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)

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1 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. The Agreement 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 the 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 enrolled non-Federal lands from the Service that additional conservation measures beyond those in the Agreement will not be required for monarch butterflies, and additional restrictions or limitations will not be imposed upon them in enrolled areas should the species become listed in the future. They also have regulatory predictability on enrolled Federal lands through the Section 7 biological and conference opinion.

The Agreement will be administered by UIC, as the Program Administrator and Permit Holder, with regulatory oversight by the Service. The Program 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 Program Administrator after verifying an Applicant's eligibility (see Appendix B). These certificates will extend the regulatory assurances provided by the Enhancement of Survival permit, and the regulatory predictability provided through this Agreement and the associated

Consultation document, 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 includes adaptive management principles to incorporate new information and research as it becomes available. The Agreement also incorporates processes to address changed circumstances 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 Agreement includes:

- A general description of responsibilities of all involved participating agencies and Partners, and the area covered under the programmatic Agreement;
- 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
- A description of assurances where applicable, 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.

2 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

3 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. Adopted acres provide suitable monarch habitat and 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 integrated Nationwide Candidate Conservation Agreement with Assurances and Candidate Conservation Agreement 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 Agreement 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 for monarch butterflies, and that additional land, water, or resource use limitations will not be imposed upon them, on enrolled lands, 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 Agreement, 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 Agreement. 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 Consultation document 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, Agreement 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 Agreement and contains all the information necessary for Program Administrator and the Service to determine that the CCAA Policy, standard, and permit issuance criteria have been met.

Covered Activities – Energy and transportation land management, maintenance, and modernization activities on enrolled lands that are reasonably certain to cause take of monarchs. Covered activities cannot result in incidental take of other ESA listed animals, or must be conducted in compliance with the terms and conditions of existing incidental take statements (Section 7), or Section 10 permits. Partners will develop and implement avoidance and minimization measures to ensure that covered activities do not jeopardize listed or proposed plants or destroy or adversely modify designated or proposed critical habitat[1]. All covered activities are conducted in accordance with existing permits, easements, and agreements that allow the Partners to access and manage their enrolled lands. Covered activities do not include actions that pose significant environmental, socioeconomic, historic, or cultural impacts. If the monarch is listed 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 Consultation document (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 Agreement 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. Conservation measures cannot result in incidental take of other ESA listed animals, or must be conducted in compliance with the terms and conditions of existing incidental take statements (Section 7), or Section 10 permits. Partners will develop and implement avoidance and minimization measures to ensure that conservation measures do not jeopardize listed or proposed plants or destroy or adversely modify designated or proposed critical habitat[2]. All conservation measures are conducted in

[1] Critical habitat proposed or designated for plants or animals.

[2] Critical habitat proposed or designated for plants or animals.

accordance with existing permits, easements, and agreements that allow the Partners to access and manage their enrolled lands. Conservation measures do not include actions that pose significant environmental, socioeconomic, historic, or cultural impacts. If the monarch is listed 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 Consultation document (biological opinion). See Section 6 of this Agreement for additional detail and examples of conservation measures.

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 Agreement 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 Agreement 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 Agreement 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 (Enrolled Lands) for additional information.

Enrollment Period – An Applicant may enroll eligible lands in the Agreement 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 that occur substantially within the footprint of existing infrastructure and/or the accompanying lands that are maintained to support operations of that infrastructure. Examples include, but are not limited to, road surface repair, bridge construction and replacement, lane widening, interchange modification or construction within existing developed or maintained parcels and rights-of-ways, transmission line rebuilds, pipeline replacements, renewable energy infrastructure construction and modifications, and similar activities. By contrast, modernization does not include the construction of new infrastructure (or activities associated with the construction of that new infrastructure) on newly acquired, or previously undeveloped or unmaintained rights-of-way or parcels. Undeveloped land implies that the land has an absence of infrastructure. 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.

Notice of Noncompliance – A written notice from the Program Administrator 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 Agreement are the Service, Program 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 Agreement, the Program 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.

Program Administrator – The organization that will hold the EOS Permit issued in association with this Agreement, subject to Service oversight consistent with 50 CFR § 13.21(e)(2). The Program Administrator will maintain positions for program administration to facilitate enrollment of Applicants in the Agreement 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 covered activities or conservation measures as 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 are 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 (in Western and Southern states) 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, depending on the geographic location.

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 Program 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 Program Administrator, the Service, or their designee by the Partner in a timely manner prior to site access. Any and all representatives of the Program 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". Partners include 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 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.

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 Program 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 may trigger 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. However, under the ESA Section 10(a)(1)(A), the Service may issue a permit authorizing take of a listed species when the activities covered by the permit enhance the survival of the species (application requirements and issuance criteria for enhancement of survival permits and CCAAs are found in the Code of Regulations [CFR] at 50 CFR 17.22(d) and 17.32 (d), respectively).

This Agreement is associated with the Enhancement of Survival Permit issued to the UIC, as the Program Administrator. The Program Administrator is authorized to enroll eligible applicants[3] into the Agreement through Certificates of Inclusions (CI). Once an Applicant receives a signed CI, they formally become a

[3] Eligible applicants are non-Federal entities or organizations that manage lands associated with energy and transportation uses that are interested in participating in the Agreement and undertake the application steps detailed within Section 4.4 of 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.

Partner to the Agreement and commit to using conservation measures to maintain, enhance, and create monarch habitat on a portion of enrolled lands. Should the monarch be listed, incidental take on non-Federal lands[4] would then be covered by the Permit, and following reinitiation of intra-Service consultation, incidental take on Federal lands would be covered by a biological opinion. The current conference opinion may be adopted as the biological opinion if no significant new information is developed and no significant changes to the Federal action have been made that would alter the content of the conference opinion[5].

As required by its CCAA Policy, 81 FR 95164 (December 27, 2016), the Service has determined that the implementation of the terms of this programmatic Agreement is reasonably expected to provide a net conservation benefit to the monarch butterfly. The basis for this determination is set out in Section 12 (Expected Benefits) of this Agreement. 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 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 19 (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 Program 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 Agreement

This Agreement 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

[4] On non-Federal, enrolled Lands, the Permit provides assurances from the Service that additional conservation measures for the monarch above and beyond those explained in the Agreement will not be required, and that additional land, water, or resource use limitations will not be imposed on non-Federal, enrolled lands should monarch butterflies become listed as endangered or threatened under the ESA in the future.

[5] The conference opinion cannot be adopted as the biological opinion if significant new information is developed and/or if significant changes to the Federal action have been made that would alter the content of the conference opinion. Because the conference opinion is based on the best available science at the time of this decision, for the sake of this analysis regarding permit issuance, we will assume that the conference opinion will be adopted as a biological opinion if the monarch is listed. For the purpose of succinctness in the Agreement, we refer to take on Federal lands as authorized through the incidental take statement of the biological opinion.

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 Agreement 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[6]. 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 Agreement. This programmatic Agreement 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 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 Agreement) 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 CCAA for activities conducted on non-Federal lands and an integrated Conservation Agreement (CCA) for conservation measures and covered activities implemented on Federal lands. This Agreement includes both Federal and non-Federal lands to support its administrative and biological goals. Through the integrated Agreement, energy and transportation lands are eligible for enrollment across both Federal and non-Federal lands allowing for seamless and consistent management despite underlying land ownership. 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 Agreement 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

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

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 Agreement 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 Agreement 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). Survey data for the western North American monarchs documented past population sizes of up to 10 million (Pelton et al. 2019). 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. Portions of the Southern and Western U.S. populations 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, Pfeiler et al. 2016).

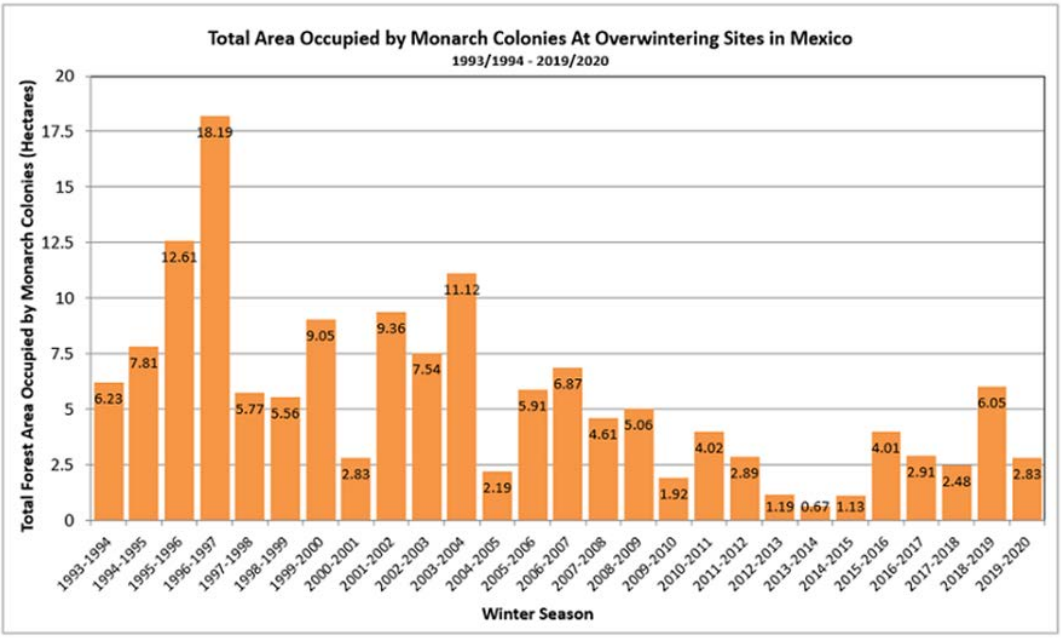


Figure 2-1. Area Occupied (in hectares) by Eastern North American Monarch Butterflies at Overwintering Sites in Mexico *Total area occupied by monarch colonies at overwintering sites in Mexico. Data from 1994-2003 were collected by personnel of the Monarch Butterfly Biosphere Reserve (MBBR) of the National Commission of Protected Natural Areas in Mexico. Data from 2004-2020 were collected by the World Wildlife Fund-Telcel Alliance, in coordination with the Directorate of the MBBR. 2000-01 population number as reported by Garcia-Serrano et. al (2004). Image Source: Monarch Joint Venture.*

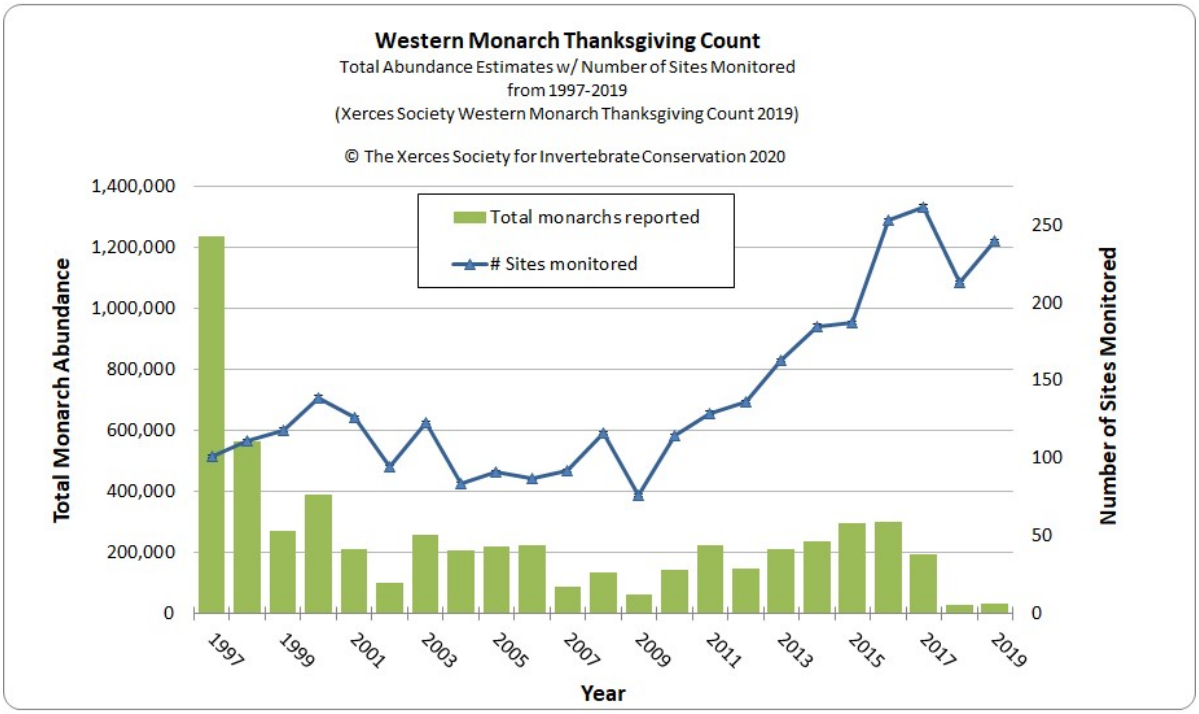


Figure 2-2. Thanksgiving Counts of Western North American Monarch Butterflies *Observed at Overwintering observed at overwintering sites (green bars). Blue line shows the number of sites monitored for a given year. Figure from the Western Monarch Count Resource Center (https://www.westernmonarchcount.org/data/; accessed 3 Feb 2020).*

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 nectar on various flowers and lay eggs on, and when immature, feed exclusively on milkweed species (*Asclepias spp.*). The presence of both floral and milkweed 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 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 Program Administrator, and Partners (Figure 3-1).

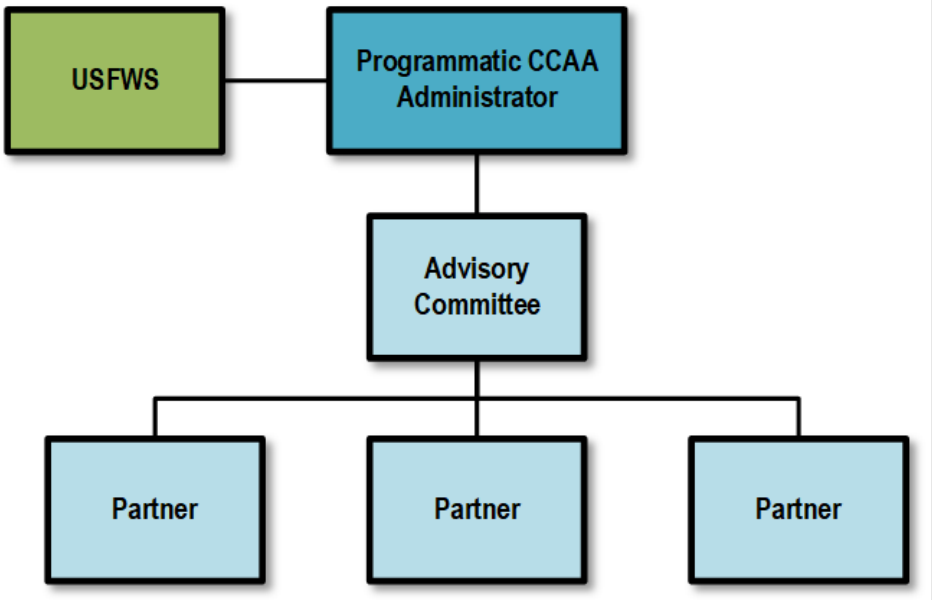


Figure 3-1. The Relationship of Parties Included within the Agreement.

3.1 The Program Administrator

The Program 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 Program Administrator will maintain positions

for program administration to facilitate enrollment of Applicants in the Agreement and distribute information for conservation efforts through coordination with other state and Federal agency staff and outreach to Partners and landowners. The Program 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 Agreement for the monarch butterfly. In December 2017, UIC initiated facilitation to support the development of a collaborative Agreement 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 who 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.

3.4 Advisory Committee

The purpose of the Advisory Committee is to provide collaborative support to the Program Administrator so that they can implement the Agreement and make decisions based upon informed guidance and recommendations of enrolled Partners. The Program Administrator will be the primary decision maker regarding participation in the Agreement, using the informed perspective of Advisory Committee Members enrolled and in good standing. This committee will support the Program Administrator in the decision making process and will review, discuss, and advise on questions that arise over the duration of the Agreement. The Advisory Committee will be expected to adhere to the terms and conditions of the committee bylaws. Upon request of the Program Administrator, the Advisory Committee will provide decision support related to enrollment approval, modifications or amendments to the Agreement, termination/suspension/transfer of Partners under the Agreement, or other topics requiring consideration.

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 under Federal ownership 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 Federal lands, but Partners receive incidental take coverage and 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.

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). The scope of the covered area excludes documented overwintering sites such as overwintering groves along the California coast, and other documented overwintering sites, and

requires specific conservation measures within one mile buffers of these documented areas[7]. The Western North American population primarily overwinters in groves along the coast of California and Baja California (Jepsen and Black 2015, p. 149). The location and structure of these sites provide the specific microclimate needed for survival in the Western overwintering areas. These groves are populated by a variety of tree species, including blue gum eucalyptus (*Eucalyptus globulus*), Monterey pine (*Pinus radiata*), and Monterey cypress (*Hesperocyparis macrocarpa*; Griffiths and Villablanca 2015, pp. 41, 46-47), all of which act as roost trees. Conservation actions to maintain these areas are critical, however these forested groves are outside the scope of this Agreement, which specifically addresses early successional grassland habitat that supports blooming nectaring plants and milkweed species. However, maintaining nectar resources nearby these forested groves is important, especially between October 1st and March 1st.

In Arizona, Nevada, and parts of southern coastal California (e.g., San Diego County), some monarchs are present on the landscape year-round. Instead of migrating to overwinter and congregate in coastal groves, monarchs remain scattered on the landscape or in small aggregations where there are nectar and shelter resources. Blooming nectar resources are often limited from October to March, and maintaining the availability of these resources is essential to the persistence of the Western monarch population. Partners with enrolled lands in these locations are encouraged to maintain nectar resources during these months. As with coastal over winter monarchs, specific conservation measures are required within one mile of documented winter aggregation sites.

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).

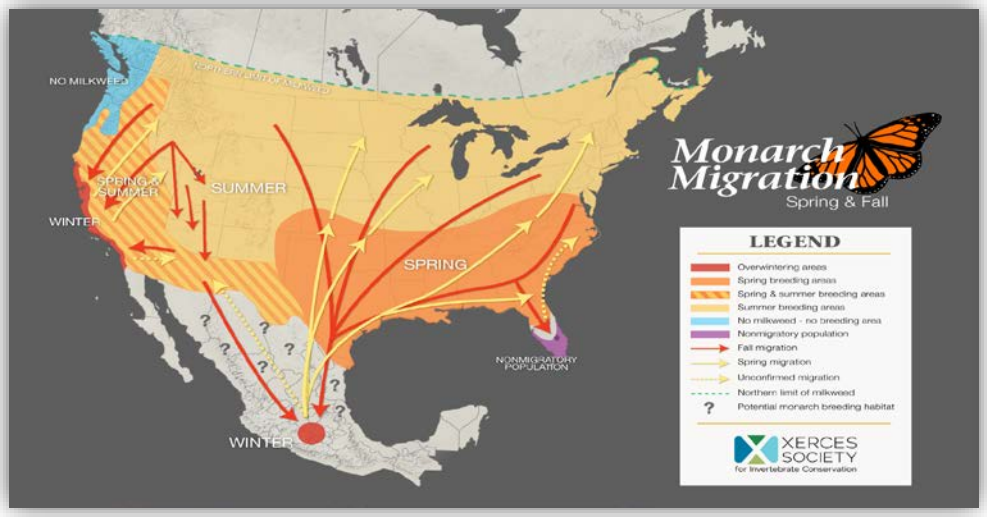


Figure 4-1. North America Monarch Migration Map *The migratory, non-migratory, breeding, and overwintering range of the monarch butterfly within the lower 48 states of the continental U.S. (Xerces Society 2018a).*

[7] These over wintering sites are tracked by the U.S. Fish and Wildlife Service and the Xerces Society for Invertebrate Conservation. Identified locations can be found by contacting the Xerces Society (monarchs@xerces.org) and/or accessing information on their website at https://www.westernmonarchcount.org/Migratory monarchs.

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 (Enrollment Process) must be completed by the effective date of the final rule except as provided by Section 4.3 (Post-listing Enrollment). This process aligns with Service guidance "Guidance for Completing the Enrollment Process for Programmatic or Umbrella Candidate Conservation Agreements with Assurances (CCAAs) after a Species is Listed" dated June 30th, 2015.

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 9.9 (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 Program 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 enrolled Partners (one with a Certificate of Inclusion), including lands acquired post-listing, can be added, transferred, or removed, to/from the existing enrolled lands as a modification to the Certificate of Inclusion (as explained in Section 9.2) 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 to UIC and the Service 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 Program Administrator to discuss enrolling eligible lands. The Applicant shall provide Program Administrator with sufficient information regarding the property or lands it seeks to enroll for Program 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 (Adoption Rates) for more information.
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 (acres where conservation measures will be applied and suitable monarch habitat will be provided, see "definitions"), the estimated acres encompassed by them, and the applicable adoption rate(s), to be enrolled in the Certificate of Inclusion (see Appendix B).

b. The covered activities, conservation measures, and relevant geographies to be included for take authorization and defined in the Certificate of Inclusions. Note: it's in a Partner's best interest to be strategic and specific about the activities and geographies enrolled, so it is clear what activities are covered for incidental take (and therefore what activities this Agreement establishes a Federal nexus for and therefore additional required compliance with other Federal, State, and local laws.)

c. A map(s) or GIS files of the extent of lands proposed for enrollment that identifies areas by fee simple, easement, leasehold, or other property interest.

d. 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 6.2).

e. A description of conservation measures that will be committed to in the Certificate of Inclusion, and how those conservation measures will be implemented in a way that addresses key threats for the species. Applicant will also describe how adaptive management will be applied to conservation measures, including a definition of thresholds that will result in management adjustments. Applicant will also generally describe the places or opportunities throughout their lands where conservation measures will be applied and any anticipated constraints to implementing the conservation measures described in Section 6 (Conservation Measures).

f. 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. Note: For Certificate of Inclusion approval, Applicants that include a 'ramp up' timeframe, will also include a timeframe that includes a commitment duration demonstrating the full adoption rate and NCB intended within the Agreement for at least 5 years at the full adoption rate (Section 9.5).

g. A short description (1-2 paragraphs) summarizing existing information on habitat availability on enrolled lands, and their current or potential suitability.

h. A summary of any constraints that limit conservation measure implementation or ability to address key threats.

i. The proposed schedule for effectiveness monitoring as described in Section 14 (Monitoring Provisions).

j. Acknowledgement that, as a Partner, an individual CCAA/CCA implementation plan (implementation plan) will be completed within one year from the date of their fully executed Certificate of Inclusion. An 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, adaptive management, 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),

        > Approach to conducting sampling for effectiveness monitoring,

        > 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).
- How they plan on using best management practices and guidance available on the Monarch Agreement Implementation Toolbox website.

An existing integrated vegetation management (IVM) plan (if consistent with conservation measures proposed in the application and includes all information listed above) may suffice for this description, or provide the basis for one.

k. Information needed by the Service to ensure that actions carried out under the Agreement will not jeopardize any listed or proposed species or destroy or adversely modify designated or proposed critical habitat. This will include:

   i. A full list of the endangered, threatened, and proposed species that may occur within the extent of enrolled lands and of any designated or proposed critical habitats that overlap with those lands.

   ii. Specific measures that the Partner will use in conjunction with their implementation of the covered activities and monarch conservation measures to avoid or minimize effects to each of the plants and critical habitats (for plants and animals) on the list.

   iii. See *Guidelines for Section 7 Consultation Application Requirements for Certificate of Inclusion Applicants* in the Agreement Toolbox for detailed guidance on these two steps.

l. 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 protocol for complying with Section 106 of the National Historic Preservation Act is included as part of Appendix C (Supplemental Information), and

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

This information will be used to process and prioritize the application's review by the Program 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 Program 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 Program Administrator. 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 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 (Conservation Measures) for more details.

3. Application Review: The Program Administrator will prioritize applications (if necessary) received by application date, by the expected net conservation benefit, and other decision factors determined by the Program Administrator, if applicable (see Section 4.5). The Program Administrator will review applications and be responsible (with support from the Agreement Advisory Committee as explained in

Section 3.4 and the Service, as warranted) for the final decisions on application approvals. The Service will review applications to confirm consistency with the intra-Service Section 7 consultation.

4. Certificate of Inclusion Issuance: Once the individual application is verified for completeness and in line with the expectations of this Agreement, the Program 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 Consultation document. Upon signature of the Certificate of Inclusion by both the Applicant and the Program 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. The Program Administrator will provide the Service a copy of the signed Certificate of Inclusion and application within 30 days of the issuance of the Certificate of Inclusion. Within 90 days from the date the Applicant executes the Certificate of Inclusion, the Applicant will remit to the Program Administrator, the administrative fees as described elsewhere in Section 17 (Administrative Fees).

In most cases, Applicants are expected to consist of single companies or 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) All Partners in the consortium are named Applicants and named permittees on the Certificate of Inclusion; and understand that all are responsible for maintaining compliance (i.e., if one consortium member is out of compliance, all members are out of compliance,

b) One Applicant in the consortium is designated the point of contact and Certificate of Inclusion administrator for the consortium. This contact can act as the consortium administrator in relation to the subsidiary Applicants and be responsible for tracking and demonstrating overall consortium compliance, and compliance of each of the consortium members,

c) The enrolled lands and adopted acres estimated account for the full extent of all Applicants included,

d) All other application requirements can be provided for all subsidiary Applicants, and

e) 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. Applying as a consortium is one way Partners can work together closely to find efficiencies in monitoring and applying conservation measures.

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.

4.5 Prioritizing Applications

If necessary, the Program Administrator will prioritize applications on the basis of the following criteria:

1. **Application date** – First, applications will be reviewed in the order with which they are received.
2. **Expected net conservation benefit** – If two applications are received on the same day, the application providing a higher net benefit will be reviewed first. Net benefit will be evaluated by:
    a. Amount of adopted acres, i.e., larger amounts of adopted acres will receive priority

b. Ability to address regions of higher conservation need, i.e., applications that address regions of higher conservation need (such as applications that benefit Western monarchs, which are declining rapidly) will receive priority.

3. **Support during Phases of Agreement Development** – Further prioritization will occur based on previous Applicant support. After considering the two previous priority factors, Applicants that supported UIC during development of the Agreement during Phase 1 (Initial Draft Agreement Preparation), Phase 2 (Agreement Review and Finalization), and/or Phase 3 (Early Implementation Transitioning) will be considered in the next tier of prioritization. In order of consideration will be:

    a. Applicants that have supported Phases 1, 2, and 3

    b. Applicants that have supported 2 of 3 phases

    c. Applicants that have supported only one phase

4. **Other decision factors determined by the Program Administrator** – Last, as applications are reviewed, other factors may affect the Administrator's decision on which applications to prioritize. Other factors may include program-specific considerations such as application completeness, receipt of payment, or modifications required to authorize the Certificate of Inclusion. Applications requiring additional information or corrections may be temporarily lowered in priority in order to allow other applications to be processed while the Administrator awaits a response from Applicants. Upon receipt of the required information, UIC will re-instate the priority of the application according to the first two prioritization criteria (date received and net benefit).

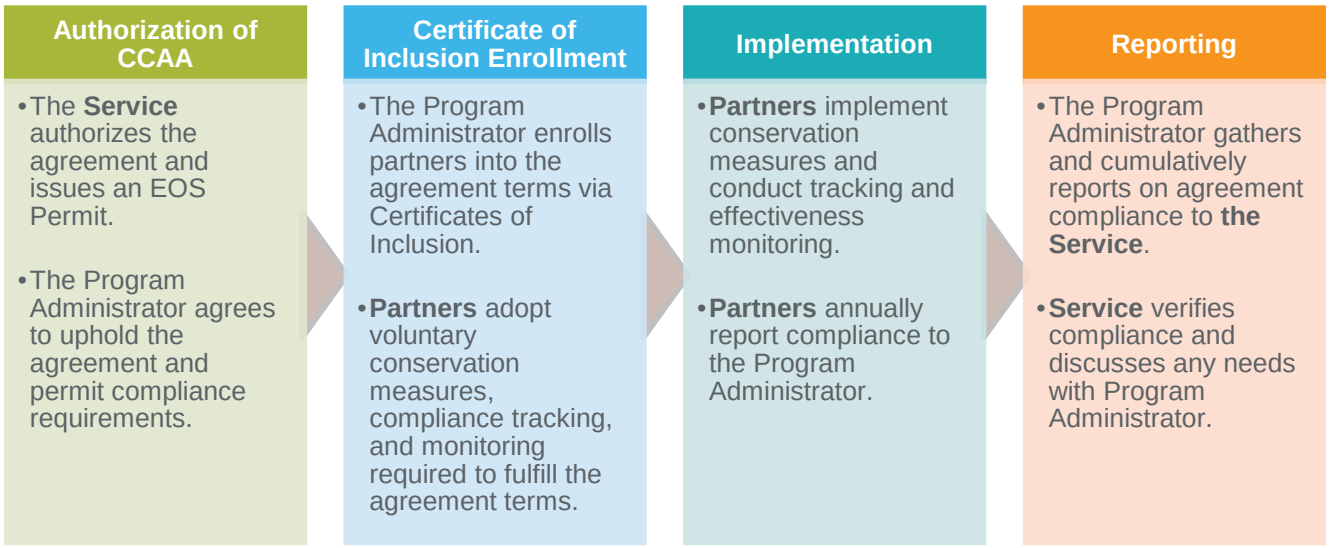


Figure 4-2. Overview of the Agreement Implementation

4.6 Changes to Enrolled Lands

After the Certificate of Inclusion's effective date, Partners and the Program 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 Program Administrator, and Service, will ensure enrolled lands are within the context and limits of the program consultation and that net conservation benefit is still being met. The Program 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 Program Administrator as a modification to the Partner's Certificate of Inclusion (Section 9.2). 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. Section 9.2 (Modification of Certificates of Inclusion) explains modifying enrolled lands through changes to Certificates of Inclusion in detail.

4.7 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 Agreement.

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. Vegetation management, as a conservation measure or covered activity, can be included on these parcels. However, covered activities do not include the construction of new infrastructure (or related activities) on newly acquired, or previously undeveloped or unmaintained rights-of-way or parcels not associated with existing infrastructure. See Section 5 (Covered Activities) for additional details.

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.

4.7.1 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-way 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 and the Program Administrator will work with Partners to ensure adopted acres aren't double counted.

4.7.2 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.

4.7.3 Electric Generation Sites

Electric power generation constitutes land managed for the generation of electricity and includes acreage surrounding power plants and substations, along with 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. Vegetation management on these parcels are covered under this Agreement to manage and maintain lands as monarch habitat. Construction of new infrastructure (or related activities) on newly acquired, or previously undeveloped or unmaintained parcels not associated with existing infrastructure is outside the scope of what is defined as modernization, and thus, are not covered activities in this Agreement (Section 5, Covered Activities).

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 6.2). These sites may not be appropriate for enrollment in the Agreement. 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 for specific parts of the system.

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, and these concerns can be addressed through education and outreach to neighbors.

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 Agreement since the key threats are outside the control of the Partner.

4.7.4 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 a 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.

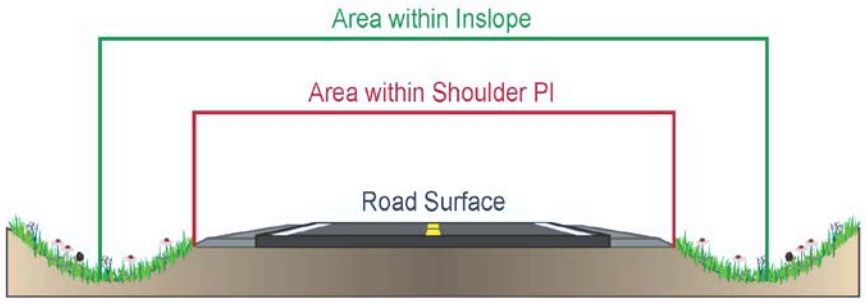
Oil and Gas Distribution

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. Depending on the extent of natural land cover potential on the system, areas with little or no potential for monarch suitable habitat (e.g. highly urbanized lands, or open water) may not be appropriate to enroll in the Agreement.

4.7.5 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.



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.

Figure 4-3. Operational Rights-of-Way Zones Used for Initial Categorization of Activities.

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.

Determining the appropriate adoption rate (See Section 6.2) depends more so on the functional characteristics than the designated categorization of the highway or road system. Access-controlled, or larger highway systems with wider shoulders are typically treated as the adoption rate applicable to interstates and highways. In contrast, roads with narrow shoulders and not access-controlled may fall under the adoption rate intended for county and local roads. The Partner will clarify how they've categorized their road system within their Certificate of Inclusion application.

Access-controlled Highways (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, or managed as limited-access highways. 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. Research suggests that monarch mortality due to collisions increases significantly during fall migration, especially where the species is concentrated during fall migration (McKenna et al. 2001; Kantola et al. 2019; Tracy et al. 2019). 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 and the width of roadside habitats (Munguira and Thomas 1992;

Ries et al. 2001; Skórka et al. 2013). A recent study on how two-lane roads in Poland (50-100 vehicles per hour) affected the structure of butterfly communities in grassland patches (Skórka et al. 2018) found that:

1. Grassland patches located near roads were at least as good of habitat for butterflies, and as comparable in quality, to reference grassland patches,
2. The roads created a gradient of local environmental conditions that increased variation in the abundance of certain species and perhaps increased total species richness in grassland patches located along roads, and
3. The impact of roads on butterflies was at least partially independent of the effect of plants on butterflies. In other words, the direct impact of road mortality was 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

The term “covered activities” refers to certain activities (described below) carried out on enrolled energy and transportation lands that are reasonably certain to cause take of monarch butterflies by removing or disturbing milkweed or flowering nectar resource (during the time of year when monarchs are present), or by taking monarchs directly, consistent with the Agreement and Permit during the term of the Certificate of Inclusion. Covered activities include general operations, routine maintenance and modernization of infrastructure on enrolled lands, and occur in areas suitable for monarch butterfly habitat (low-growing, early successional vegetation with milkweed or flowering plants used by monarchs for nectar). These activities may take monarch butterflies by removing or disturbing milkweed and blooming flowering nectar resources, or by killing immature or adult butterflies. If these activities are performed in compliance with the Agreement and Certificate of Inclusion, all applicable Federal, state, and local statutes and regulations, then any ‘take’ of monarch butterflies that may occur as a result of those activities is authorized under the Permit and Certificate of Inclusion or the programmatic biological opinion.

Covered activities cannot result in incidental take of other ESA listed animals, or must be conducted in compliance with the terms and conditions of existing incidental take statements (Section 7), or Section 10 permits. Partners will develop and implement avoidance and minimization measures to ensure that covered activities do not jeopardize listed or proposed plants or destroy or adversely modify designated or proposed critical habitat[8]. All covered activities are conducted in accordance with existing permits, easements, and agreements that allow the Partners to access and manage their enrolled lands. Covered activities do not

[8] Critical habitat proposed or designated for plants or animals.

include actions that pose significant environmental, socioeconomic, historic, or cultural impacts. If the monarch is listed 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. To ensure that an activity is covered for the incidental take of monarch butterflies, please reference the Covered Activities Checklist at the end of this chapter.

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 monarch habitat for most impacts along energy and transportation lands. Other covered maintenance and modernization activities may yield some amount of permanent monarch habitat loss in certain areas. However, these are minor losses in comparison with the conservation benefit gained by habitat maintained, restored, and enhanced annually through conservation measures (Section 6. Conservation Measures). Vegetation management is a component of these activities to maintain low-growing vegetation for safety, reliability, emergency response, and security. The intent of this Agreement is to encourage management of energy and transportation lands, and maintenance and modernization activities, in a way that is beneficial for monarch butterflies.

This programmatic Agreement is intended to cover a suite of activities across a number of transportation and energy sectors. Below we've described the kinds of general operations, maintenance, modernization, and vegetation management activities that may be covered by this Agreement. These examples provide a scope for the types of activities that could be covered; however, we anticipate there may be comparable activities that meet the criteria for a covered activity (see checklist below) but are not explicitly listed as an example.

Construction associated with maintenance and modernization of existing infrastructure[9] (for example, road, power line, energy substation, bridges, building, etc. on enrolled lands) may be a covered activity if it occurs substantially within the footprint of existing infrastructure and/or the accompanying lands are maintained to support operations of such infrastructure. For example, modernization could include construction of a rest stop within the rights-of-way of a road, or the widening or addition of energy substations in existing transmission corridors, that exist on enrolled lands. By contrast, modernization does not include the construction of new infrastructure (or activities associated with the construction of that new infrastructure) on newly acquired, or previously undeveloped or unmaintained rights-of-way or parcels. Undeveloped land implies that the land has an absence of infrastructure. Once infrastructure is constructed independent of this Agreement, the ongoing operation, maintenance, modernization, and vegetation management activities may be covered activities.

Covered activities include the general operations, routine maintenance, and modernization activities described below **and must meet all the criteria in the Covered Activities Checklist at the end of this chapter**.

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

[9] Throughout this chapter, we refer to existing infrastructure as a way of distinguishing types of modernization included as a covered activity in this Agreement. In this context, 'existing' refers to developed rights-of-way structures and related infrastructure enrolled in the Certificate of Inclusion. The maintenance and modernization of new roadways, pipelines, and facilities may be included in the Agreement after the full project (all phases) have been completed with the appropriate permitting (separate from this Agreement) for that new development.

requirement for rights-of-way as they are routinely accessed for inspections, construction, maintenance, and emergency prevention and response. The following categories of activities are included in this group.

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 is not limited to, vehicle operation and access along enrolled lands 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 is not limited to, periodic grading and vegetation clearing; fence and guardrail repair or replacement; bridge maintenance; 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. This also includes 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 Maintenance and Modernization construction activities

Maintenance and modernization construction activities on existing energy and transportation lands address 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 (that is, modernization) of the infrastructure on rights-of-way and parcels.

Maintenance and modernization activities include the types of activities described below. These are examples of the types of activities that could be covered; **however, to be covered they must meet all of the criteria in the Covered Activities Checklist at the end of this chapter**.

Infrastructure maintenance includes structural repairs, replacement, and maintenance. 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. This also includes pavement repair, mill and overlays, shoulder repairs, painting and striping, guardrail installation or replacement, signage and lighting installation or replacement, manhole/inlet cleaning, installation and maintenance of curb and gutter, culverts, bridges and piers, scour aprons, cattle grates, and similar structures.

Facilities management and maintenance includes vegetation maintenance such as mowing, invasive weed control, and other maintenance on ash landfills, stormwater management facilities, mitigation sites[10], and undeveloped lands, as well as routine vegetation maintenance of developed lands such as mowing and invasive weed control. It also includes the maintenance of buildings, facilities, and structures on service

[10] Management of permittee responsible mitigation lands in the Agreement may be incorporated as 'adopted acres' provided 1) the Permittee has authority and control over that property and the ability to provide the appropriate conservation measures to create monarch habitat, and 2) the permittee isn't already required to maintain that area as habitat specifically for monarchs. Meaning, they would have to go beyond what is already required as mitigation to add milkweed and nectaring flowers for monarchs.

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 the use of construction matting or other access pads in wetlands, waterway crossings or other environmentally sensitive areas. Temporary staging and storage areas are removed within three years and vegetation is typically restored following construction.

Facility repairs, upgrades, and replacement associated with existing infrastructure include planned or emergency repair, replacement, and upgrades to existing facilities (for example, to replace components that have reached the end of their useful life), and replacement of existing facilities. This includes, but is not limited to, construction or rebuilding 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. This also includes pavement replacement; roadway 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 in association with existing roadways/infrastructure, such as rest areas, roundabouts, interchanges, truck escape ramps, weigh stations, spoils disposal or waste management areas, and similar facilities.

Covered activities also include facility construction and building maintenance, including small buildings, lighting, and storage areas associated with existing infrastructure; stormwater facilities maintenance; grading and excavation; installation and maintenance of erosion control BMPs, site clean-up and restoration, including grading and reseeding occurring substantially on lands previously used for operations and maintenance purposes.

5.3 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 (for example 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 (for example 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 on 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 that a "covered activity" is conducted within suitable habitat and in a manner that is expected to negatively impact monarchs. This includes vegetation management activities such as targeted broadcast application of herbicides in areas of suitable habitat, mowing 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 side trimming, pruning, 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.

5.4 Covered Activities Checklist

This programmatic Agreement includes a number of sectors and industries, each with their own maintenance and modernization activities. The checklist below is a tool to determine what projects fit the definition of a covered activity. The checklist is not intended to be used to facilitate reporting, only to communicate the criteria an action or project must meet to be considered a "covered activity" for the purposes of this Agreement.

The following list will help Partners determine if their projects or activities are "covered activities" under this Agreement. All criteria (checkboxes) must be met for an activity to be considered covered. However, it is not intended that each Partner document a checklist for each activity conducted. Instead, if requested by the Program Administrator or USFWS, the Partner needs to simply be able to demonstrate that the checklist criteria were met for the activity receiving coverage.

If an activity is covered, any take of monarch butterfly because of that activity is authorized under a Partner's Certificate of Inclusion, and associated EOS permit. If it's not reasonably certain that an activity could take monarch butterflies by removing or disturbing milkweed or flowering nectar resources (during the time of year when monarchs are present), or by taking monarchs directly, there is no need to complete the checklist. The activity is not considered to likely result in take, and therefore, is not applicable to the Agreement.

Check box if "yes":

- ☐ The activity is reasonably certain to take monarch butterflies through effects to habitat (for example, impacts to open habitats that may include milkweed, nectar plants, or both while monarchs may be present on the landscape), or directly to individuals (for example, harm or mortality of eggs, larva, or adults).

If the previous criterion is not met, there is no need to review the remaining criteria to determine whether the activity would warrant coverage under the Agreement, the EOS permit, or the Certificate of Inclusion; the activity is not expected to take monarch butterflies or their habitat and its distinction as a covered activity under the CCAA is not warranted. Activities that do not meet the definition of a covered activity or a conservation measure are outside the scope of the Agreement and would not be authorized by the EOS permit.

- The activity is being conducted in compliance with all applicable local, State, Tribal, and Federal laws, regulations, and ordinances. This includes ensuring that all applicable authorizations or permits have been, or will be, obtained before the project or action occurs.
- The activity is located within enrolled lands and occurs substantially within the footprint of existing infrastructure and/or the accompanying lands maintained to support operations of that infrastructure. The activity does not include construction of new infrastructure on, previously undeveloped or unmaintained rights-of-way or parcels (construction on undeveloped lands is not a covered activity).

The activity is not reasonably certain to cause take of federally listed or proposed wildlife species, other than monarch, *unless that take is covered under another existing Section 7 consultation or Section 10 Permit*. For actions that are not covered under another Section 7 consultation or Section 10 Permit, there is an information basis on record to support at least one of the following conclusions:

- No listed or proposed animal species are likely to be exposed to the activity directly or to any stressors[11] generated by the activity.
- One or more listed or proposed animal species may be exposed to the activity directly or to one or more stressors[12] generated by the activity, but that exposure will *not* result in the incidental take[13] of one or more individuals. For technical assistance, contact the local USFWS Ecological Services field office (https://www.fws.gov/offices/). Note that USFWS field offices will not be expected to provide explicit or written concurrence or non-concurrence with the Partner's determination as to whether or not an activity is reasonably certain to result in the take of a listed or proposed species of fish or wildlife. They will be available to provide technical assistance to Partners to help them make this determination.
- For actions that are not covered by a separate section 7 consultation, the activity incorporates all avoidance and minimization measures attached to the Certificate of Inclusion that are applicable to any listed or proposed plant species, or Federal designated or proposed plant or animal critical habitat that is likely to occur in the action area or that overlaps with the action area, respectively. For technical assistance, contact the local USFWS Ecological Services field office (https://www.fws.gov/offices/). Action area means all areas to be affected directly or indirectly by the action and not merely the immediate area involved in the action.

[11] A stressor is any physical, chemical, or biological alteration (i.e., increase, decrease, or introduction) of the environment (or resource) that can lead to a response from the individual. Stressors can act directly on an individual, or indirectly through impacts to resources.

[12] For additional guidance, see https://www.fws.gov/endangered/esa-library/pdf/Guidance-on-When-to-Seek-an-Incidental-Take-Permit.pdf.

[13] Section 9 of the ESA prohibits "take" of endangered wildlife species. The term "take" means to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct" (16 USC §1532(3)(19)). The term "harm" is defined to include any act "which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering" (50 CFR § 17.3). The term "harass" is defined as "an intentional or negligent act or omission which 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" (50 CFR § 17.3).

- The activity is conducted in accordance with the Section 106 protocol in Appendix C and is (as required) coordinated with the Service, State Historic Preservation Offices, and Tribal Historic Preservation Officers to assist the appropriate Federal Agency in fulfilling the requirements of Section 106 of the National Historic Preservation Act, 16 U.S.C. § 470f, and its implementing regulations at 36 C.F.R. part 800. Compliance with Section 106 may require cultural surveys of areas affected by your project and implementation of measures to avoid, minimize, and mitigate adverse impacts to historic properties.
- The activity will not significantly impact any national park, recreation or refuge lands; wilderness areas; wild or scenic rivers; national natural landmarks; sole or principal drinking water aquifers; prime farmlands; wetlands (Executive Order 11990); floodplains (Executive Order 11988); national monuments; migratory birds (Executive Order 13186); or other ecologically significant or critical areas under Federal ownership or jurisdiction.
- The Partner is currently in compliance with the requirements such that monarch habitat is provided on adopted acres in accordance with the Partner's Certificate of Inclusion, and associated tracking, monitoring, reporting, and other requirements of the Agreement.

Partners enrolled under this Agreement will determine the applicability of the covered activities to the criteria described above. If and when requested by Partners, the Program Administrator can verify coverage of activities according to the scope and criteria described in this section.

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 described in this section address the key threats on energy and transportation lands by increasing milkweed and blooming nectar plants, enhancing habitat and nectar resources, and reducing the 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 a 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, *Bombus affinis*). 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.

Conservation measures cannot result in incidental take of other ESA listed animals, or must be conducted in compliance with the terms and conditions of existing[14] incidental take statements (Section 7), or Section 10 permits. Partners will develop and implement avoidance and minimization measures to ensure that conservation measures do not jeopardize listed or proposed plants or destroy or adversely modify designated or proposed critical habitat[15]. All conservation measures are conducted in accordance with existing permits, easements, and agreements that allow the Partners to access and manage their enrolled lands. Conservation measures do not include actions that pose significant environmental, socioeconomic, historic, or cultural impacts. Similar to covered activities, conservation measures applied under this Agreement must also comply with Section 106 of the NHPA, however most conservation measures do not have potential to affect historic properties or cultural sites and may be exempt (See Supplemental Information C.I. Section I).

6.2 Adoption Rates

6.2.1 Adoption Rates

Adoption rates, for the purposes of this Agreement, are the percent of enrolled lands in which Partners apply conservation measures to enhance, restore, and maintain monarch butterfly habitat annually. Although Partners are encouraged to apply conservation measures throughout enrolled lands, the adoption rate is the minimum number of acres that must provide monarch habitat in order to participate in the Agreement. These adoption rates 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, and for the purpose of establishing conservation goals for, the Agreement. Thogmartin et al. (2017) developed conservation adoption rates targeting sufficient numbers of milkweed stems 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. For rights-of-way sectors, the MAMCS adoption rates generally range from 2 to 25 percent across energy and transportation lands, although some high-end estimates of adoption rates were assumed to be as much as 50 percent (MAFWA 2018). The MAMCS defines their "adoption rates" as the percent of each land cover type that might implement practices that would result in improved milkweed stem density.

Within this Agreement, adoption rates 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 minimum *percentage of total enrolled lands* on which conservation measures are annually implemented to create, enhance, restore, sustain, or maintain habitat for monarchs. The habitat on adopted acres support 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.

The Agreement's adoption rates reflect the range of landscapes, management abilities, and constraints facing each individual sector. Potential Partners representing multiple sectors and geographic regions developed the adoption rates in the Agreement, which are slightly different from those in Thogmartin et al. (2017), and MAMCS (2018). Thogmartin et al. (2017) focused on the Midwest, but Partners will implement

[14] Section 10 permits or Section 7 incidental take statements that exist, or obtained, prior to activities being conducted under the Agreement.

[15] Critical habitat proposed or designated for plants or animals.

the Agreement throughout the 48 contiguous States. Therefore, the adoption rates in the Agreement are intended to reflect variation in ecological conditions across the plan area.

The Agreement's adoption rates rely on acres of habitat and Partners will maintain and/or increase the occurrence and availability of milkweed and nectar resources (depending on geographic location) on adopted acres. Partners will monitor the adopted acres to determine the effectiveness of their conservation measures, and how adopted acres contribute to the net conservation benefit provided by the Agreement. For Eastern and Midwestern states[16] adopted acres are anticipated to support milkweed densities of at least 150 and 156 stems/acre[17] in the energy and transportation sectors, respectively (see Figure 6-1). These reflect biologically reasonable targets for rights-of-way in each sector based on expert input elicited by Thogmartin et al. (2017, Supplement 3). However, outside of the Midwest and the Eastern U.S., ecological factors, such as low precipitation, lack of rhizomatous milkweed species, or both may limit milkweed stem density. In those areas, we expect the Partners to take actions to maintain or increase milkweed densities on adopted acres to at least 58 stems per acre, but they may not be able to meet the criteria for the Midwest and Eastern states. In Western and Southern regions, suitable habitat may also be demonstrated by the presence of at least 10% cover of nectar plants.

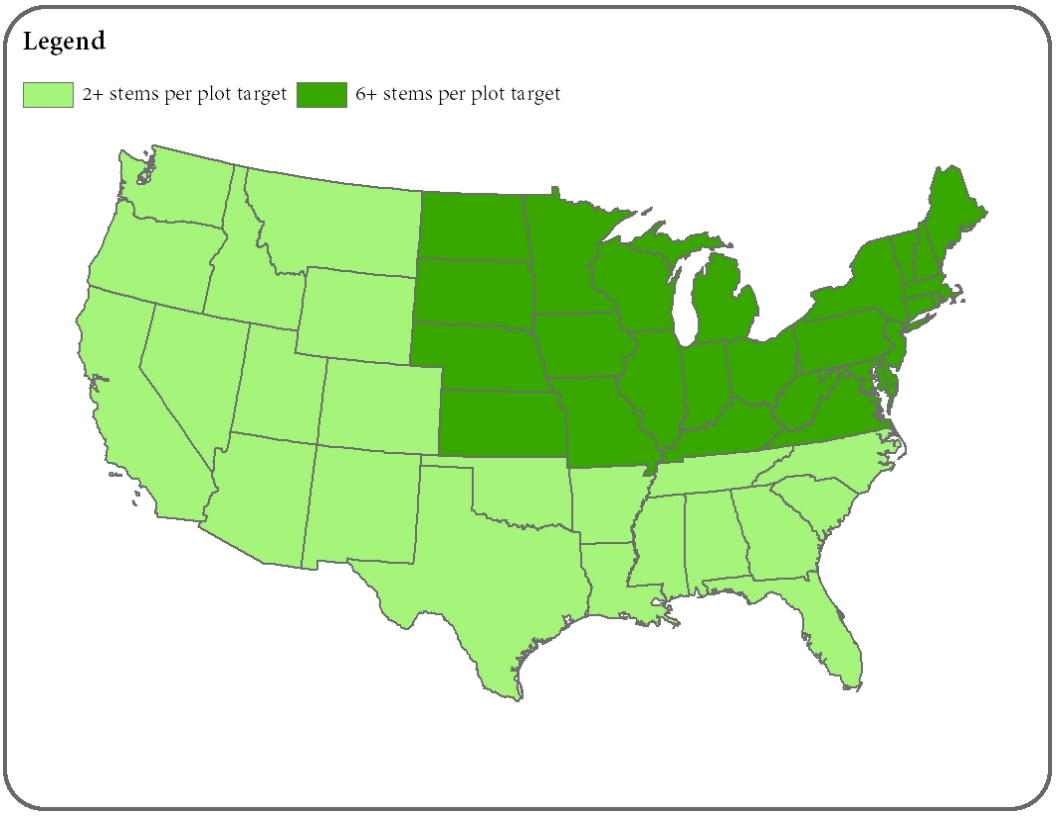


Figure 6-1. Geographic extents of minimum milkweed stem targets within the Agreement.

The success of conservation measures will be monitored (see Section 14.2, Biological Monitoring). If determined to lack effectiveness as a result of monitoring, practices will be adjusted as needed to achieve habitat targets (see Section 10 Adaptive Management). The approach used to define adoption rates is

[16] Midwest and Eastern US refers to CT, DE, IA, IL, IN, KS, KY, MA, MD, ME, MI, MN, MO, NE, ND, NH, NJ, NY, OH, PA, RI, SD, VA, VT, WI, and WV.

[17] Where stems include milkweed stems separated by soil regardless of whether they are clonal or genetic individuals (Cariveau et al. 2019, p. 5; Kasten et al., 2016; CEC, 2017).

summarized in more detail within Appendix C (Supplemental Information), the adoption rate 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 By Sector	Transmission	Distribution	Generation	Highways (Interstate, U.S., State)	Roadways (County, Local)	Rail
Agreement Adoption Rates	18%	1%	9%	8%	5%	5%

Applicants will summarize the full extent, estimated acreage, and provide mapped extent 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, however coordination among Partners is crucial to ensure adopted acres aren't double counted. 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, so that it can be accounted for by the Program Administrator. 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 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 (and reported in annual compliance reports).

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 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 will first re-evaluate the extent of enrolled lands to be more strategic and specific regarding which lands are enrolled. Applicants should 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, or otherwise unvegetated, lands that have minimal, or no, potential for milkweed or nectar plant habitat. In these re-evaluations, the Service may be asked to provide technical assistance, including recommending geographic areas with the greatest conservation potential for monarchs. After re-evaluating, if the Applicant is still unable to meet established adoption rates, they may 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.

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 Program 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.
- A description of how the applicant re-evaluated the extent of enrolled lands, and why adoption rates were still unachievable after removing areas that have minimal, or no, potential for milkweed or nectar plant habitat.
- 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 level of anticipated incidental take of monarchs using a methodology provided by, or equivalent to, the Program Administrator and the Service.

Variance applications should include the completed form in Appendix C (Supplemental Information) to identify the estimated adoption rate that can be provided.

Any application containing a proposed variance will be reviewed for completeness and confidence in the constraints presented. The Program Administrator, Service, 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 Agreement 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 Program 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 **within the Agreement**
- 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 Program 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 Program Administrator, working with the Advisory Committee and Partners, to establish clear, measurable targets for such recognition of added conservation. As necessary, the Program 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 Implementing Conservation Measures on Easements

This Agreement improves habitat for monarch butterflies by leveraging the existing integrated vegetation management (IVM) practices already implemented across the energy and transportation sectors. Conservation measures that Partners commit to under this Agreement are often variations of actions that may already occur. However, the conservation measures are structured in a way that promotes approaches to these routine activities in a manner that improves monarch habitat by minimizing the key threats identified for monarchs (See Section 2 Background and Purpose).

As stated elsewhere in the Agreement, Partners enrolling fee-title owned lands retain full control to address the identified threats to monarchs through these conservation measures. However, on enrolled easement or leased lands, the Partner does not retain full property rights. In these instances, the underlying landowner may retain ultimate control of how they manage the lands within the easement. Each relationship on easements between Partners and underlying landowners is dictated by the land-rights agreement in place for that parcel. Nothing in this Agreement changes or alters those agreements, or the property rights of the Partner or underlying landowner.

To address the network of easement land rights, compliance with environmental laws and regulations, as well as State laws and individual Partner policies related to work on easement lands, this Agreement directs the Partner to maintain a context-specific approach to their implementation of conservation measures on

easements. Partners including easements as enrolled lands within the Agreement agree to obtain consent from landowners before taking any actions that are outside the scope of their existing easement agreement. Such consent requests will be completed in accordance with Partner-specific procedures and policies. When implementing conservation measures on easement or leased lands, the Partner must limit its conservation measures to only those activities allowed under its easement or lease, or obtain additional consent from the underlying landowner, namely:

1. Where conservation measures coincide with activities authorized under existing leases, easements, or other land-rights agreements, the Partner will follow its organization's applicable procedures regarding landowner notification or consent and conduct activities only within the scope of what is allowed under the easement or lease.
2. Where conservation measures do not coincide with easement or lease authority, the Partner will either a) not conduct that activity beyond the scope of what is allowed by its easement or lease, or b) obtain the required consent or authorization from the underlying landowner prior to conducting the activity.
3. Partners will obtain consent or authorization from the underlying landowner before intentionally seeding or planting native plants on active cropland specifically for the purpose of creating monarch habitat.

Table 6-2 outlines potential vegetation management scenarios encountered on easement lands and the expected approaches Partners will take to implement conservation measures.

Table 6-2. Clarification on Consent and Easement Land Use in the Agreement

The table below clarifies how conservation measures are expected to be implemented on easement lands.

Land Use	Percent of Enrolled Lands	Scenario	Approach	Rationale
ROW on active cropland easements	Estimated 40 - 60% of energy ROWs; less than 5% of highway ROWs; highly variable across Partners.	Partner intentionally converts active cropland to natural land cover for the purpose of creating monarch habitat.	Partner will obtain consent or authorization from the underlying landowner before intentionally seeding or planting native plants on active cropland specifically for the purpose of creating monarch habitat.	Most conservation measures rely upon managing existing natural vegetation where it occurs. Intentional conversion to habitat is typically, but may not always be, considered outside the scope of most easement or lease agreements.
ROW vegetation management; not on active cropland	Estimated 40 - 60% of energy ROWs; more than 95% of highway ROWs; highly variable across Partners	Partner maintains existing vegetation (i.e., not active cropland) in accordance with their easement or lease agreement.	Partner is responsible for ensuring conservation measures are implemented consistent with their easement or lease authority. Where activities do not coincide with easement or lease authority, additional consent or authorization will be obtained prior to work.	This is considered as a status quo approach to how Partners currently operate under existing easement agreements.
ROW maintenance or operations with ground disturbing activities; not on active cropland	Likely to be less than 2-5% of enrolled lands in any given year	Partner revegetates natural land cover disturbed during operations and maintenance activities.	Partner will apply seed mixes or planting in accordance with their own revegetation standards and permit requirements, and/or in accordance with the scope of seeding and planting allowed under their easement or lease agreements.	Partners are often required to revegetate existing areas of natural land cover that experience ground disturbance during operations and maintenance activities. Federal, State, and local permits often require these seed mixes to include native flowering plants.

6.4 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 to provide habitat for monarch butterflies. 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 Agreement 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 Program 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. Partners will base conservation measures on the key threats within their control and their management ability with respect to 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 implementation plan. Through their implementation plan, Partners will 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. This kind of coordination is especially important for identifying strategic areas where Partners can voluntarily focus adopted acres to locations where they are particularly valuable for monarchs. For example, currently in California the primary focus for habitat restoration should be the Central Valley and specifically the Coast

Range, Sacramento Valley, and the foothills of the Sierra Nevada—areas critical to producing the first generation of monarchs in the spring.

Table 6-3 describes the 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 implementation plan how they plan on using best management practices and guidance available on the Monarch Agreement Implementation Toolbox website (which will continue to be updated) to implement monarch conservation strategies, and update implementation as appropriate. The Monarch Implementation Toolbox will be administered and maintained by the Program Administrator and provide information resources that are informed by the Service and other conservation partners to provide a one-stop location for Agreement Partners.

Table 6-4 includes conservation measures specific to known winter aggregation sites and the Western population of monarch butterflies. In winter months (approximately October 1st to March 1st in the West, and November 15th to March 15th in the East) and adjacent to over-winter aggregation sites[18], the availability of nectar resources is especially important for monarchs. For this reason, Partners with enrolled lands within 1 mile of known winter aggregation sites must include the conservation measures in Table 6-4 into their Certificates of Inclusion (Table 6-4). Due to the current tenuous status of the Western monarch population and the importance of nectar for populations that are active in the Covered Area during the winter, the overwintering-specific conservation measures warrant extra attention and careful consideration during the development of the Partners' implementation plans. Details on how these conservation measures may be integrated into management practices can be further explained in those implementation plans.

Table 6-5 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.

[18] In the West (AZ, CA, and NV) known winter aggregation sites refers to the aggregation sites as tracked by the Xerces Society for Invertebrate Conservation. For Western overwintering aggregation locations, Partners can find this information by contacting the Xerces (monarchs@xerces.org) and/or accessing information on their website at https://www.westernmonarchcount.org/). In the East (SC, GA) known winter aggregation sites refers to the aggregation sites as tracked by the U.S. Fish and Wildlife Service. For Eastern aggregation locations, Partners can find this information by contacting the Service's Field Office in Charleston, SC (843) 727-4707).

Table 6-3. Conservation Measures and Descriptions

Key Threats Addressed	Conservation Measure	Purpose	Description	Examples
Loss of habitat resulting from land conversion	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. Seed mixes and plugs should not be treated with systemic insecticides. Determine applicability of seeding and planting based on seasonality, frequency, location, and timing for implementation based on state or regional guidelines.	• 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 on enrolled lands, and post-construction enhanced seeding where appropriate)
Loss of habitat resulting from herbicide use Loss of habitat resulting from mowing	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. Determine applicability of grazing based on seasonality, frequency, location, and timing for implementation based on state or regional guidelines.	• 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.

Key Threats Addressed	Conservation Measure	Purpose	Description	Examples
Loss of habitat resulting from herbicide use Loss of habitat resulting from mowing	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.
Loss of habitat resulting from herbicide use Loss of habitat resulting from mowing	Prescribed burning to promote suitable habitat	Management through use of prescribed fire to sustain or enhance plant diversity.	Use of prescribed fire to sustain open early successional habitats suitable for monarchs.	• Conduct prescribed burns in suitable habitat using BMPs that minimize impacts to monarchs or their habitat use.
Loss of habitat resulting from land conversion Loss of habitat resulting from herbicide use Loss of habitat resulting from mowing	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 Agreement Partner. • Avoid disruption to disturbance of existing monarch habitat during peak monarch breeding and migration periods.

Key Threats Addressed	Conservation Measure	Purpose	Description	Examples
Loss of habitat resulting from mowing	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 Program Administrator or USFWS Agreement 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.
Loss of habitat resulting from herbicide use	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 6-4. Conservation Measures Specific to Known U.S. Winter Aggregation Sites of the Eastern and Western Populations of Monarch Butterflies

Conservation Measures	Time Period	Applicable Location	Purpose
Eastern Population: Maintain and enhance flowering nectar plants. As much as possible, avoid removing flowering nectar plants and shrubs.	November 15th-March 15th	Within one mile inland of known winter aggregation sites along Southern Atlantic Ocean coast.	In winter months (approximately November 15th- March 15th), some monarchs remain in reproductive diapause in sites along the Southern Atlantic Ocean coast. These sightings are primarily coastal (Howard et al. 2010, p. 3). Most of the Atlantic clustered monarchs are found in eastern red cedar forest. Overwintering monarchs tend to become more active in warmer weather (60-70 degrees Fahrenheit) and nectar on flowering resources nearby (usually planted flowers in developed areas). Maintaining nectar resources in the winter when they are typically scarce is important for the population.
Western Population: Maintain and enhance flowering nectar plants. Avoid removing flowering nectar plants	October 1st-March 1st	Within one mile of known aggregation sites in California, Arizona, and Nevada	Migratory monarchs in the Western North American population primarily overwinter in groves along the coast of California and Baja California (Jepsen and Black 2015, p. 149) although some monarchs aggregate in areas of California, Arizona, and Nevada. These aggregation sites are outside the scope of the Agreement, however conservation measures and adopted acres (in early successional habitats) within one mile of these areas will reflect one of the most pressing needs for western monarchs (i.e., the aggregation sites themselves cannot be enrolled in the Agreement; areas within one mile of these sites may be enrolled, however these specific conservation measures are required.)

Conservation Measures	Time Period	Applicable Location	Purpose
Western Population: Do not remove trees and shrubs with the except for the purpose of maintaining human health and safety	All Times	Within one mile of known aggregation sites[17] in California, Arizona, and Nevada	The maintenance of trees and shrubs within 1-mile buffers is to preserve the microclimate of overwintering groves. These microclimates are a new area of study and it is uncertain what a meaningful buffer area is. As new information becomes available, it may be acceptable to restrict these areas to a smaller buffer, and this can be addressed through adaptive management.
Western Population: Avoid planting milkweed along the coast of California, in most areas	All Times	Along the coast of California, in most areas. Local guidance on milkweed planting may be provided through the Service, or other partners in monarch conservation.	Milkweed does not naturally grow close to the coast north of Santa Barbara (www.monarchmilkweedmapper.org). Milkweed near aggregation sites can interrupt healthy monarch migratory and overwintering behavior and it can result in parasite load buildup such as *Ophryocystis elektroscirrha*, or OE (Satterfield et al. 2016, p. 4).
Western Population: Report all Western monarch observations, including breeding	Reporting during any time of the year is helpful, however winter observations are important to help inform future conservation efforts.	Report observations of Western monarchs through tracking programs available. This measure only applies in Arizona, Nevada, and California.	Report all monarch observations, including breeding, to the Western Monarch Milkweed Mapper or via iNaturalist: https://xerces.org/milkweedsurvey/

Table 6-5. 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.
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).
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, or before use in areas of suitable habitat. • Tailor management timing to prevent weed seed establishment and plant distribution.

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 Agreement 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 Pollinator Habitat Scorecard o Monarch Joint Venture Integrated Monarch Monitoring Program (IMMP) o Monarch Joint Venture Roadside as Monarch Habitat Evaluation Tool 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 Agreement 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 Program Administrator

The Program 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 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 toolbox, 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 Program 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 Program Administrator or the Service determines that a Partner is violating the terms of the Agreement or their Certificate of Inclusion, 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 Program Administrator, the Advisory Committee may inform decisions related to enrollment approval, modifications to Certificates of Inclusion or requests to amend 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 monitoring, 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 by county or in the case of conservation measures applied programmatically or system-wide, by state.

7.2 U.S. Fish and Wildlife Service

The Service agrees to:

1. Provide assurances that Partners will not be required 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 Enhancement of Survival Permit.
2. Work with the Program Administrator and Partners as needed to provide technical assistance and share the best available information to inform ongoing implementation, and advise when and if any adaptive management triggers require follow up actions.
3. When a request for an amendment to the permit is received, review and issue amendment, as appropriate, within a timely manner.
4. Provide oversight on the issuance of Certificates of Inclusion in consultation with the Program Administrator.
5. 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 Program 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 Program 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.
6. Suspend, in whole or in part, or revoke the EOS Permit if the permit terms are not being properly implemented.
7. Annually review the compiled monitoring and reporting on the implementation and effectiveness of the Agreement. The Service will advise the Program 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 Partners

In order to meet the requirements of this Agreement 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 the Agreement and Certificate of Inclusion, 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 Program Administrator/Service if there are compliance issues and/or unforeseen/changed circumstances.
2. Implement conservation measures in Certificate of Inclusion 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 Agreement. 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 an implementation plan to the Program 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.
5. Track the location of where, how many acres, and dates when conservation measures are implemented for compliance verification as described in Section 14 (Monitoring Provisions).
6. Complete annual compliance reporting and effectiveness monitoring reporting, as specified in the Certificate of Inclusion. Compliance reporting will be submitted annually to the Program 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 Program 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 Program Administrator, the Service, or their designee by the Partner in a timely manner prior to site access. Any and all representatives of the Program 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 Program Administrator to share, as requested, with the Service or other Partners to the Agreement, 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 Program Administrator will be supported in decision making by an Advisory Committee. The purpose of the Advisory Committee is to provide collaborative support to the Program Administrator so that the Program Administrator can implement the Agreement and make decisions based upon informed guidance and recommendations of enrolled Partners. The Program Administrator will be the ultimate decision maker regarding participation in the Agreement, using the informed perspective of Advisory Committee Members enrolled and in good standing.

This team will be governed by the bylaws that were created by the partnering organizations involved in development of this Agreement. A copy of these bylaws will be maintained by the Program Administrator as part of the implementation toolbox.

Together, the Advisory Committee will:

1. Review, discuss, and advise the Program Administrator on questions that arise over the Agreement,
2. Represent and advise on decisions, on behalf of Partners,
3. Review and revise these bylaws when necessary,
4. Inform, vote, and support decision making of the Program Administrator related to items including, but not limited to:
    - Modifications or amendments to the Agreement;

- Overseeing and approving Advisory Committee work;
- Agreement review process and renewal;
- Proposed amendments and changes to Agreement;
- Support to Program Administrator with Agreement decisions, public relations, and communications;
- Developing and implementing Agreement strategy; and,
- Advising on content and materials produced during Agreement implementation.

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.

Partners should prominently mark each page of these documents as "Proprietary/Not for Release" as appropriate. Accordingly, the Program Administrator shall limit access to the foregoing information to only employees or agents of the Program Administrator, the Service, 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 Program 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 Program Administrator will not authorize anyone to download, possess, or distribute the information, unless otherwise authorized in writing by the Partner.

The Service and the Program Administrator shall take all reasonable steps to maintain confidentiality under the relevant laws, as well as the Service and the Program Administrator, and their employees and/or agents. Neither the Service nor the Program 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 Program 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 Program 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 Program Administrator, receives a request under the Federal or Illinois Freedom of Information Act for information identified and labeled as potentially confidential, and has responsive documents in its possession containing such information, and as time allows, the Service or the Program 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 Agreement will be in effect for 25 years following its approval and signing by the Service and the Program 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 of achieving the full adoption ratio for a minimum of five (5) years. In other words, if it takes a Partner 5 years to achieve the full adoption rate, they would be expected to maintain that rate for an additional 5 years. Participation in this Agreement is ultimately voluntary, and Partners can terminate their participation at any time. The property owner is required to notify the Service prior to termination. The EOS Permit is terminated at the same time, and the property owner would no longer have the assurances.

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. Certificates of Inclusion cannot extend past the end date of the Agreement or Permit.

9.2 Modification of Certificates of Inclusion

Throughout the life of the Agreement and Permit, Partners may work with the Program Administrator to make modifications and update Certificates of Inclusion. Modifications to the Certificate of Inclusion may be made at any time. Most modifications, or updates, are expected to be made in conjunction with annual reporting.

The Program Administrator may approve modifications to the Certificates of Inclusion that are within the sideboards established within this Agreement and the associated Permit and the consultation document. For example, Partners may request to add or remove coverage for certain lands after initial enrollment when, for example, a Partner acquires or lets go of property; finds that monarch habitat is expanding into unenrolled areas; or finds that enrolled lands don't support monarch habitat. In this example the Partner must notify the Program Administrator in writing, and include documentation of the location of these areas. The Program Administrator will then report these, and other, modifications to the Certificates of Inclusion to the Service on an annual basis. As Partners evaluate additional lands for enrollment, if a review in IPaC indicates listed wildlife, critical habitat, or listed or proposed wildlife or plants, may be affected that aren't already addressed by an existing Section 7 consultation or Section 10 permit Partners will contact the Program Administrator and the Service to ensure consistency with the programmatic consultation.

These changes will be documented in writing by Partners via annual compliance reporting (see Section 14.1). The Program 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 Program Administrator will acknowledge the change via an updated Certificate of Inclusion reflecting the changes in enrolled lands and provide a copy to the Service. The Program 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 Program 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.

9.3 Modification of the Agreement

Any of the Parties may propose modifications 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 approve minor modifications that do not significantly change the analysis of impact in the programmatic consultation as analyzed at the time of the Agreement and Permit approval without public notice. Examples of minor modifications such as these include updates or changes to existing conservation measures (for example, methods to increase effectiveness), language clarifications, updates regarding the administration of the Agreement (for example, modifying the roles of the Parties).

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 monarch butterflies except as stipulated in 50 CFR 17.22(d)(5) and 17.32(d)(5).

9.4 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 Party 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 in a timely manner. Examples of changes that require amending the Permit include additions or changes to covered species, permit renewal, changes to the Covered Area, or the succession or transfer of the Permit and Agreement (i.e., a new Program Administrator).

9.5 Renewal

The Program 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. Short term enrollment will allow for a minimum of 5 years of maintaining commitments according to the specified adoption rates. For Certificate of Inclusion approval, Applicants that include a 'ramp up' timeframe, will also include a timeframe that includes a commitment duration demonstrating the full adoption rate and NCB intended within the Agreement for at least 5 years at the full adoption rate.

The Program 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 take coverage or assurances provided by the EOS Permit, or incidental take coverage provided through the Consultation document. If the Partner wishes to renew after their original Certificate of Inclusion term has expired, the Program 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 Agreement.

If the Program Administrator decides to terminate this Agreement or not to renew upon expiration of this Agreement, the Partners have the option of negotiating a new Agreement (for non-listed species) or Safe Harbor Agreement (for listed species) with the Service, transitioning to an umbrella or individual Agreements or Safe Harbor Agreements, or transferring the Program Administrator role to another organization.

9.6 Termination of a Certificate of Inclusion by a Partner

This Agreement 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 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 Program 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 Program 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 but, consequently, would no longer receive coverage under the EOS Permit or programmatic consultation if the species is listed. The terminated lands would also no longer receive assurances under the EOS Permit. The Administrator will report changes to the Certificate of Inclusion annually to the Service. 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 Program Administrator may terminate the EOS Permit or a Partner may terminate a Certificate of Inclusion prior to the Agreement 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 Agreement, the Program Administrator is required to surrender the EOS Permit, thus extinguishing take authority (for any covered species) 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 Agreement 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 Program 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 Program Administrator prior to the time of termination will be retained by the Program Administrator for ongoing monarch conservation support, including Agreement 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.

9.7 Termination of the EOS Permit by the Program Administrator

The Program Administrator must provide 120-day written notice to the Service and all Partners to terminate the EOS Permit. Upon notice, or prior to, the Program 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 Agreement and the Certificates of Inclusion issued pursuant to it are also terminated.

9.8 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 Agreement and the Certificates of Inclusion issued pursuant to it are terminated.

9.9 Succession and Transfer

9.9.1 Transferring Certificates of Inclusion

This Agreement 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 the associated Certificate of Inclusion. The rights and obligations under the Certificate of Inclusion 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.

Ownership interest in the enrolled property can be transferred before or after any decision to list the monarch butterfly. Request of the transfer of the property and/or Certificate of Inclusion shall be transmitted to the Program Administrator for approval at least 30 days before transfer. The request shall include the detailed descriptions of the location and acreage of the property, and documentation of the ownership interest of the new Certificate of Inclusion holder, the Program Administrator will notify the Service of updates to Certificate of Inclusion holders every year, as part of the annual reporting process.

9.9.2 Transferring EOS Permit and Agreement

As noted previously in Section 9.7 (Termination of the EOS Permit by the Program Administrator), the Program 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 Program 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 and EOS permit requires an amendment to the Permit and may require additional consideration depending on the listing status of the monarch at the time of transfer. If the monarch is listed at the time of transfer, then the Parties may consider transitioning the Agreement to a Safe Harbor Agreement (SHA). If the Permit and Agreement are transferred, the new Administrator will have the same rights and obligations with respect to the Agreement and Permit as the original administrator. The transfer must be in accordance with 50 CFR 13.24 and 13.25.

10 Adaptive Management

This Agreement will be in effect for 25 years following its approval and signing by the Service and the Program 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 Agreement incorporates adaptive management principles. Adaptive management is a method for examining alternative strategies for meeting the goals and objectives of the Agreement, and then, if necessary, adjusting management actions according to what was learned. Management adjustments are a regular part of managing lands for monarchs and other wildlife. There are a number of variables across the Covered Area that could impact the success of conservation measures and reduce the amount and/or quality of suitable monarch habitat. Rather than identifying the range of possible conservation measure adjustments that could be implemented, this Agreement identifies when adjustments must be made at a program-level (i.e., triggers or thresholds that address habitat conditions that must be met by the Agreement), and provides resources (through the CCAA toolbox, and website) and technical assistance so that Partners have the best available information when making management adjustments throughout their Adopted Acres. This framework allows Partners to have flexibility and incorporate the best information for their location to make management adjustments that enhance and restore suitable monarch habitat, while ensuring a net conservation benefit for monarch butterflies is maintained throughout enrolled lands.

When adaptive management thresholds are triggered, the Program Administrator and/or Partner(s) will review the trigger, the corresponding initial management adjustment, and the anticipated response expected under the individual scenario to determine next steps. If applicable, a summary of management adjustments made will be included in relevant Partners' annual compliance reporting. Table 10-1 summarizes the adaptive management scenarios envisioned over the duration of the Agreement that can address unintended biological responses to conservation measures, or adjustments related to program administration needs.

Table 10-1. Adaptive Management Strategies

Evaluated Element	Information Used	Trigger(s)	Evaluation Frequency	Management Adjustments	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	Annual 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.
Enrollment Approaches 26 Million Acres	Acres enrolled in Certificates of Inclusion as tracked by the Program Administrator during application process and annual reporting.	Enrollment in the Agreement approaches the anticipated maximum of 26 million enrolled acres.	As Certificates of Inclusion are issued, Administrator will continually monitor number of acres enrolled.	The Program Administrator will notify the Service of the Agreement enrollment in comparison to the stated goal to determine follow up considerations.	Range-wide	The Program Administrator will notify the Service and determine response needed. The Agreement may require modification or amendment to allow additional enrollment.

Evaluated Element	Information Used	Trigger(s)	Evaluation Frequency	Management Adjustments	Spatial Scale	Anticipated Response
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 monthly phenology and migration records.	The Program Administrator will work with the Service to review trend and species considerations with Partners to discuss potential for adapting conservation measures where needed.	Range-wide	The Program Administrator will work with Partners to modify their implementation plans to adapt the timing of conservation measures (as needed).
New and emerging science and local studies	Emerging science, results from local studies or research. Information shared from the Program Administrator on new BMPs, threats, or new information available.	Evidence that different practices could benefit monarchs	Annually, and as needed, the Program Administrator and Partners evaluate and consider updated information and new findings from research.	If new information becomes available that shows management actions could be altered to avoid unnecessary impacts to monarchs or increase benefits, Partners will consider incorporating these alterations in implementation plans.	Range-wide	Partners will work with the Program Administrator to identify methods and measures that can consider and address emerging science by updating practices.

Abundance of Suitable Monarch Habitat, at the program level- in the East and Midwest	Cumulative results of effectiveness monitoring based on data collected where randomly selected plots sampled by Partners have been compiled and analyzed at the program-level.	If more than 10% of the cumulative sample plots located within the Eastern and Midwest sample region (See Figure 6-1) demonstrate a lack of milkweed at the minimum threshold (150 and 156 stems/acre in the energy and transportation sectors, respectively).	Annually	Program Administrator and the Service will evaluate monitoring results to determine the potential cause of the shortfall and its implications for monarch conservation in the program area. If the cumulative sample plots demonstrate that target milkweed stem densities are not being met, the Program administrator will work with individual CI holders to increase milkweed density to the point where a net conservation benefit is being met (as defined by milkweed stem densities).	Enrolled lands in the East and Midwest (See Figure 6-1)	After the Program Administrator evaluates data provided by monitoring, the Administrator and Service will review the evaluation and results and together determine the appropriate follow up actions to increase milkweed on adopted acres; to modify or enhance our ability to make accurate and precise inferences about milkweed abundance on the adopted acres - for example, by adjusting the monitoring protocol; and/or, to amend the thresholds associated with this adaptive management response to align appropriately with new scientific information, Partner observations, and/or monitoring resources and opportunities. Amendments to the adaptive management thresholds for this response shall not reduce the likelihood that milkweed densities will average at least 150 and 156 stems per acre in the energy and transportation sectors, respectively. Moreover, any revision to the threshold levels will be done only after an

Evaluated Element	Information Used	Trigger(s)	Evaluation Frequency	Management Adjustments	Spatial Scale	Anticipated Response
						analysis conducted by the Program Administrator and the Service demonstrates that the program would continue to provide a net conservation benefit to monarch by maintaining sufficient abundance of milkweed on the adopted acres.

Abundance of Suitable Monarch Habitat at program level- in the West and South	Cumulative results of effectiveness monitoring based on data collected where randomly selected plots sampled by Partners have been compiled and analyzed at the program-level.	If more than 10% of the cumulative sample plots located within Western and Southern sample region (See Figure 6-1) demonstrate a lack of milkweed at the minimum threshold (58 stems/acre), or at least 10 % potentially flowering nectar plant cover.	Annually	Program Administrator and the Service will evaluate monitoring results to determine the potential cause of the shortfall and its implications for monarch conservation in the program area. If the cumulative sample plots demonstrate that target milkweed stem densities and nectar plant cover are not being met, the Program administrator will work with individual CI holders to increase milkweed density or nectar plant cover to the point where a net conservation benefit is being met.	Enrolled lands in West and South (See Figure 6-1)	After the Program Administrator evaluates data provided by monitoring, the Administrator and Service will review the evaluation and results and together determine the appropriate follow up actions to increase milkweed or flowering nectar plants on adopted acres; to modify or enhance our ability to make accurate and precise inferences about milkweed and nectar plant abundance on the adopted acres - for example, by adjusting the monitoring protocol; and/or, to amend the thresholds associated with this adaptive management response to align appropriately with new scientific information, Partner observations, and/or monitoring resources and opportunities. Amendments to the adaptive management thresholds for this response shall not reduce the likelihood that milkweed densities will average at least 58 stems per acre or that nectar plant cover will average at least 10%. Moreover, any revision to the

Evaluated Element	Information Used	Trigger(s)	Evaluation Frequency	Management Adjustments	Spatial Scale	Anticipated Response
						threshold levels will be done only after an analysis conducted by the Program Administrator and the Service demonstrates that the program would continue to provide a net conservation benefit to monarch by maintaining sufficient abundance of milkweed and nectar plant cover on the adopted acres.

11 Expected Impacts of 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 habitat 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. There are several challenges related to estimating the amount of take of monarchs that 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.

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. 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.

By implementing conservation according to the expected adoption rates, we expect that the restoration, enhancement, and protection of suitable habitat in this Agreement will result in overall increases in habitat available to the monarch and monarch populations that use them.

11.2 Take Estimation and Results

The covered activities, including vegetation management, are outlined in the Agreement and include activities that are already occurring as part of routine maintenance and modernization on transportation and energy rights-of-way and associated lands. The Agreement 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 improvements for monarchs and other pollinators.

The Agreement is intended to improve vegetation maintenance practices (relative to monarchs) within land management sectors that rely upon rights-of-way and their associated facilities. Vegetation management is an on-going practice that focused historically on maintenance, safety and reliability and not traditionally on habitat conservation. We expect ongoing maintenance and modernization of infrastructure outside the Adopted Acre areas to be consistent with pre-Agreement levels (frequency, duration, and magnitude) of

impacts. Considering these, the actions undertaken by this Agreement do not pose a significant change from current operations except in the Adopted Acres, whose extent the Adoption Rates will determine. This Agreement formalizes and promotes improvements in operations on the Adopted Acres by promoting conservation measures that adapt the timing, frequency, or method by which Partners will apply them to improve habitat for monarchs.

We consider actions that pose threats of loss to other listed animal species to be outside the scope of this Agreement. We think that with a few exceptions, they have already been consulted on under section 7(a)(2) of the ESA and, if not, would not be covered by the Agreement. USFWS consults routinely under section 7(a)(2), for example, with Federal Highway Administration (FHA). For actions that are reasonably certain to result in take of a federal listed wildlife species, USFWS provides incidental take statements along with its biological opinions. The incidental take statements include terms and conditions that, if complied with by the FHA, exempt the anticipated incidental take.

We expect that benefits from 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.

Incidental take is likely to occur both inside and outside of Adopted Acres, but to a significantly lesser degree on Adopted Acres. On the Adopted Acres, the Partners will implement conservation measures designed to provide a net benefit to the monarch. Outside of the Adopted Acres, Permittees may implement covered activities in monarch habitat without any modification to reduce effects to the monarch.

To analyze the effects of the Agreement on the monarch in the conference opinion, the Service applied expected Adoption Rates for the two major sectors – Transportation and Energy. It based these on the averages of the Adoption Rates for the sub-sectors shown in Table 6-1, above. Within each major sector, the Service averaged the relevant sub-sector rates. These rates are shown in Table 11-1, below.

To meet the minimum standard for incidental take established in the incidental take statement that the Service provided with its conference opinion, it will not be necessary for the minimum adoption rate or Adopted Acres to be met within each sector. Instead, the total number of Adopted Acres must equal or exceed the number that would be present if these sector-specific adoption rates were met. For example, if Permittees enroll 26,000,000 acres that are divided between the two major sectors as shown in Table 11-1, the total Adopted Acres must be at least 2,083,380 (Table 11-1). As long as this is achieved, the Agreement should result in a net benefit to the monarch.

Table 11-1. An example scenario – equivalent to the High Enrollment scenario analyzed in the Service's conference opinion – in which 26,000,000 acres are enrolled in the Agreement and divided between the two major sectors, as shown. In this scenario, the anticipated incidental take would not be exceeded as long as there was 2,083,380 Adopted Acres for the entire Agreement.

Major Sector	Enrolled Lands (acres)	Anticipated Adoption Rate	Adopted Acres
Transportation	10,140,000	6.0%	608,400
Energy	15,860,000	9.3%	1,474,980
Total	*26,000,000*		*2,083,380*

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 (2018-2019) in Mexico, monitoring of the forest area occupied by monarch butterflies documented populations that covered an estimated 6.05 hectares of forests. This represents the largest population recorded since 2007, an increase of 144% compared to the prior year (2.48 ha in 2017-2018, Monarch Joint Venture 2019a).

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) developed a monarch conservation strategy for Western states (WAFWA 2019). WAFWA represents 23 states and provinces in the Western U.S. and Canada that support sound resource management and building partnerships for conservation. The Western Monarch Butterfly Conservation Plan was finalized in January 2019, It 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 need additional conservation from other lands and land use sectors outside of energy and transportation

lands. While this Agreement has the 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 Agreement, we anticipate up to 26 million acres of transportation and energy lands could be enrolled. 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 Agreement, 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 integrated 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 Program Administrator. The Program 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 Program Administrator and the Partners become effective upon execution of the Agreement. The EOS permit will become effective as of the effective listing date of the covered 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, impacts identified as take in the permit are maintained under the levels identified, and the Agreement conditions have been, and have continued to be implemented in good faith. The permit would include the ESA’s regulatory assurances on enrolled non-Federal lands set forth at 50 CFR 17.22(d)(5) and 17.32(d)(5), should the species become listed.

Through this Agreement and Permit, the Service provides Partners assurances that no additional conservation measures nor additional land, water, or resource use restrictions for the monarch butterfly on enrolled non-Federal lands, beyond those voluntarily agreed to and described in the Agreement, will be required should the monarch become listed in the future. 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 Agreement.

In addition, if monarchs were to be listed, the Service would review the Section 7 conference opinion on the Agreement and may adopt the conference opinion as a biological opinion, which would authorize incidental take on Federal lands in accordance with the Agreement. In accordance with 50 C.F.R. § 402.10(d), the incidental take statement provided in the Service’s conference opinion on the Agreement does not become effective unless and until the monarch is listed and the conference opinion is adopted as the biological opinion issued through formal consultation. At that time, the opinion and Agreement will be reviewed to determine whether any take of monarchs or their habitat has occurred. Modifications of the opinion and incidental take statement may be appropriate to reflect that take. No take of monarch or their habitat may occur between the listing of monarchs and the adoption of the conference opinion

through formal consultation, or the completion of a subsequent formal consultation. The conference opinion cannot be adopted as the biological opinion if significant new information is developed and/or if significant changes to the Federal action have been made that would alter the content of the conference opinion. Because the conference opinion is based on the best available science at the time this Agreement was written, and for the sake of analysis regarding permit issuance, we have assumed that the conference opinion will be adopted as a biological opinion if the monarch is listed. For the purpose of succinctness in this Agreement, we refer to take on Federal lands as authorized through the incidental take statement of the biological opinion.

13.2 Changed and Unforeseen Circumstances

During the life of this Agreement, changes in the understanding of monarch butterflies and their habitat management are anticipated. Additionally, events that lead to changes in habitats or uses cannot be ruled out. As defined by 50 CFR 1.B.17.3, there are two types of circumstances considered within this Agreement, changed and unforeseen circumstances. The following changed and unforeseen circumstances memorialize the processes and measures that will be taken as circumstances arise. The Agreement and active CIs will be modified to reflect the resulting changes, as described below.

13.2.1 Changed circumstances provided for in the Agreement

Changed circumstances are changes in circumstances affecting monarch butterflies or their habitat within the enrolled lands and may alter the expected outcome of the conservation measures or the Agreement. Changed circumstances can reasonably be anticipated by the Agreement developers and the Service and can be planned for with anticipated responses described below. This Agreement identifies several changed circumstances including changes in technology, emerging science, changes in species' Federal status, a major decline in the migratory population of eastern monarch butterflies, and a continuing decline in the Western population of monarch butterflies.

The responses to changed circumstances described below, are considered part of the Agreement and each Certificate of Inclusion. If a changed circumstance arises, Parties to the Agreement will respond accordingly. If changed circumstances warrant consideration of additional or new measures above and beyond those explained in the Agreement, then the Service would enter into discussions with the Program Administrator, with support of the Advisory Committee and Partners, regarding the scenario. 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 Agreement without the consent of the Program Administrator, as supported by the Advisory Committee and Partners, provided the Agreement is being properly implemented.

If, in response to changed circumstances, 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 circumstances. Implementation guidance will be provided by the Program Administrator to Partners so that they may understand the nature of the changed circumstances, and relevant changes to the Agreement. Changed circumstances provided for in this Agreement are described below.

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 Agreement. If the Program 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 Agreement, the Program Administrator will notify the Service within 30 days of that determination. The Program Administrator, in consultation with the Service, will consult with Partners to determine the appropriate modification or amendment to the Agreement or Certificates of Inclusion to account for new impacts. If changes in technology lead to impacts such that this Agreement, and Partners' Certificates of Inclusion no longer afford a net conservation benefit to monarch, the Program Administrator and the Service, working in collaboration with the Advisory Committee and Partners, will adjust adoption rates, or the placement or timing of conservation measures, or work together to create new conservation measures that address the new impacts to monarchs to the point where a net conservation benefit is expected and maintained.

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 new science brings to light impacts to monarchs such that it is determined by the Parties that this Agreement, and Partners' Certificates of Inclusion no longer afford a net conservation benefit to monarch, the Program Administrator and the Service, working in collaboration with the Advisory Committee and Partners, will adjust adoption rates, or the placement or timing of conservation measures, or work together to create new conservation measures that address the new impacts to monarchs to the point where a net conservation benefit is expected and maintained.

New Federal Species and Critical Habitat Listings

Upon the announcement of a new decision to list a species or designate critical habitat under the ESA, the Service will revisit the intra-agency consultation associated with this Agreement to determine if this Agreement would lead to jeopardy of the newly listed species or destruction or adverse modification of the critical habitat. The Service will notify the Program Administrator of the determination, and communicate any necessary avoidance and/or minimization measures for those species. The Program Administrator, in turn, will work with the Advisory Committee and Partners to advise on coordination with the Service, and/or implementation of final recommendations. In the case of newly listed wildlife, Partners are responsible for addressing potential take to that new species through adoption of avoidance measures, a Section 7 consultation, or another Section 10 permit.

Major Decline in Migratory Population of Eastern Monarch Butterflies

If the population of migratory eastern monarchs decreases such that winter habitat occupied is 1.0 hectare or less, based on the results of annual winter surveys, the Program Administrator will confer with the Service to discuss how the conservation measures may be altered to improve the population. If the Service determines that modifying conservation measure implementation strategy would benefit the population, Partners and the Program Administrator will implement agreed upon actions within a year of the monarchs leaving the wintering grounds (to support populations as quickly as possible). Partners in key areas of the range may be asked to commit to specific, or additional, conservation measures until the population rises above the 1.0 hectare occupancy metric on the wintering grounds. The Program Administrator, in collaboration with the Advisory Committee and Partners, would work with the Service to determine the appropriate measures, and regions applicable to address threats within their control. Examples of these measures may include minimizing or avoiding impacts from covered activities while monarchs are on the landscape, and revegetating areas of covered activities with milkweed and nectar plants. These actions would be expected to increase the breeding population that is available to return to the wintering grounds by maximizing acres where conservation measures are implemented, or adjusting the location or timing of where and when they are applied to achieve the greatest conservation benefit for monarchs

Decline in Western Population of Monarch Butterflies

If the population of Western monarchs decreases below the population estimate generated from 2018/2019 annual winter surveys, UIC will confer with the Service to discuss how the conservation measures may be altered to improve the population. If the Service determines that modifying the conservation measure implementation strategy would benefit the population, Partners and the Program Administrator will implement agreed upon actions within a year (to support populations as quickly as possible). Partners in key areas of the range may be expected to commit to additional conservation measures until the population rises above the population estimate generated from 2018/2019 surveys. The Program Administrator, in collaboration with the Advisory Committee and Partners, would work with the Service to determine the appropriate measures, and regions applicable to address threats within their control. Examples of these measures may include minimizing or avoiding impacts from covered activities while monarchs are on the landscape, and revegetating areas of covered activities with milkweed and nectar plants. These actions would be expected to increase the breeding population by maximizing acres where measures are implemented, or adjusting the location or timing of where and when they are applied to achieve the greatest conservation benefit for monarchs.

Unintentional Habitat Conversion in Adopted Acres

If adopted acres are unintentionally or inadvertently converted (e.g. due to accidental mowing, broadcast herbicide use, or conversion from adjacent landowners, etc.), Partners will evaluate the impacted area to determine if, and to what extent, monarch habitat was affected. Partners will determine if the modifications have impacted the availability of milkweed and potentially flowering nectar resources such that the minimum habitat targets (I.e., appropriate milkweed stem density and nectar plant cover targets) will not be met while monarchs are on the landscape. If the impacted acres are no longer providing the required habitat such that a Partner is no longer meeting their adopted acre target, Partners will implement conservation measures elsewhere on enrolled lands to maintain their adoption rate, or ensure that impacted acres are restored and actions are taken to prevent future impacts (e.g. outreach and communication to adjacent landowners, education or training of Partner staff, etc.).

13.2.2 Unforeseen circumstances

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 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.

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 non-Federal 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 Program Administrator, in consultation with the Service, will consult with Partners to determine the appropriate modification or amendment to the Agreement or Certificates of Inclusion to modify accordingly.

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 verify the delivery of the Partner conservation obligations, allow the Program 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 Agreement's duration. In regards to implementation of monitoring provisions, Partners will describe local or regional considerations, define roles and responsibilities, and how specific provisions will be conducted, on adopted acres across their enrolled lands as part of their 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 collected by Partners in areas where conservation measures are implemented in order to document contributions to the adopted acres target for the Partner. Table 14-2 describes the required and optional datasets associated with effectiveness monitoring (described in Section 14.2).

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 Program Administrator. For tracking, one of several optional methods are 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 will be maintained across all options for tracking purposes. Each Partner will select their preferred tracking method(s) based on their software platforms, operational procedures, and information technology capabilities.

Within a given year, 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. Conservation measures

conducted programmatically, as part of how the Partner conducts operations (e.g., statewide conservation mowing), may be tracked at the state level, or more localized scale where possible. 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 should be able to provide documentation of implementation when, and if, requested by the Program 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.

14.1.1 Tracking Overlap in Adopted Acres

Adopted acres are the primary measure of net benefit in the Agreement. We expect some degree of overlap between Partners that maintain rights-of-way overlapping the same land. In such cases, both Partners may be conducting conservation measures, and thereby contributing to their adopted acres target. However, this "double-counting" of adopted acres at a program-level has potential to result in less net benefit than anticipated by adoption rates. To address this concern, the Program Administrator, in working closely with individual Partners, will ensure that overlap in reported adopted acres is accounted for in annual reporting.

The Program Administrator will facilitate the accounting of the program's adopted acres as part of annual reporting. In doing so, the Program Administrator will expect Partners to identify (within their tracking or annual reporting) the other Partner(s) with whom they maintain overlapping adopted acres with. To assist the Program Administrator in accounting, the Partners will either:

- Coordinate directly with their overlapping Partner(s) to determine allocation of those specific adopted acres between Partners, or
- Quantify the amount of overlapping adopted acres reported by Partner(s) tracked in that year's reporting.

Using this information, the Program Administrator will then quantify the program's collective *adopted acres delivered* and compare that against the collective *adopted acres target* for the year to demonstrate that net benefit has been achieved in annual reporting.

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.
Implementation Status	What is the implementation status of the effort
Effectiveness Monitoring	Not monitored/monitored (include results as appropriate, see Table 14-2)
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. Note, either in the Comments field and in annual reporting, either percent of Partner overlap on those adopted acres, or the estimated amount of overlapping adopted acres.
Comments	Optional field for site, or measure, specific notes.

Table 14-2. Effectiveness Monitoring Fields

Biological Effectiveness Monitoring Fields (*The fields below are collected only at locations where effectiveness monitoring is conducted. See Sampling Frequency under Section 14.2.2*)	
Site ID	*Required*. Partner-specific identification to relate the monitoring point to a specific *Activity Area* where conservation measures were tracked.
Observer Name	*Required*. Name of individual conducting the sampling.
Date	*Required*. Date that sampling was conducted.
Milkweed Present	*Required*. (Yes/No) For Midwest and Eastern U.S[19]: Are 6 or more milkweed stems present within the sample plot area? For Western and Southern U.S: Are 2 or more milkweed stems present within the sample plot area?
Milkweed Count	*Optional.* Select from a dropdown list of ranges for number of milkweed stems present in the sample area.
Nectar Resources Present	*Required for Western and Southern U.S.* 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* *Were monarchs observed:* Yes/No. Indicate whether monarchs (adult, larvae, or eggs) were observed[20] within the sample area at the time of survey.

[19] Midwest and Eastern U.S. refers to CT, DE, IA, IL, IN, KS, KY, MA, MD, ME, MI, MN, MO, NE, ND, NH, NJ, NY, OH, PA, RI, SD, VA, VT, WI, WV. All other states are considered Western and Southern U.S. for the purposes of this Agreement.

[20] If Partners are interested in searching for monarchs to document whether sites are being used by monarchs, observers may reference the Roadside Habitat for Monarchs Evaluation Tool (Monarch Joint Venture 2019b). Record adults seen and/or look on milkweed plants for eggs and larvae (caterpillars). These activities are optional, as it is important to learn how to recognize monarchs from other species and differentiate eggs from other insect eggs and milkweed latex bubbles (see photos in Joint Venture protocol).

Compliance tracking will be used to inform the annual compliance reporting expected by Partners. See Table 14-3 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 individual CI, 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 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 the updated adopted acres rate based on the modified acreage. This updated adoption rate will be confirmed by UIC, and 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 include, but are not limited to:

- Tracked adopted acres are fewer than those required in the Certificate of Inclusion. Under this scenario, the Partner is out of compliance with the Agreement and is expected to discuss the variance with the Program Administrator, evaluate reasons for not achieving adopted acres target, and establish a plan for achieving the required adopted acres. See Section 16 on how this scenario would be resolved.
- Implementation of conservation measures reported on does not align with the implementation strategy defined in the Partner application and implementation plan. If encountered, the Partner and Program Administrator would evaluate the implementation challenges, the Partner's implementation plan, and define schedule for full implementation. For example, if a conservation measure was not conducted as indicated in the implementation plan due to delays in training or communication, limitations due to weather or seasonal variation, some other factor, the Partner would note the change and whether it was a one-time occurrence or indicative of a long-term change in implementation.

Table 14-3. 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 Agreement. Describe: • Where conservation measures were implemented (system-wide, on individual parcels, any regional differences, and similar information), and on how many acres (by State for programmatic conservation measures, and at county level for others, or more local). • How many acres are enrolled in total, and the corresponding adoption rate(s) applied. • 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 conservation measures 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 Agreement, 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 basic 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, data, records, or other tracking method used by Applicant

Each Partner will submit required annual reports to the Program Administrator by January 31 of each year or as specified in the Certificate of Inclusion. The Program 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 Program 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:

1. Verify that adopted acres are providing monarch habitat and that the objectives of the Agreement are being met.
2. Inform adaptive management and determine whether adjustments to management may improve monarch habitat;
3. Be practical for a wide-range of partners with varying levels of available staff, and minimize the administrative burden for both the Service and Partners to encourage participation in voluntary conservation; and,
4. 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 minimum monitoring expectations for Partners, as some may choose to tailor additional monitoring to specific management practices or desired outcomes as evaluated by some of the supplemental monitoring methods outlined previously in Table 6-5 (Supplemental Measures). Despite the various monitoring efforts Partners may have, all Partners must monitor and report on several common variables so results can be assessed for the Agreement as a whole. These provisions encourage consistency across Partners and allow for program-level flexibility to encourage participation in the Agreement and to attain its conservation goals.

Partners will summarize their approach to monitoring in their implementation plan and annual reports. The Program Administrator will use these data to ensure habitat quality metrics (primarily milkweed stem densities) are being met annually in the Agreement area.

Beyond protocols in Section 14.2.2, Partners are encouraged to incorporate supplemental monitoring described in more detail at the end of this section. These supplemental monitoring approaches are also identified as supplemental conservation measures in Table 6-5. 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 information that will facilitate monarch conservation. These supplemental monitoring efforts can help document changes in responses 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 minimum requirements also provides more information about the habitat on adopted acres, and gives the Program 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 occurs annually both on a CI-level and on a program-level. On the CI-level, effectiveness monitoring determines whether suitable habitat exists where Partners have applied conservation measures across a wide and diverse network of enrolled lands. The Program Administrator

then annually compiles and analyzes these data to ensure the Agreement is providing the habitat quality and abundance necessary to achieve a net conservation benefit (See Adaptive Management Table 10-1).

Program-level Monitoring

At the program level, the cumulative results of biological effectiveness monitoring (i.e., as reported by Partners as a whole) must demonstrate the conservation measures in Midwestern and Eastern regions provide average milkweed stem densities of at least 150 and 156 stems/acre in the energy and transportation sectors, respectively. These densities are based on the "biologically reasonable" milkweed stem densities expected for rights-of-way in the Midwest by experts consulted by Thogmartin et al. (2017, Supplement 3).

In Western and Southern regions, low precipitation, lack of rhizomatous milkweed species, or both may limit milkweed stem density. In these regions, cumulative results of biological effectiveness monitoring must demonstrate average milkweed stem densities of at least 58 stems per acre or an average of at least 10% nectar plant cover.

The region-specific milkweed densities cited above are the basis for adaptive management thresholds. For the Midwest and the East, they ensure that milkweed densities in the meet or exceed the sector-specific expectations reflected by Thogmartin et al. (2017) and that the Agreement is providing a net conservation benefit to monarchs. The adaptive management thresholds require the Program Administrator to respond if monitoring data indicate lower than expected milkweed gains across adopted acres in the East and the Midwest, or lower than expected milkweed or nectar plant cover in the West and South (Table 10-1). Specifically, if cumulative results show that expected habitat conditions are not met, the Program Administrator will work with CI holders to increase milkweed stem densities or nectar plant cover, as appropriate, or to otherwise ensure that the Agreement is providing a net conservation benefit to the monarch and that there are data to demonstrate that benefit.

Program-level biological effectiveness monitoring and adaptive management thresholds allow for variation and flexibility among Partners while ensuring a net conservation benefit for monarch butterflies is maintained throughout enrolled lands.

Certificate of Inclusion-level Monitoring

At the CI level, results of biological effectiveness monitoring provide insight on how a Partner's adopted acres are contributing to the success of the Agreement as a whole and allows Partners to evaluate habitat response to conservation measures. Effectiveness monitoring by each Partner is intended answer two questions:

1. Are numerous milkweed stems present within randomly selected portions of the Adopted Acres? Specifically, within sample plots:
    a. In the Midwest or Eastern U.S., do sample plots contain at least six milkweed stems[21], or
    b. In the Western and Southern U.S., do sample plots contain at least two milkweed stems?
2. Are potentially flowering nectar plants present across more than 10 percent of the sample plots in the Western and Southern U.S.?

For the first question (a), to monitor whether expected habitat conditions are being realized in the Midwest and East, at least 90% of 1,500 ft^2 monitoring plots should contain at least six milkweed stems. Five or fewer stems per plot would be indicative of stem densities below the mean expectations of 150 or 156 stems per acre for the two sectors, respectively. Six stems per monitoring plot is equivalent to 174 stems

[21] Because the sample plots cover 1,500 square feet, six milkweed stems per plot would indicate a density of 174 milkweed stems per acre.

per acre. Adopted Acres in the Western and Southern states may also be considered suitable habitat if the representative monitoring data indicate two or more milkweed stems or at least 10% cover of nectar plants per sample plot. The presence of more than one milkweed stem would indicate a minimum per-acre density of milkweed of at least 58 stems per acre.

For the second question, we defined "potentially flowering nectar plants" as all flowering plants that can provide nectar for monarchs at some point throughout the growing season. The plants do not have to be in flower at the time of monitoring. We considered 10 percent to be a minimum cover of nectar plants that would facilitate monarch conservation and that we could reasonably expect to be present across the diverse array of potential habitats that may occur on adopted acres – for example, from open grasslands to desert scrub. At the time of Agreement preparation, we are not aware of any well-supported inferences regarding the minimum flowering plant cover required for suitable monarch foraging habitat. The 10% threshold will function to distinguish areas of suitable foraging habitat from unsuitable habitat such as grasslands dominated by invasive grass species or woody thickets too dense to support herbaceous flowering vegetation.

14.2.2 Sampling Protocols

The extent of sampling required is a key concern for participation in this voluntary agreement. Requiring too much sampling could result in less participation, and therefore, less conservation benefit. The Program Administrator and the Service, however, would be unable to track and evaluate the success of the Agreement without sufficient and effective monitoring.

The following protocols reflect the minimum expectation for Partners engaging in this Agreement. We encourage additional monitoring effort by defining scalable adaptive management triggers, defining protocols that can be integrated into other established monitoring efforts, and offering incentives as explained in supplemental conservation measures (Section 6.4). 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 identify the difference between potentially flowering nectar plants and other forms of non-nectaring vegetation, such as grasses or sedges.

The minimum monitoring protocol is intended to be completed by individuals with minimal training. Surveyors with species-level identification skills and abilities may choose to conduct more robust monitoring protocols as part of their supplemental monitoring.

Timing Required

Effectiveness monitoring is intended to describe the cumulative result of conservation measures on adopted acres. Sampling can be conducted any time during the growing season, but is ideally carried out when monarchs are present. Partners should conduct monitoring when responses to conservation measures are most likely to be evident. 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 randomly or systematic-randomly selected by the Partner prior to the time of survey. If systematic-randomly located, plots will be distributed to represent the entirety of a Partners' enrolled lands. It is the Partner's responsibility to determine how to distribute and randomize plot locations.

Randomization of plots is intended to remove bias in the selection of plot locations prior to sampling in the field as explained in the following protocol.

When planning distribution of sample plots, Partners must consider several key decision factors:

1. Location and size of the site managed by conservation measures. If implementation of conservation measures occurred over a large area, several sample points may be necessary to characterize the vegetative response and effectiveness.
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. Partners are expected to select sample sites across the full geographic extent where conservation measures are implemented. Plots should not be limited to a small portion of the Partners operating region, within a single project, or otherwise not distributed throughout the extent where conservation measures are being implemented.

Sample plots expected for effectiveness monitoring will consist of a plot 1,500 square feet (sf) in size, sampled as either a 150 feet long x 10 feet wide transect, or a 22-foot radius circle. This plot size aligns with other current monarch habitat monitoring protocols, including 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). Both the Monarch Joint Venture's Roadside Habitat for Monarchs Evaluation Tool (Monarch Joint Venture 2019b) and UIC's Rights-of-Way as Habitat Working Group Pollinator Habitat Scorecard (UIC 2019) use milkweed and potentially flowering nectar plant cover as part of their protocols. This overlap allows Partners to incorporate these more robust monitoring protocols, if they wish.

The following monitoring protocols are adapted from the Monarch Joint Venture's Roadside Habitat for Monarchs assessment protocol for roadsides (NCHRP; Monarch Joint Venture 2019b). This protocol was modified so that it would apply across transportation and energy lands of varying size and configuration. We further modified it to ensure that it would yield information necessary for effectiveness and compliance monitoring in this Agreement.

1. Select Location of Sample Plots. Partners develop a basis to distribute sample plots across their adopted acres to ensure geographic dispersion (see considerations noted above) and then randomly select locations of sample plots in an amount corresponding to the minimum required (Table 14-4). For example, a DOT could choose to put a certain number of sample plots in each DOT region. It would then select precise plot locations within each region randomly, prior to field visits. That is, first select the strata (e.g., the adopted acres in a DOT region) and then use a method to select plot locations within each stratum where each location is equally likely to be selected.
    - With advance planning, Partners can conduct monitoring when other site visits or maintenance checks are scheduled. This allows for efficiencies in monitoring, and engaging and training staff in monarch conservation who may not be aware of the project otherwise. This may require coordination between personnel responsible for implementing the Agreement and individuals conducting work in the field.
    - Random selection of sample plot locations within adopted acres can include, but is not limited to, GIS random point generation, pre-determined random intervals along a corridor, or another method that allow for selecting plot locations randomly prior to being in the field. The Partner's approach(es) to random sample plot selection will be described within their implementation plan.

2. Define Sample Plot Boundaries. Observers locate the previously selected plot location. Once at that location, the sample plot boundary should be oriented in a direction parallel to the orientation of the corridor or area sampled. Once identified, the observer should mark their starting location (the randomly selected point) and then walk a 150 foot (45.7 m) length parallel to the direction of the corridor or area sampled. For example, along a road, sample habitat walking parallel to the road heading in a direction facing traffic, along the length of the survey area, focusing only on a 10-foot width of ground along the transect, making a rectangular study area. If using the 22-foot radius circular plot option, determine the boundary of the plot radius by measuring the radius of the plot using the pre-identified plot location as a focus from which to measure the radius. Regardless of plot shape, before assessment, observers should stretch out a measuring tape to find out how many steps it takes to walk 150 ft (for rectangular plots), or 22 ft (for circular plots).; once calibrated, observers can pace this distance for future assessments.

    - Consider assessing multiple plots or transects to characterize large or variable areas. If sampling a long, linear area such as a roadside, or a gas pipeline corridor, or a large non-linear parcel, observers can either survey a single plot in a randomly selected location, or sample several locations for an overall averaged result. If sampling several locations to acquire an average result, we recommend sampling approximately every 3/10th of a mile (1640 feet or 500 meters) until the end of the area is reached. Then average the results among the samples. That would yield data pooled from the multiple samples for a single sample plot location. 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 systematically throughout the area of interest.

3. Observe Habitat and Record Data. Observers walk through the sample plot, zig-zagging back and forth and recording data. The goal is to see the plants throughout the defined sample plot; observers may choose the best way to move through the area to achieve a confident visual characterization of the plot. At a minimum, required fields in Table 14-2 are recorded for each sample plot. When determining whether to collect optional data, Partners should consider the associated adaptive management thresholds.

   While not required, we encourage Partners to take photographs of the plot at the time of sampling to document conditions. Partners may choose to submit photographs as part of their annual reporting. The Program Administrator may also request photos as additional documentation of monitoring conducted.

4. Apply Adaptive Management (As Warranted). *Specific adaptive management thresholds and responses must be provided in the Partner's CI.*

    - If Partners are characterizing adopted acres using the required data fields in Table 14-2 ('presence vs. absence metrics'), adaptive management is recommended when 10% or more monitoring plots demonstrate a lack of adequate milkweed and/or nectar plant cover, as appropriate depending on the region (See section 14.2.1). When this happens, Partners should evaluate the success of the management measures on the site and make management adjustments to achieve habitat targets.

    - If Partners are characterizing adopted acres using the optional vegetative data fields in Table 14-2 (milkweed stem counts, and percent cover of potentially flowering nectar plants), adaptive management is recommended when the 90% confidence interval is below the region- and sector-specific criteria for milkweed stem density and/or percent cover of potentially flowering nectar plant species appropriate to the region of interest.

    - Note that if few survey plots are used (e.g. 10), variability among plots may be more likely to trigger recommended adaptive management threshold. Partners may voluntarily choose

to increase their number of samples to minimize the chances of triggering the recommended threshold. For example, in the first approach above, adaptive management would be triggered if one of 10 survey plots demonstrated a lack of adequate milkweed and/or nectar plants, as appropriate, but not if 1 of 11 plots did.

Sampling Frequency

The frequency of sampling (i.e., minimum number of sample plots requiring sampling annually) corresponds to the extent of the adopted acres, which is defined for each Partner based on their minimum required adoption rate and the extent of their enrolled lands. Partners reporting adopted acres above their minimum target are not required to monitor additional points above the minimum threshold associated with their adopted acres target. For example, if a Partner is required to adopt at least 20,000 acres, but voluntarily adopts and carries out conservation measures on an additional 15,000 acres – for a total of 35,000 adopted acres – it would only be required to carry out habitat monitoring for the original target of 20,000 acres, or 50 sites (See table 14-4).

We intend for sampling to characterize areas where conservation measures are applied, facilitate adaptive management actions where they are needed to meet the objectives of the Agreement, and to be readily accomplished by rights-of-way and land managers. These land managers are also tasked with implementation of conservation measures and covered activities while also sustaining operations of their infrastructure. The sampling effort described in Table 14-4 reflects a balance between adequate monitoring of the Agreement's benefits to the monarch and input on feasibility from Partners received during its development.

Table 14-4. Sampling Frequency Expected for Biological Effectiveness Monitoring

Estimated Adopted Acres	Anticipated No. of Annual Samples
Fewer 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, plus one additional point for each 1,000 acres exceeding 60,001 adopted acres.

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. If the Partner's initial enrollment occurred late in the calendar year, with little or no time for implementation or monitoring during the growing season, then monitoring would not be required until the following year. In such instances, the Partner should confirm expected monitoring with the Program Administrator. 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. However, the Partner's may choose to monitor and report more frequently to ensure conservation measures are having desired results.

If frequency other than annually is desired, the Partner's desired reporting frequency must be specified in their Certificate of Inclusion application. The Program 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. Partners may also be interested in collaborating with universities or other research partners, to foster supplemental monitoring by granting monitoring access or other support on adopted acres. 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).

The minimum required effectiveness monitoring within this Agreement is not intended to replace the valuable information gained by those more detailed assessment efforts; in fact, we hope it will encourage Partners to use efforts that are more detailed. 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 Agreement, the Program 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 Program 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 Program 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 Program Administrator will determine if further Service coordination is required for resolution.

The Program 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 Program Administrator disagrees with the Partner's response, the Program 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 Program 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 Program Administrator and the Partner cannot resolve the issue through discussions, the Program 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 Program Administrator regarding whether to accept or not accept the Partner's response. The Program Administrator, with input from the Advisory Committee, will make a determination on whether to accept or not accept the Partner's response. The Program 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 Program 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 Program Administrator Review

At any time before a response is due to the Program 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 Program 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 Program Administrator, including any recommended corrective action.

The Program 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 Program Administrator shall comply with the findings, and the Program 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 Program 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 Program 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 Program 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 Program 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 the Certificate of Inclusion 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 Program Administrator on the proposed termination.

The Program Administrator will confer with the relevant Service coordinator. The Program 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 Program 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 Program 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 considers 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. The Program Administrator will maintain a copy of the fee calculation method on the implementation toolbox website.

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 equates to a higher adopted acres target. Increased size requires more implementation, tracking, monitoring, and reporting. We anticipate that Partners with larger enrolled lands and more adopted acres 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 a fee discount for adopted acres implemented and tracked that exceed targets.
Upfront commitment to the development of the Agreement	Development of this Agreement would not be possible without the upfront support of the more than 40 organizations that voluntarily committed time, expertise, and/or funding to it. In recognition of these voluntary upfront contributions, we anticipate 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 Program Administrator.
Others	Over the duration of the Agreement, 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 Program 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 Program 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 9.6 (Termination of a Certificate of Inclusion by a Partner) 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:

Program 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 Division Chief, U.S. Fish and Wildlife Service

Ecological Services
Great Lakes Region
U.S. Fish and Wildlife Service
5600 American Blvd. West, Suite 990
Bloomington, MN 55437

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 Ecological Services Assistant Regional Director 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

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

Appendix

B

CERTIFICATE OF INCLUSION TEMPLATE

Appendix B Certificate of Inclusion in the Nationwide CCAA/CCA for Monarch Butterfly on Energy and Transportation Lands

B.1 Certificate of Inclusion Tracking Number _____

This Certificate of Inclusion (CI) certifies that _____ (Partner), as the owner, leaseholder, or easement holder (or authorized agent thereof) of the property(s) identified in Exhibit 1 (Enrolled Lands) to this CI, hereby agrees that activities conducted on the enrolled lands are subject to the terms and conditions of the attached Enhancement of Survival Permit, Permit No. [**insert Permit No**.] (the Permit, Exhibit 1) and the Nationwide Candidate Conservation Agreement with Assurances, with Integrated Candidate Conservation Agreement for Monarch Butterflies (the CCAA/CCA; Exhibit 2). The Permit was issued on [**insert date**] by the U.S. Fish and Wildlife Service (the Service) to the Board of Trustees of the University of Illinois, a body corporate and politic of the State of Illinois, on behalf of the University of Illinois at Chicago (UIC; the Program Administrator) under the authority of Section 10(a)(1)(A) of the Endangered Species Act of 1973, as amended (ESA), 16 U.S.C. 1531-1544. This Permit was issued in conjunction with, and to support, the CCAA/CCA. The purpose of the Permit and the CCAA/CCA is to support UIC's ongoing and future efforts to promote conservation within energy and transportation lands and promote conservation by industry representatives. The definitions and acronyms set forth in the CCAA/CCA that is attached hereto shall apply to this CI, unless otherwise specified.

This CI documents the Partner's voluntary agreement to enroll specified property in the CCAA/CCA. Through this CI, the Partner voluntarily commits to implement specific conservation actions that will reduce and/or potentially remove threats to the monarch as provided in this CI, the CCAA/CCA and the Permit. Pursuant to this CI and the Permit, incidental take of monarchs as a result of the covered activities and conservation measures identified in the CCAA/CCA on or associated with enrolled non-Federal lands, in the event the monarch is federally listed as endangered or threatened, is authorized. The Permit further provides the Partner (and their authorized representatives working on their behalf) with assurances regarding the imposition of additional conservation measures and land use restrictions for monarchs on enrolled non-Federal lands, as specified in the Permit and the CCAA/CCA, in the event the monarch is federally listed. The incidental take authorization and assurances provided by the Permit are conditioned on the Partner's compliance with the terms and conditions of this CI, the CCAA/CCA and the Permit.

This CI is effective upon signature of this CI by the Partner and UIC. Unless terminated as provided in Section B.7 below, this CI shall continue from its effective date through the duration of the CCAA/CCA and Permit as defined in the CCAA/CCA. In the event of a conflict between the terms and conditions of this CI and the CCAA/CCA or Permit, the terms and conditions of the CCAA/CCA or Permit in effect at the time of enrollment shall govern. If the terms and conditions of the Permit and the CCAA/CCA conflict, the terms of the Permit shall govern.

By signing below, the Partner acknowledges that it has read and understands this CI and the CCAA/CCA in effect on the date of the Partner's signature. The Partner further commits to comply with the terms and conditions of the CCAA/CCA and the Permit attached to this CI. Finally, the Partner acknowledges that this CI and the CCAA/CCA may not be sufficient to prevent the listing of the monarch.

B.2 Enrolled Property

B.2.1 Summary of Enrolled Lands

Partner Name and Contact Information:	
Description of Enrolled Properties (or Attach Detailed Map):	
Total Acres of Enrolled Properties (all properties covered by permit):	
Total Adopted Acres Target (based on adoption rate):	
General Description of Monarch Habitat on Enrolled Lands:	
Duration of Certificate of Inclusion (years from last signature; end date):	
Conservation Measures to be Taken on the Enrolled Lands:	
Adaptive Management Thresholds and Corresponding Management Adjustments	

B.2.2 Partner Affirmation

By executing this CI, the Partner affirms that it is a Property Owner of the enrolled non-Federal lands as defined by 50 CFR §17.3, which provides that a Property Owner for these purposes is a person or entity with a fee simple, leasehold, or property interest (including owners of water or other natural resources), sufficient to carry out the conservation measures and any other management activities contemplated by this CI, the CCAA/CCA and the Permit, subject to applicable State law, on enrolled, non-Federal land. As to enrolled Federal lands, the Partner affirms that it is a person or entity with a leasehold or other property interest sufficient to carry out the conservation measures and any other management activities contemplated by this CI and the CCAA/CCA on enrolled lands with underlying Federal ownership.

B.2.3 Additions to Enrolled Lands

The Partner may seek to enroll additional eligible lands in this CI during the enrollment period as set out in Section 4 (Enrolled Lands) of the CCAA/CCA.

B.2.4 Transfer of Enrolled Lands

If the Partner transfers its property interest in all or a portion of its enrolled lands, it shall notify UIC as described in Section 9 (Duration of Agreement and Permit) of the CCAA/CCA. Coverage under the Permit for such property will be transferred to the new Property Owner of the CCAA/CCA.

B.2.5 Termination of Enrolled Lands or this CI

A Partner may terminate enrollment of a property in this CI, or terminate this CI in its entirety, in accordance with Section 4 (Enrolled Lands) of the CCAA/CCA. The Program Administrator may also terminate enrollment of a property or this CI as provided in the CCAA/CCA. The process and effect of termination of this CI is described in Sections 7 (Obligations of the Parties) and 9 (Duration of Agreement and Permit) of the CCAA/CCA.

B.2.6 Revisions to Enrolled Lands

B.2.1 (Partner Application; Summary of Enrolled Lands) may be revised in accordance with the procedures outlined in Section 4 (Enrolled Lands) of the CCAA/CCA.

B.3 Participant Agreement to Implement Conservation Measures

The Partner agrees to comply with the requirements of this CI, the CCAA/CCA attached, and the Permit. This Agreement includes the Partner's commitment to implement conservation measures on enrolled lands as provided in their application and Section 6 (Conservation Measures) of the CCAA/CCA.

The Partner shall also notify and educate all relevant personnel, agents, and contractors about the requirements of this CI and the CCAA/CCA, and take steps necessary to ensure that such personnel, agents, and contractors comply with these requirements in their activities on the enrolled lands.

B.4 National Historic Preservation Act

The Partner must comply with all applicable laws and regulations required to protect cultural or archaeological resources pursuant to Section 106 of the National Historic Preservation Act.

B.5 Participant Compliance

B.5.7 Unpaid Administrative Fees

If the Partner fails to remit an administrative fee in accordance with Section 4 (Enrolled Lands) or Section 17 (Administrative Fees) of the CCAA/CCA the Program Administrator may suspend this CI as to the enrolled lands for which the administrative fee is due until such administrative fee is paid. The Program Administrator will notify the Partner 15 business days after the due date of the administrative fee. If the administrative fee is not paid within 30 business days of receipt of the notice, the Program Administrator will issue a Notice of Noncompliance to the Partner. Upon receipt of the administrative fee, the Program Administrator will issue a Notice of Reinstatement to the Partner.

B.5.8 Compliance

Compliance Notice

In response to an alleged failure to implement a condition of this Agreement, the Program 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 Program 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 Program Administrator will determine if further Service coordination is required for resolution.

The Program 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.

Deficiency Notice

If a Partner fails to respond to a Compliance Notice or the Program Administrator disagrees with the Partner's response, the Program 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 Program 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.

Notice of Noncompliance

If a Partner fails to respond to Deficiency Notice or if the Program Administrator and the Partner cannot resolve the issue through discussions, the Program 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 Program Administrator regarding whether to accept or not accept the Partner's response. The Program Administrator, with input from the Advisory Committee, will make a determination on whether to accept or not accept the Partner's response. The Program 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 Program 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).

Advisory Committee and Program Administrator Review

At any time before a response is due to the Program 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 Program 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 Program Administrator, including any recommended corrective action.

The Program 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 Program Administrator shall comply with the findings, and the Program 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 Program 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.

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 Program Administrator believes the Partner has not implemented.

B.6 Termination for Noncompliance

Lands enrolled under this CI 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 this CI, an appropriate action may be to terminate this CI 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 can result in termination of some or all of this CI. The Program Administrator and the Service, however, recognize that termination of this entire CI is a severe and dramatic action limited to unusual circumstances after all efforts to address noncompliance have been exhausted.

In issuing the Notice of Noncompliance, the Partner shall be notified in writing by the Program Administrator of the proposed termination by certified or registered mail addressed to the contact name in Section 14 of this CI. This notice shall identify the lands for which this CI will be terminated, the reason(s) for the 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 Program Administrator on the proposed termination.

The Program Administrator will confer with the relevant the Service CCAA/CCA Coordinator. The Program 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 this CI.

B.7 Property Access

The Partner agrees to provide access to enrolled lands as provided in Section 7.3 of the CCAA/CCA.

B.8 No Waiver

The Partner, by entering into this CI, does not concede its agreement with, or endorsement of, any or all of the underlying studies and conclusions in the CCAA/CCA. Further, the Partner does not waive any legal rights or remedies that may exist outside of this CI. The Partner is also not responsible for work being accomplished by the Service, the Program Administrator or any third parties using the Partners' contributed funds.

B.9 Release

If at any time any administrative or legal challenge to the CCAA/CCA prevents the implementation of this CI, the Partner shall be excused from its performance and shall release the signatories of the CCAA/CCA and CI from any legal claims of the Partner's related to this CI and CCAA/CCA. If at any time any administrative or legal challenge to the CCAA/CCA prevents the implementation of this CI, the Program Administrator agrees to release the Partner from any legal claims related to this CI and CCAA/CCA. Partners' obligation to make payments of administrative fees as described in Section 17 (Administrative Fees) of the CCAA/CCA shall be suspended if any administrative or judicial challenge prevents the implementation of this CCAA/CCA or its CIs. If a Partner voluntarily terminates the Agreement, or the Partner is terminated for nonperformance or noncompliance, all funds paid by that Partner will be retained by the Program Administrator for use in CCAA/CCA administration or monarch conservation. In the event of an external termination of the Agreement (e.g. transfer of the Agreement, or lack of conservation need), the Program Administrator will work with

Partners to determine the appropriate refund amounts for any pre-paid annual administrative fees beyond the final year of the Agreement, or Program Administrator involvement.

B.10 Amendment

As described in Section 10 (Adaptive Management) of the CCAA/CCA, the effectiveness of the conservation measures in the CCAA/CCA will be reviewed by the Program Administrator, the Service, and Partners periodically over the life of the CCAA/CCA. However, changes to the CCAA/CCA in effect at the time after the Partner executes this CI may only be applied to the Partner upon its written consent. This CI, except for Exhibit 2 (CCAA/CCA), may be amended with the written consent of each of the Parties hereto. Exhibit 1 may be revised in accordance with the procedures outlined in Section 4 (Enrolled Lands) of the CCAA/CCA. The Parties agree to process requests for amendments in a timely manner. This CI will only be amended upon written agreement of both the Program Administrator and the Partner. This CI may also be amended to accommodate changes to applicable legal requirements, including but not limited to the Endangered Species Act, the National Environmental Policy Act, and the Service's permit regulations at 50 CFR § 13 and 50 CFR § 17. The proposer of the amendment shall provide a statement describing the proposed amendment and the reasons for it.

B.11 Multiple Originals

This CI may be executed in any number of multiple originals. A complete original of this CI shall be maintained in the records of each of the Parties hereto.

B.12 Reporting Requirements

The Partner will comply with the reporting requirements outlined in Section 14 (Monitoring Provisions) of the CCAA/CCA.

B.13 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 and/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.

Partners should prominently mark each page of these documents as "Proprietary/Not for Release" as appropriate. Accordingly, the Program Administrator shall limit access to the foregoing information to only employees or agents of the Program 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 Program 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 Program Administrator will not authorize anyone to download, possess, or distribute the information, unless otherwise authorized in writing by the Partner.

The Service and the Program Administrator shall take all reasonable steps to maintain confidentiality under the relevant laws, as well as the Service and the Program Administrator, and their employees and/or agents.

Neither the Service nor the Program 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 Program 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 Program 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 Program Administrator, receives a request under the Federal FOIA, or UIC receives a request under the Illinois FOIA for information which a Partner has 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 Program 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 FOIA Acts. 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).

B.14 Contacts

Any notice permitted or required by this CI, the CCAA/CCA or the Permit shall be transmitted within any time limits described in this CI, the CCAA/CCA or the Permit to the persons set forth below. Notice may be provided electronically (via email) or in writing unless the form of notice is otherwise identified in this CI, the CCAA/CCA or the Permit. Any notice provided by electronic mail is deemed received upon the sender's receipt of an electronic mail from the intended recipient confirming delivery. Lack of receipt within five (5) business days may result in follow up via phone call, or a duplicate notice provided in writing. Notice in writing shall be deemed given five (5) business days after deposit in the United States mail, sent certified and postage prepaid, and return receipt requested. All notices and correspondence will be addressed to the contacts listed below. Should either party designate other contacts for day-to-day communications, that notification will be sent to the Program Administrator in writing similar to other notices outlined here:

Partner: _____

Contact Name _____

Title _____

Address: _____

_____

_____

Telephone: _____

Fax: _____

Email: _____

UIC/Permit Holder Representative:

Contact Name _____

Title _____

Address: _____

_____

Telephone: _____

Fax: _____

Email: _____

B.15 Signatures

IN WITNESS WHEREOF THE PARTIES HERETO have executed this Certificate of Inclusion to be in effect on the date of the last signature below.

Partner and Affiliation Date

Program Administrator/Permit Holder Representative Date

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

Appendix

C

SUPPLEMENTAL INFORMATION

Appendix C Supplemental Information

This Appendix provides additional background information regarding the specific aspects within the Agreement.

C.1 Section 106 Compliance Protocol

This protocol was developed specifically for partners to the Monarch Agreement (Partners, Agreement) to create a process for compliance with Section 106 of the National Historic Preservation Act (NHPA-Section 106) while conducting Covered Activities and Conservation Measures as specified in Certificates of Inclusion. This protocol has been developed to assist the Service in their Section 106 compliance obligations for activities where take of monarch butterflies is authorized by the Enhancement of Survival Permit and Consultation Documents associated with the Agreement; this protocol should only be used for those activities and lands specified in the Certificates of Inclusion.

Most covered activities and conservation measures in the Agreement do not have the potential to cause effects on historic properties as defined by the National Historic Preservation Act (NHPA):

> ***Historic property*** (or ***historic resource***) is defined in the as any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on, the National Register of Historic Places, including artifacts, records, and material remains related to such a property or resource. (NHPA 54 U.S.C. § 300308). For the purposes of this protocol, *historic property* also includes sites considered as traditional cultural properties (TCP).

In this appendix, we specify activities that, for the purposes of implementing the Agreement:

- Do not have the potential to affect historic properties, or
- When Partners must consult with the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (THPO), or Service Regional Historic Preservation Officer (RHPO)

The issuing of a permit by the Service triggers an undertaking. As such, compliance with Section 106 of the NHPA is required. However, the Service regards its federal handle as weak since many of the activities likely proposed are out of its direct control. Therefore, to meet the requirements of Section 106, Partners shall adhere to the following directive: for the purposes of compliance with Section 106 of the NHPA, the Service should **only** be considered the lead Federal agency when/if no other Federal agency is involved with the proposed activity.

Similarly, we acknowledge that some Partners may already have established programs for reviewing Section 106 compliance (see guidance at https://www.achp.gov/program_alternatives). If so, the Partners shall identify their alternative programs in relation to conservation measures and covered activities included within their application for enrollment in the Agreement. Partners may also develop other program alternatives specifically for the Agreement; however, the steps below must be used until alternatives are established.

If another federal agency is involved or if the Partner has an established program alternative already in place, follow the procedures outlined by that federal agency or alternative. The Service will automatically accept that other federal agency as lead and will adopt their Section 106 compliance conclusions. Partners should maintain documentation of those conclusions for their records, and make them available to the Program Administrator or Service upon request. **If there is no other federal agency or program alternative involved with the proposed activity, the Service will accept lead federal agency status and the Partner shall follow the steps outlined below.**

Note: The Agreement is issued with a 25 year duration. At some point during that time, subsequent procedures may be developed that supersede the approach described herein. If a new programmatic consultation protocol is developed, the Program Administrator will engage in such a process by engaging the appropriate Partners. Upon completion, the Program Administrator will notify all Partners at the time such an approach is approved. The Partner should contact the Program Administrator or the Service CCAA/CCA Coordinator to verify the most applicable procedure available before proceeding with the proposed activities.

Step 1. Does the Activity Occur within the Scope of the Partner's Certificate of Inclusion under the Monarch CCAA/CCA?

Certificate of Inclusions associated with the Monarch Agreement cover incidental take of monarch butterflies through effects to habitat (for example, impacts to open habitats that may include milkweed, nectar plants, or both while monarchs may be present on the landscape), or directly to individuals (for example, harm or mortality of eggs, larva, or adults). Thus, the Certificate of Inclusion and therefore compliance with Section 106 for the purposes of the Agreement does not apply to activities a) that are not specified in the Certificate of Inclusion, or b) for Certificate of Inclusion activities that are not likely to take monarchs (for example, covered activities occurring in areas outside of the time of year when monarchs are not present). Partners shall maintain documentation of those conclusions for their records, and make them available to the Program Administrator or Service upon request.

If activities are conservation measures or covered activities on enrolled lands as specified in the Certificate of Inclusion AND are likely to take monarch butterflies, then proceed to Step 2.

Step 2. Will the Activity Result in Ground, Building/Structure or Infrastructure Disturbance?

Covered activities and conservation measures in the Agreement are not likely to affect historic properties and do not require further Section 106 review if they do not involve ground, or building/structure, or infrastructure disturbance. The Service considers the activities listed below as having no potential to cause effects on any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in the National Register of Historic Places (aka "Historic Property"), and are therefore exempted from further Section 106 review as consistent with 36 CFR Part 800.3(a)(1).

1) **Surveys and Inspections** – Field observations, site inspections, data collection, investigations, driving along previously established paths or roads, and report writing that do not involve disturbance of the ground or buildings/structures.

2) **Public Education and Outreach** – Classroom and outdoor education activities that do not involve ground or building/structure disturbance.

3) **Hand Removal or Introduction of Plants and Animals** – The removal or introduction of plants or animals to the natural environment without ground or building/structure disturbance.

4) **Proposals, Plans or Protocols** – The writing or implementation of research or management activities that take place entirely within extant offices and laboratories.

5) **Other Non-Construction Activities –** Activities which do not involve or lead directly to construction, such as planning and research activities; grants for training; engineering to define the elements of a proposed action or alternatives so that social, economic, and environmental effects can be assessed.

Therefore, if the proposed activity does not result in ground disturbance, building/structure, or infrastructure disturbance, or fits within one or more of these exemptions, the Service considers it to

have no potential to cause effects on historic properties. Partners shall maintain documentation of those conclusions for their records, and make them available to the Program Administrator or Service upon request. This would conclude the Service's Section 106 compliance for this activity.

If the activity includes ground, building/structure, or infrastructure disturbance, further review is warranted, proceed to Step 3.

Step 3. Does the Activity Occur Within a Known Cultural Site?

Due to their sensitivity to interested parties, any activity located within any previously known cultural site, including an archaeological site, traditional cultural property, and especially any identified or suspected religious/sacred site such as a platted or unplatted cemetery (includes prehistoric earthen burial mounds) must be reviewed further.

The Partner should make a reasonable and good faith effort to learn if any known cultural sites are within the Area of Potential Effect (APE). Efforts to identify known sites can include walking over the entire direct APE, talking with the landowner, THPOs and others, checking the SHPO's known sites/surveys database, and reviewing historic documents, such as old plat maps and aerial photos.

Cultural sites may have been identified as "historic properties" through prior consultations, or through verbal or written communications with Federal, Tribal, or State historic preservation offices. Partners may also cross-reference the project site to State and Federal cultural resource databases within the SHPO and/or the THPO to determine if the site is a known historic property.

Partners shall determine whether the activity would occur in a known cultural site or not. Partners shall maintain documentation of the conclusions below for their records, and make them available to the Program Administrator or Service upon request.

If the activity does not occur within a known cultural site, or avoids the boundaries of a known cultural site, proceed to Step 4.

If the activity occurs within a known cultural site, and scope of activity cannot be modified to avoid the boundaries of a cultural site, the activity has potential to affect historic properties and a full Section 106 consultation is required, proceed to Step 5.

Step 4. Does the Activity Have the Potential to Affect a Historic Property?

The Service considers the activities listed below as having no potential to cause effects on any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in the National Register of Historic Places (aka "Historic Property"), provided they a) do not occur within a known cultural site, and b) do not result in soil disturbance beyond the extent or depth of previously disturbed land (i.e. largely within the impacted footprint of the existing infrastructure and previous ground disturbance). These activities are exempted from further Section 106 review as consistent with 36 CFR Part 800.3(a)(1).

A. General Habitat and Vegetation Management

1) **Seeding and Planting**- Active planting of an area to promote preferred vegetation. Seeding and planting may use minimally invasive techniques such as broadcast seeding or no-till drill without disturbance of soil below the lowest level of previous disturbance.

2) **Herbicide Application** – Use of equipment and vehicles to apply herbicides via foliar applications and other techniques to control invasive plants, noxious weeds, and incompatible vegetation.

3) **Controlled Grazing** – Use of controlled grazing to sustain early successional habitats.

4) **Brush Removal** - Removal of dense brush using forestry mowing, chainsaws, or other mechanical methods to promote more open grassland habitat types.

5) **Mowing or Haying** - Mechanical mowing or clipping of vegetative material to sustain early successional habitats.

6) **Noxious/Invasive Weed/Woody Species Control** - The control of surface vegetation (weeds and woody species) by prescribed burning, hand and mechanical mowing, cutting, and clipping, or chemical control practices without disturbance of soil below the lowest level of previous disturbance.

B. Maintenance and Modernization Construction

1) **General Improvement and Maintenance –** Improvement and maintenance of existing infrastructure where lands have been previously disturbed and where activity will not disturb the soil beyond area of previous disturbance.

2) **Building/Infrastructure 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.

3) **Building/Structure Removal** - The removal of buildings and structures younger than 50 years from the date of the proposed activity or have been determined to be ineligible for listing in the National Register of Historic Places with SHPO concurrence.

4) **Temporary Staging and Storage -** Temporary staging and material storage areas for construction using 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.

5) **Construction within Previously Disturbed Lands** - Activities that do not cause disturbance beyond the extent or depth of previously disturbed land (i.e. largely within the impacted footprint of the existing infrastructure and previous ground disturbance). 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 including rest areas, roundabouts, interchanges, truck escape ramps, weigh stations, spoils disposal or waste management areas, and similar facilities.

    a. For both energy and transportation lands, this 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.

C. Areas Previously Reviewed

1) **Area of Potential Effect (APE) Previously Surveyed with Negative Results** – The APE of the proposed activity has been previously subjected to a rigorous scientifically-conducted archaeological and/or architectural identification survey by professionals and no sites/buildings/structures were found (with documented evidence that the survey[s] was conducted and concurrence was achieved from all consulting parties, especially SHPO).

If the proposed activity fits within one or more of these exemptions, the Service considers it to have no potential to cause effects on a historic property. Partners shall maintain documentation of those conclusions for their records, and make them available to the Program Administrator or Service upon request. This would conclude the Service's Section 106 compliance for this activity.

If the proposed activity does not fit within one or more of these exemptions, it is considered to have potential to affect a historic property, proceed to Step 5.

Step 5. An Activity that has the Potential to Affect a Historic Property: Formal Section 106 Consultation

For an activity that has the potential to affect a historic property, Partners will assist the Service in their Section 106 compliance obligations by completing consultation. For each project area, the enrolled Partner will initiate procedures outlined in regulations 36 CFR Part 800 working directly with the other consulting parties (e.g. SHPO, THPO etc).

At this stage, it's **strongly recommended** that Partners work with cultural resources professional that meets the Secretary of Interior's Professional Qualifications Standards (36 CFR Part 61) to review the activity, guide the Partner through the consultation process, and identify ways to avoid impacts to known historic properties through a change in the scope of activities. If the Partner doesn't have a cultural resources professional on staff, they can hire one or other options may exist. Either way, the Partner is encouraged to look to, and work with, the cultural resources professionals from any other partners in the project.

The full protocol for consulting on an activity that has the potential to affect a Historic Property includes:

1. Define the project site and parameters (APE and timing of activities).
2. Cross-reference the project site to State and Federal cultural resource databases within the SHPO and/or the THPO, if applicable, to see if any potential impacts to known cultural sites can be identified (if not done already).
3. Project information resulting from the review and consultation above will be submitted to the relevant SHPO and any other consulting parties identified as having an interest in the APE (e.g. THPOs/tribes). The Partner should clearly state to the consulting parties that this is a Service undertaking. A specific SHPO's review form can be used, or correspondence with equivalent information, with the supporting documentation including maps and database searches can be sent to the appropriate SHPO/THPO for review. Some SHPOs/THPOs may choose to engage the Service directly, rather than the Partner, and, if so, the review process and timing will be different depending on the Service Region involved.
4. The SHPO and the other parties should review the project within 30 calendar days (a THPO or tribe may need a longer time frame) and may request a field visit or "survey". If no response is given or no survey is requested, activities can begin as planned and the Partner shall document this for their

records, to provide to the Program Administrator and Service on request. This would conclude the Service's Section 106 compliance for this activity.

5. If a field survey is mutually agreed to, a cultural resources professional, meeting the above referenced standards in the academic discipline needed, must conduct it.

    a. If cultural sites are not found, the Partner notifies the consulting parties, receives concurrence, and then shall document this for their records, to provide to the Program Administrator and Service on request. This would conclude the Service's Section 106 compliance for this activity.

    b. If cultural sites are found, the Partner, in consultation with the consulting parties, will develop a plan, if necessary (most times it is not necessary if the site(s) can be avoided), to evaluate whether or not the site is eligible for inclusion on the National Register of Historic Places (NRHP) and what effect the project, if any, will have on the site. Except for the stipulation below, working the consulting parties, the Partner will independently follow the Section 106 process to the end and shall maintain documentation for their records, which will be available to the Program Administrator and Service on request. This would conclude the Service's Section 106 compliance for this activity.

Important Stipulation: The Service RHPO may become directly involved in the Section 106 process (through UIC or Partner staff) if the process reaches 36 CFR Part 800.6 "Resolution of adverse effects" before the conclusion of the Section 106 process. At that time, the Service shall enter the process as a signatory to a Memorandum of Agreement (MOA) to resolve the adverse effects to the historic property. The Service would only enter into the Section 106 process earlier if any consulting party disagrees with the Partner's role in the undertaking or determination, in writing to the Service, after the disagreement cannot be resolved in a timely manner by the Partner.

C.2 Background on CCAA/CCA Development

The Rights-of-Way as Habitat Working Group (Working Group) was formed by UIC in 2015 as a forum for rights-of-way industry partners 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.

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. A subsequent suit filed by Center for Biological Diversity required a listing determination be made by June 30, 2019. In the meantime, concerted conservation efforts to protect 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 Agreement is closely aligned with the broad monarch conservation strategy identified in "All Hands on Deck" (Thogmartin et al. 2017), which envisions 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 Working Group builds broad industry engagement in strategies that will benefit not only the monarch butterfly but also model conservation collaboration for other pollinators of concern. The development of the Agreement is one such strategy that promotes voluntary conservation action among non-Federal landowners. In October 2017, industry representatives met with the Service as part of this Working Group to discuss the feasibility of undertaking development of a CCAA/CCA during the evaluation of the monarch for potential listing. The primary outcome from this workshop was agreement between organizations to collaborate in the development of a CCAA/CCA for the monarch butterfly. In January 2018, UIC created a joint fund to pool resources from the Working Group to support the development of a collaborative CCAA/CCA prior to the listing decision by the Service.

Over the course of developing this Agreement, more than 30 organizations have committed direct funding and/or in-kind technical support to the development of the Agreement (listed alphabetically).

1. Alliant Energy
2. Ameren
3. American Electric Power
4. American Transmission Company
5. Arizona DOT
6. Caltrans
7. Colorado DOT
8. ComEd
9. Connexus Energy
10. Cypress Creek Renewables
11. Delaware DOT
12. Duke Energy
13. Edison Electric Institute
14. Evergy
15. Exelon Nuclear
16. Federal Highway Administration
17. FirstEnergy
18. Florida DOT
19. Fresh Energy
20. Georgia DOT
21. Grow with Trees
22. Idaho DOT
23. Illinois DOT
24. Indiana DOT
25. Iowa DOT
26. IVM Partners
27. MAFWA
28. Maine DOT

29. Minnesota DOT
30. National Rural Electric Cooperative Association
31. Nebraska DOT
32. Nevada DOT
33. NextEra Energy
34. NiSource
35. Ohio DOT
36. Oklahoma DOT
37. Pine Gate Renewables
38. Stantec
39. Texas DOT
40. TransCanada Energy
41. U.S. Fish and Wild Life Service
42. Virginia DOT
43. WEC Energy Group
44. Wisconsin DOT

C.2.1 Purposes Driving CCAA/CCA Development

At the time of this draft, the Service is undertaking its determination for the potential listing decision for the monarch. The decision to "preclude or remove any need to list" is based upon the removal of threats and the stabilization or improvement of the species' status across its range. The decision to list under the ESA is a regulatory process independent of a CCAA or CCA. The Service will evaluate actions and successes of this Agreement in accordance with the Service Policy for Evaluation of Conservation Efforts (PECE) during the listing determination process, as required under section 4(b)(2)(A) of the ESA. The Service will consider the contribution to conservation made by these agreements in a "five-factor analysis" used to make a listing determination. The five factors include:

1. The present or threatened destruction, modification, or curtailment of the species' habitat or range;
2. Overutilization of the species for commercial, recreational, scientific, or educational purposes;
3. Disease or predation;
4. The inadequacy of existing regulatory mechanisms; or
5. Other natural or manmade factors affecting the species' continued existence.

The intent of the Agreement is to demonstrate the significant interest and investment in habitat conservation by the transportation and energy sectors. In doing so, the Agreement effort builds upon several existing initiatives, including the Mid-America Monarch Conservation Strategy, developed under the leadership of MAFWA. MAFWA's strategy identifies conservation actions to monarch habitat across core geographies and multiple landscape types, including rights-of-way. The Agreement supports many strategies identified by MAFWA and will help build additional industry participation.

The Agreement also supports the Western America Monarch Conservation Plan, which is currently under development by the Western Association of Fish and Wildlife Agencies (WAFWA), as well as associated state plans for monarch conservation and pollinator protection.

C.3 Advantages and Disadvantages of Issuing Individual, Programmatic or Umbrella CCAA/CCAs

With broad participation, the programmatic Agreement will improve the status of monarchs across the U.S. Its implementation will help reduce the likelihood the species may be listed under the ESA due to the types of actions covered herein. However, in the event this species is listed, a Partner's individual Certificate of Inclusion ensures that ongoing maintenance and modernization operations and any additional covered activities described in this Agreement may continue so long as the landowner is properly implementing the Agreement.

C.3.2 Consideration for Implementing the CCAA/CCA in Any Form

CCAA/CCAs are voluntary agreements. There are no ESA regulations currently related to monarchs in regards to ongoing maintenance and modernization operations being conducted on energy and transportation lands or easements. The monarch is currently managed by voluntary conservation efforts and will continue to be unless the species becomes listed under the ESA. Similarly, if monarchs become listed under the ESA, the Service does not have the right or authority to gain access to non-Federal lands without first asking permission and gaining the consent of the non-Federal landowner.

Disadvantages of not implementing a CCAA/CCA (in any form) include:

1. Energy and transportation Partners do not receive assurances or a Section 10(a)(1)(A) permit, consequently there would be no incidental take coverage for monarchs and no assurance that land use restrictions would not be imposed if the species is listed.
2. A lack of assurances can result in delayed project schedules, additional time and training required to implement avoidance measures required for the species, loss of operational flexibility, and added costs associated with adaptation to listing requirements.
3. Partners have less opportunity to participate in a comprehensive strategy to conserve monarchs and shape the conservation actions on their lands.
4. If there is a Federal action on the energy or transportation lands where listed species may be present, the Service may require conservation measures to minimize adverse impacts, with less flexibility and opportunity for early landowner or easement holder input.
5. Partners would not have an opportunity to directly contribute to comprehensive collaboration with industry organizations on a nationwide conservation strategy.
6. Voluntary conservation may be discouraged due to the potential for future regulatory constraints on voluntary efforts. Partners may avoid improving conditions that promoted endangered species to their properties, which then result in added restrictions.
7. The lack of assurances places additional financial, operational, emergency response, and customer support concerns on industry organizations in the event that the monarch is listed.

The parties involved in development of this Agreement considered several approaches to undertaking a CCAA/CCA: individually, or as an umbrella or programmatic CCAA/CCA.

Individual CCAA/CCA

If individual CCAA/CCAs were implemented, their cumulative contribution towards monarch conservation would likely be less pronounced than an industry-wide approach. As a result, the Service would have difficulty justifying any single individual CCAA/CCA as being of a significant enough contribution to influence a listing decision. Table C-1 compares the advantages and disadvantages of developing individual CCAA/CCAs.

Table C-1. Advantages and Disadvantages of Individual CCAA/CCAs

Advantages	Disadvantages
1. Regulatory assurances are provided for enrolled non-Federal landowners (as long as the Agreement is being properly implemented, USFWS will impose no additional regulatory requirements on participating landowners, even if the monarch is listed); 2. Decreased time needed for project reviews of any related Federal programs and activities (ESA section 7 consultation has already occurred through the agreement process, which streamlines requirements with other Federal agencies such as FHWA, NRCS, USACE, USFS, and BLM); 3. Landowners participate with the Service in selecting conservation measures that fit their individual operational plans; 4. CCAA/CCA/Section 10 permits give incidental take coverage; and 5. Landowners continue to play an important role in conserving monarch habitat. 6. Operational costs associated with planning, implementing, and tracking activities associated with species at-risk, or federally listed, is reduced under a CCAA/CCA.	In addition to the disadvantages common to all approaches noted: 1. Partners may be subject to some public disclosure of information through the required public review of the CCAA/CCA (e.g., name of partner, activities included) 2. Development of individual CCAA/CCAs may result in inconsistent and varied conservation and reporting measures being implemented across the nation. 3. Implementation of individual CCAA/CCAs means partners are solely responsible for their own implementation, without the benefit of a broader partnership or collaborative learning. 4. Multiple individual applications creates an increased administrative burden for the Service to conduct appropriate and timely review and authorization of applications received. This may result in delays for, or a lack of, authorization of applications. 5. Does not directly address the “all hands on deck” approach recommended by national and regional monarch conservation strategies. 6. Creating individual CCAA/CCA’s results in a redundancy of efforts and increased costs for each Party involved.

Umbrella CCAA/CCA

Comparatively, an umbrella CCAA/CCA can provide many of the partnership benefits not addressed by an individual CCAA/CCA. Under an umbrella CCAA/CCA, individual applicants apply for CCAA/CCA coverage under the final CCAA/CCA maintained by the Service. In doing so, the Service issues CCAA/CCA/Section 10 authorization to each of the individual Partners directly. In turn, this requires the Service to be the conduit of all information and administrative needs associated with the implementation of the Agreement and incidental take coverage it provides.

In contrast to a programmatic CCAA/CCA, an umbrella leverages more of the benefits of a partnership-focused approach. However, an umbrella CCAA/CCA requires the Service to take on much of the administrative burden associated with the Agreement. Time and resource limitations may limit the degree of information sharing, technical guidance, or program administration that may be feasible. The single largest advantage of an umbrella CCAA/CCA versus an individual CCAA/CCA is the broad applicability to multiple applicants across an industry sector. Without this efficiency, it is unlikely the Service could promote, review, and authorize dozens of individual applications (each with differing measures, activities, and terms). Under an umbrella agreement, efficiencies are leveraged to minimize duplication of efforts or avoid conflicting agreements amongst partners working in the same sector(s).

Table C-2 compares the advantages and disadvantages of developing an umbrella CCAA/CCA as compared to developing individual agreements.

Table C-2. Advantages and Disadvantages of an Umbrella CCAA/CCA

Advantages	Disadvantages
Advantages are similar to that of individual CCAA/CCA, plus: 1. Partners may work in closer alignment with other organizations that maintain similar CCAA/CCAs issued under the umbrella agreement. 2. Information sharing between partners may be more easily facilitated by the Service. 3. Collaborative conservation under an umbrella CCAA/CCA directly addresses the "all hands on deck" approach recommended by national and regional monarch conservation strategies. 4. A single, unified umbrella CCAA/CCA would allow for less administrative burden on the Service as they review applications submitted. 5. Increased partnership facilitated through an umbrella CCAA/CCA means that there are fewer overall disadvantages as compared to an individual CCAA/CCA. 6. A unified approach to conservation activities ensures all Parties involved are consistently supporting the effort in a fair and equitable manner that is mutually beneficial to all Parties.	Disadvantages are similar to that of individual CCAA/CCA, except: 1. Implementation of individual applicants under an umbrella CCAA/CCA means that facilitation of a broader partnership will require additional and ongoing Service resources in a timely manner to ensure success. 2. Administration of an umbrella CCAA/CCA allows for less flexibility in implementation. The Service would not likely be able to manage an umbrella agreement in a flexible manner that considers individual partner needs for operation-specific needs or consideration of special circumstances. As a result, an umbrella CCAA/CCA may limit participation of some partners.

Programmatic CCAA/CCA

Over the course of developing this Agreement these advantages of a programmatic CCAA/CCA were considered and weighed against the advantages and disadvantages of alternative approaches. After consideration of the alternative approaches outlined previously, the partners involved in development of this CCAA/CCA determined that a programmatic CCAA/CCA was most advantageous to the Parties involved. Creation and implementation of a programmatic CCAA/CCA poses several advantages over the other alternatives considered (Table C-3). Namely, the programmatic poses many of the same, plus additional, benefits as compared to the umbrella approach and the individual. The primary benefit of the programmatic approach is the third-party capacity to provide administrative, technical, and logistical support to partners.

Table C-3. Advantages and Disadvantages of a Programmatic CCAA/CCA

Advantages	Disadvantages
Advantages are similar to that of an umbrella CCAA/CCA, plus: 1. It reduces the review and administrative burden for the Service by considering one application, as compared to potentially dozens of individual ones. This provides a greater likelihood of all applications being reviewed and authorized in a timely manner. 2. It promotes consistency in implementation and expectations for all Parties involved, thereby making a fair and equitable agreement for all partners involved. 3. Partners involved in a programmatic CCAA/CCA can leverage the experience and knowledge of other partners involved through ongoing learning and information sharing facilitated by the Program Administrator. 4. The partnership embodies the "all hands on deck" approach to conservation required on a broad and varied geographic scale required to address monarch key threats. 5. Having a conservation agreement managed by a third-party (e.g. the Program Administrator) allows for greater flexibility in implementation as compared to an umbrella CCAA/CCA. 6. Implementation costs for a programmatic CCAA/CCA are likely reduced by comparison to an individual or umbrella CCAA/CCA, where increased tracking, monitoring, reporting, and adaptation requirements are directly the responsibility of the Partner.	Disadvantages are similar to that of umbrella CCAA/CCA, except: 1. Implementation of individual applicants under an umbrella CCAA/CCA means that facilitation of a broader partnership will require additional and ongoing Service resources in a timely manner to ensure success. 2. Enrollment in a programmatic CCAA/CCA requires an administrative fee be paid to the Program Administrator to help fund the administrative and technical support provided.

C.4 Adoption Rates

C.4.3 Objectives for Adoption Rate Development and Application

The concept of an adoption rate was central to the "All Hands on Deck" paper, which considered restoration of monarch habitat across the Upper Midwest of the U.S. (Thogmartin et al. 2017). In that paper, the authors elicited expert opinion from biologists, ecologists, and planners as to the conservation potential for individual land use sectors to support milkweed restoration. They also estimated likely adoption of management practices necessary for affecting restoration of suitable habitat. The adoption rate approach was also considered by the Mid-America Monarch Conservation Strategy (MAFWA 2018) to help in scenario planning and to help state conservation agencies explore conservation targets they believe would be feasible in various "sectors" of habitat, such as managed natural lands, urban lands, rights-of-way, and agricultural lands. Additionally, the expected change in benefit, measured in milkweed stems per acre, compared between current (or baseline) conditions as well as improved (or amended) conditions related to land management and adopted conservation measures were considered in development of the estimated adoption rates.

Within this Agreement, the adoption rate concept is used to help define the net conservation benefit expected from each participating sector within this Agreement. We used a structured decision making process to select and define the adoption rates required for participation in this Agreement. 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 enhance habitat for monarchs. Adoption rates were developed within the context of the Agreement with the following objectives in mind:

1. Provide an easy and consistent target to define net conservation benefit (NCB) that is achievable for Partners. A clear expectation encourages involvement and ensures an equitable expectation amongst Partners enrolling.
2. Account for current and expected permanent habitat losses by ensuring replacement of those lost habitat areas. The Agreement should yield a net conservation benefit. To do so, it must account for habitat losses, in addition to lands preserved or enhanced.
3. Minimize the need to quantify, calculate, and track estimates of acreage and activities for applicants and the Service to reduce administrative requirements. Many of the industry partners that may consider enrollment in this Agreement manage large networks of owned lands and easements, which can make such requirements difficult or prohibitive to implement. This Agreement is voluntary. The more difficult it becomes to implement (either for the Partners or the Service), the less likely Partners will be to enroll.
4. Maximize potential participation in the Agreement and thereby increase the overall contribution of voluntary conservation to the species.

C.4.4 Adoption Rates Proposed

Adoption rates recommended within this Agreement were developed with consideration of a combination of the rates presented in "All Hands on Deck" (Thogmartin et al. 2017) as well as industry-elicited adoption rates developed in conjunction with the Agreement. As noted, Thogmartin et al. (2017) presents published adoption rates expected to achieve conservation benefit needed for monarch habitat improvement. 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. Using these adoption rates, AHOD estimated that roughly 11.2 million acres across the Upper Midwest of the U.S. could be managed in rights-of-way for monarchs (see Thogmartin et al. 2017; Supplemental Table S3.2).

Adoption rates required by Partners under this Agreement were developed through consideration of the elicited information described and the four objectives in Section 6.2.1. Preliminary adoption rates elicited for the different sectors were developed using a structured series of questions intended to help participants consider potential adoption rates for proposed conservation measures in a consistent and standardized manner. Responses were received from 17 of 24 potential CCAA/CCA applicants including representatives from four (4) sectors as follows: four (4) from gas/electric transmission, two (2) from gas/electric distribution, four (4) from electric generation (including conventional sources such as coal and nuclear, and renewables such as solar), and seven (7) from state highway managers (DOTs). Results from the elicited adoption rates were compared against estimates also elicited from industry organizations regarding expected levels of incidental take for those same lands. The proposed adoption rates recommended are equal to the minimum preliminary adoption rate elicited from that sector, plus the maximum annual expected permanent loss of habitat provided by those same sector. The adoption rate reflects the practical conservation commitment expected on an annual basis, plus the maximum amount habitat estimated to be potentially lost due to maintenance and modernization on an annual basis. In accounting for both what industry believes is a practical contribution for conservation based on industry-specific opportunities and constraints, plus accounting for permanent losses, the adoption rate is intended to provide a net benefit to monarchs despite estimated percent habitat loss. The sum of both estimates equals the adoption rate for those specific sector types, or:

Adoption rates (% by sector)	=	*Minimum preliminary minimum acres of conservation (annually) / total enrolled land*	+	*Max acres lost permanently (annually) / total enrolled land*

In comparing these industry-elicited adoption rates to those presented in Thogmartin et al. (2017), three scenarios required additional consideration:

1. Where elicited minimum adoption rates were slightly below those proposed for that same sector within Thogmartin et al. (2017), the adoption rate proposed defaults to that proposed by Thogmartin et al. (2017).
2. Some sectors (such as energy distribution and generation) are not considered in Thogmartin et al. (2017). As a result, we relied upon the industry-elicited rates in these sectors.
3. For sectors not represented during the industry-elicited adoption rate development, including county and local highways, and railroads, we propose the Thogmartin et al. (2017) rates as the adoption rate for sector participation.

This approach yielded adoption rates consistent with those sectors and land cover types included within Thogmartin et al. (2017) as well as the MAMCS (MAFWA 2018) as shown in Table C-4. These adoption rates elicited by industry organizations are consistent with published conservation expectations envisioned by conservation biologists and species specialists.

Table C-4. Comparison of industry-elicited adoption rates to those presented in Thogmartin et al. (2017) and the MAMCS.

Adoption Rate Approach	Transmission	Distribution	Generation	Highways (Interstate, U.S., State)	Highways (County, Local)	Rail
Agreement Adoption Rates	18%	1%	9%	8%	5%	5%
Industry Partner-elicited Rates	15 to 50%	1 to 2%	6 to 31%	6 to 67%	N/A	N/A
AHOD (Sector-Mean) Adoption Rates (from Thogmartin et al. 2017)	18%	N/A	N/A	8%	5%	5%
MAMCS Adoption Rates (from MAFWA 2018)	1 to 50%	N/A	N/A	3 to 50%	2 to 25%	0 to 20%

Final adoption rates selected for each sector reflect the minimum contribution expected by each sector Partner enrolling lands in the Agreement. The selected rates account for conservation opportunities, constraints, and typical lands encompassed within each network of lands managed by the sector. As described in Section 6 (Conservation Measures) additional considerations are made for Applicants or Partners that enroll lands that may contain conditions outside the scope of what was considered in adoption rate development. Final adoption rates selected by sector are summarized in Section 6 (Conservation Measures) of the Agreement.

C.5 Goal Development and Targets

Section 1 (Introduction) of the Agreement includes a stated conservation goal for participation in the Agreement.

> *The goal of this Agreement 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 aspires to the enrollment of up to 26 million acres of energy and transportation lands contributing over 300 million stems of milkweed, and 2.3 million acres of monarch foraging habitat, over the coming decades. This goal and estimate of conservation potential was developed so that the organizations involved in its development could communicate the scale of participation and expected benefits envisioned by the Agreement preparers.

This goal and statement of conservation potential was developed considering the following:

1. More than 30 initial organizations involved in development of the Agreement collectively manage nearly 4 million acres of rights-of-way and other associated lands across the lower 48 states of the U.S.
2. Based on information provided, industry organizations collectively involved in development of the Agreement are likely to enroll up to 4 million acres at the time of authorization. While much uncertainty remains regarding actual enrollment, we understand that the organizations involved to

date represent only a portion of industry organizations possible under the Agreement. For this reason, we anticipate the conservation potential of the Agreement to equal approximately 26 million acres.

3. Based on the conservation potential of 26 million acres, we estimated the level of participation across each sector of energy and transportation lands. Using the range of adoption rates identified for each sector (ranging from 1% to 18%), we calculated that the cumulative contributions across all sectors equals to nearly 2.3 million acres of adopted lands under the Agreement.

4. Using these estimates for adopted acres by sector, we then calculated the potential milkweed contributions provided by these lands. Milkweed contributions consist of the assumed target density of "amended" lands (i.e. adopted acres) minus the "baseline" scenario using milkweed stems per acre as our metric. Using these sector-specific milkweed densities from Thogmartin et al (2017), we multiplied the adopted acres estimates by the milkweed contributions per sector. The results yielded an estimate of nearly 300 million stems of milkweed.

While these numbers are considered to be broad estimates using some broad assumptions, they are intended to help illustrate the scale and potential contribution of a voluntary conservation agreement such as this.