee Consideration	Rationale
Size of enrolled lands	A greater sum of enrolled lands requires more implementation, tracking, monitoring, and reporting. We anticipate that these larger enrolled lands may require additional technical or administrative support.
Complexity of enrolled lands	Partners overseeing more complex operations, either operations across multiple sectors, or with consortium partnerships, may require additional technical or administrative support.
Net conservation benefit	We want to encourage net conservation benefit that meets or exceeds the adopted acres target outlined. As an incentive to deliver adopted acres that exceed the standard sector targets, we anticipate including a fee discount for adopted acres implemented and tracked.
Upfront commitment to the development of the Agreement	Development of this Agreement would not be possible without the upfront support of the more than 30 organizations that voluntarily committed time, expertise, and/or funding to it. In recognition of these voluntary upfront contributions, we anticipate including a fee discount for early supporters.
Administrative program costs	Our expected range of costs is based on a range of potential participation and anticipated requirements of the Programmatic Administrator.
Others	Other factors may be considered as administrative needs and net conservation benefit contributions are considered.

Partners shall be responsible for paying the annual administrative fee determined by the Programmatic Administrator for each year their Certificate of Inclusion is in effect. Annual administrative fees will be determined at the application stage of the Agreement, and renewed annually from the calendar date of initial payment, or on a schedule agreed upon by the Programmatic Administrator. A Partner shall have the right, at its sole discretion, to prepay more than the minimum calculated administrative fees in any given year, including the right to prepay several years of administrative fees at a single time.

18 Availability of Funds

The Service is subject to the requirements of the Anti-Deficiency Act and the availability of appropriated funds. Nothing in this Agreement will be construed by the Parties to require the obligation, appropriation, or expenditure of any money from the U.S. Treasury. The Parties acknowledge that the Service will not be required under this Agreement to expend any Federal agency's appropriated funds unless and until an authorized official of that agency affirmatively acts to commit to such expenditures in writing. Likewise, a Partner may terminate its participation in the Agreement pursuant to Section 9.5 based on the unavailability of legislative funding.

19 Notices and Reports

Any notices and reports, including monitoring and annual reports, required by this Agreement shall be delivered to the persons listed below, as appropriate:

Programmatic Administrator

Iris Caldwell, P.E.
Program Manager – Sustainable Landscapes
Energy Resources Center
The University of Illinois at Chicago
1309 S Halsted Street, M/C 156
Chicago, IL 60607

Endangered Species Coordinator, U.S. Fish and Wildlife Service

Kristopher Lah
Endangered Species
U.S. Fish and Wildlife Service
Chicago Ecological Services Office
230 South Dearborn St., Suite 2938
Chicago, IL 60604-1507

IN WITNESS WHEREOF, THE PARTIES HERETO have, as of the last signature date below, executed this Candidate Conservation Agreement with Assurances to be in effect as of the date that the Service issues the Enhancement of Survival Permit.

Programmatic CCAA/CCA Administrator Date

UIC

USFWS CCAA/CCA Administrator Date

U.S. Fish and Wildlife Service

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Nationwide CCAA/CCA for Monarch Butterfly on Energy and Transportation Lands

Appendix

A

LIST OF PREPARERS

Nationwide CCAA/CCA for Monarch Butterfly on Energy and Transportation Lands

Appendix

B

CERTIFICATE OF INCLUSION TEMPLATE

Nationwide CCAA/CCA for Monarch Butterfly on Energy and Transportation Lands

Appendix

C

SUPPLEMENTAL INFORMATION