

2. Developing landscape-scale goals and strategies;
3. Developing efficient and effective compensatory mitigation programs for impacts that cannot be avoided or minimized; and
4. Monitoring and evaluating progress and making adjustments, as necessary, to ensure that mitigation is effective despite changing conditions.

This report describes planned outcomes and next steps for each of these phases, as well as a number of near-term deliverables for the Department and its bureaus. Departmental bureaus are currently advancing this landscape approach to mitigation in various contexts, and anticipate that the strategy will evolve over time. This work is being conducted in collaboration with other federal, state, and tribal agencies, non-governmental organizations, and commercial interests.

This report describes an advanced form of collaborative problem-solving at a time when the uncertainties of a rapidly changing climate and the imperative of an energy transformation pose challenges for sustaining the natural ecosystems that buffer us from extreme weather events and play a fundamental role in the maintenance of America's clean air, clean water, agricultural productivity, world class recreational opportunities, and economy. This report, and the strategy it describes, is the Department's first step in building upon the innovative efforts that have been emerging across the Country to avert resource conflicts prior to development and to advance sustainable solutions that ensure the highest and best use of our natural resources.



On October 31, 2013, the Secretary of the Interior issued Secretarial Order Number 3330 entitled “Improving Mitigation Policies and Practices of the Department of the Interior.” The Order charged the Department’s Energy and Climate Change Task Force (Task Force) with developing a coordinated Department-wide strategy to strengthen mitigation practices:

The purpose of this Order is to establish a Department-wide mitigation strategy that will ensure consistency and efficiency in the review and permitting of infrastructure development projects and in conserving our Nation’s valuable natural and cultural resources. Central to this strategy will be (1) the use of a landscape-scale approach to identify and facilitate investment in key conservation priorities in a region; (2) early integration of mitigation considerations in project planning and design; (3) ensuring the durability of mitigation measures over time; (4) ensuring transparency and consistency in mitigation decisions; and (5) a focus on mitigation efforts that improve the resilience of our Nation’s resources in the face of climate change.

The Department has management responsibility over much of our Nation’s federal lands, waters, and other natural resources. Steward for 20 percent of our Nation’s lands, the Department oversees the development of over 20 percent of U.S. energy supplies, is the largest wholesaler and manager of water in the 17 western states, and provides services to over 500 federally recognized tribes and Alaska Native communities. In addition, the Department is responsible for the conservation and management of fish and wildlife resources, including over 800 native migratory bird species and nearly 2,000 federally listed threatened and endangered species. The Department also preserves and manages over 400 units of the National Park System and provides leadership for the National Historic Preservation Program, which guides the preservation of cultural resources both on and off the federal lands.

Given the inherent and sometimes difficult conflicts associated with the Department’s responsibilities for both managing development and conserving the natural and cultural resources of the Nation’s lands and waters, effective mitigation of the impacts of development is critical in enabling the Department, through its bureaus, to fulfill its statutory mandates. This report describes the rationale and the principles that will govern a Department-wide, landscape-scale approach to mitigation that fulfills the five purposes set forth in the Secretarial order and noted above. It also documents a number of actions that the Department and its bureaus will take in the coming months to further develop and implement the landscape-scale mitigation policy.

As directed in the Order, the Task Force report team conducted extensive outreach to many of our fellow federal agencies that conduct mitigation as well as several states and a subset of other stakeholders and partners (Appendix II). Due to the scope of mitigation efforts nationwide, this outreach effort will necessarily continue over the coming months as the Department works to implement an overarching mitigation framework consistent with the principles described in this report. To advance those efforts and provide the building blocks for its comprehensive new approach to mitigation, this report provides:

- a) A primer on the concept of mitigation and how it has been applied;
- b) A description of some of the key challenges that the Department and other agencies have faced in implementing effective mitigation;
- c) A Departmental strategy for overcoming those challenges, including a set of guiding principles that will govern the Department’s landscape-scale mitigation efforts;
- d) Initial actions to be taken by the Department and its bureaus and agencies to implement a consistent and integrated landscape-scale mitigation policy;
- e) A list of deliverables and timelines for developing or revising landscape-scale mitigation policies and practices of the Department;
- f) A representative sample of some of the ongoing efforts that embrace the principles described in the strategy;
- g) A brief summary of the mitigation aspects of the Department’s existing management practices and procedures, permitting, and legal authorities (Appendix I);
- h) A list of some of the agencies and partners contacted during outreach for this report (Appendix II).

The concept of mitigation, as expressly identified or implicit in the mission and statutory direction of the Department and its bureaus and agencies, is an essential element in how the Department manages the lands and resources under its jurisdiction. The purpose of this report is to highlight the challenges and opportunities associated with developing and implementing an effective mitigation policy and to describe the key principles and actions necessary to successfully shift from project-by-project management to consistent, landscape-scale, science-based management of the lands and resources for which the Department is responsible. In so doing, we believe that the natural and cultural assets stewarded by the Department can be managed more efficiently, effectively, and responsibly for the greater good of the nation.

Origins

The Fish and Wildlife Coordination Act of 1934 included requirements that were the first formal expressions in law of a duty to minimize the negative environmental impacts of major development projects and to compensate for those impacts that remained – giving birth to the core ideas of what we now label as environmental mitigation. In the ensuing decades, environmental mitigation has come to play a key role in many other statutes and programs. Contemporary understanding of mitigation has benefited from decades of scientific advances and experience implementing the National Environmental Policy Act (NEPA), the Endangered Species Act (ESA), the wetlands protection provisions of Section 404 of the Clean Water Act, the National Historic Preservation Act (NHPA) and other federal and state laws.

Under NEPA, federal agencies that are required to evaluate the environmental impacts of proposed federal actions may incorporate mitigation measures to reduce the impacts of the action. The Federal Land Policy and Management Act (FLPMA) requires that “the public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values.” The habitat conservation planning provisions of Section 10 of the ESA have proven sufficiently flexible



to provide the basis for either mitigation for the impacts of small, single-landowner development projects or broader regional conservation plans that offset the impacts of multiple projects undertaken by multiple landowners or project proponents. The Clean Water Act has spawned creative approaches to mitigation, including banking and in-lieu fee arrangements that seek to improve upon the outcomes of more typical, project-by-project mitigation efforts. The Clean Air Act has also encouraged innovative market-based approaches for reducing air emissions while also capturing cost savings.

Major energy and infrastructure development projects, both on land and offshore, can adversely affect a broad array of resources and values, including fish and wildlife, cultural resources, unique natural communities, scenic views, air quality, recreational opportunities, and water supplies for human use. For certain resources – including wetlands, endangered species, cultural resources, national parks, wildlife refuges, and wild and scenic rivers – there are explicit statutory and regulatory drivers requiring mitigation.^{1,2} For other resources, mitigation decisions have been driven by the more broadly stated requirements of statutes such as NEPA and FLPMA.

The Hierarchical Approach to Mitigation

As used in this report, the term “mitigation” encompasses the full suite of activities to **avoid, minimize, and compensate** for adverse impacts to particular resources or values. In the implementation of both NEPA and the Clean Water Act, there has developed a mitigation “hierarchy” or sequence of steps through which mitigation is typically achieved. The hierarchy starts with avoidance. If a project can reasonably be sited so as to have no negative impacts to resources of concern then that is generally the most defensible approach. By avoiding adverse impacts in the first place, there is no need to take further action to minimize or offset such impacts. If the authorization of the proposed action requires compliance with NEPA, NHPA, and/or ESA, determining whether or not adverse effects may occur is carried out through a public process for impact analysis and interagency consultation processes.

Frequently, however, it is not practical or possible to avoid negative impacts altogether. A linear project such as a road or pipeline may of necessity entail a number of stream or wetland crossings, for example. In such cases, the second step of the mitigation hierarchy seeks minimization of the associated impacts. For example, altering design features or integrating pollution control technologies could substantially minimize impacts to the immediate site, to human health and safety, and to nearby affected

resources in special status areas like national parks or wilderness areas. In the case of cultural resources, steps may be taken to minimize adverse effects by, for example, choosing paint colors or reducing the height of oil and gas tanks to reduce visual impacts. If the impacts cannot be adequately minimized, a project in a given location may not be appropriate and the permit denied.

Remaining steps in the mitigation hierarchy seek to repair, rehabilitate, or restore the affected environment or resource, and ultimately to compensate for, or offset, any impacts that remain. For example, compensating for unavoidable wetland impacts may include creating new wetlands where none previously existed, or restoring and protecting wetlands where they were damaged or destroyed. In still other cases, this type of mitigation might take the form of acquiring and bringing under long-term protection an existing, fully functional wetland. While the preservation of existing wetlands is an uncommon form of compensatory mitigation under the Clean Water Act, permanently preserving existing habitat is a common form of compensatory mitigation under the ESA.³

It should be noted that the term “mitigation” is sometimes used to refer only to the final step in the sequence described here. Thus, one sometimes sees the mitigation hierarchy somewhat confusingly described as “avoid, minimize, and mitigate.” For clarity, when referring to the final step in the hierarchy, this report will use the term “compensatory mitigation.” The term “mitigation” will refer to all of the steps in the hierarchy.

Although this hierarchical approach to mitigation includes a strong presumption in favor of the sequence described above, there are circumstances in which rigid adherence to the sequence may not realize the greatest overall benefit. There may, for example, be circumstances in which already-degraded habitat can be *avoided* or certain *minimization* measures are economically feasible, and yet other *compensatory* mitigation measures could achieve a better environmental outcome at less cost. In such situations, a rigid adherence to the mitigation hierarchy might not best serve the goals and purposes of the statutes that provided the basis for mitigation requirements. Similarly, some endangered species may occupy sites that are ephemeral in nature or facing major threats not subject to regulatory control. In such cases, greater conservation benefit may be secured by compensating elsewhere for the loss of such sites than by avoiding development in them.

Forms of Compensatory Mitigation

Mitigation requirements – including compensatory mitigation requirements – are often imposed as a condition of a permit issued to a project sponsor by a regulatory agency. Traditionally, the permittee either

carries out the compensatory mitigation itself, or pays to have it done by another party (known as permittee-responsible mitigation).

Another mechanism for implementing compensatory mitigation is known as mitigation “banking.” This approach may be used where there might be economic efficiencies as well as better environmental results if compensatory mitigation actions are carried out in advance of foreseeable future projects, or if a single large mitigation action could compensate for the impacts of multiple future development projects. This approach allows for “banking” credits earned for early compensatory mitigation actions, and later drawing down against those banked credits as new development projects are undertaken. Wetland and stream banks have been developed under the CWA, and habitat conservation banks have been developed under the ESA. Mitigation banking is specifically provided for under the Clean Air Act with regard to emission controls and the siting of new facilities.

Two forms of mitigation banks are used. In one, credits from the bank are intended to be used to offset projects carried out by the bank creator. Other banks, however, earn credits that can be sold to third parties whose projects require compensatory mitigation. These multi-user banks are often called “entrepreneurial banks” because they are frequently established by for-profit businesses that seek to provide a specialized service (e.g., creation, restoration, or enhancement of wetlands) to others.

Yet another form of compensatory mitigation is referred to as “in-lieu fee” mitigation. This mechanism allows a project developer to satisfy its compensatory mitigation responsibilities by paying a fee to a third party (often a state agency or a conservation non-governmental organization, or NGO), with the assurance that the third party will use the fees to carry out future conservation actions. Some in-lieu fee arrangements initially received limited oversight, with fees sometimes accumulating for lengthy periods and ultimately being used for purposes that may not have offset authorized impacts. Under the Clean Water Act, however, recent regulatory revisions have addressed these shortcomings and reduced some of the distinctions between mitigation banks and in-lieu fee mitigation arrangements.

It is important to ensure that the mitigation measures required under different forms of compensatory mitigation actually offset the impacts of the authorized project – that is, ensure that the offsets are comparable to the impacts. There are multiple methods for establishing such comparability. For example, ratios are often used (for example, a 2:1 ratio requirement in which two acres of endangered species habitat

are restored or enhanced elsewhere for every acre of habitat lost) to ensure that the required mitigation offsets the project impacts, and to account for uncertainty, temporal losses, and other factors. In other cases, more sophisticated methods that focus on functional losses may be used.

Science in Support of Mitigation

The quality of mitigation decision-making depends, in large part, upon the quality of available information. Science informs mitigation decisions by providing: 1) a solid foundation for understanding the status, function, value, and drivers of change to natural resources within proposed development areas, 2) a basis for evaluating the tradeoffs associated with alternative mitigation strategies, 3) data and tools for measuring and understanding the short and long-term impacts of proposed projects, and 4) monitoring protocols to understand the effectiveness of mitigation actions relative to their design objectives. Throughout the process, quality science provides value-neutral data that

increases credibility and transparency, provides a factual basis for policy and agency decisions, and ultimately ensures that the mitigation design-process and resulting actions are supported by relevant knowledge. Science is particularly important for evaluating mitigation performance relative to predicted performance, thereby enabling adaptive management and the ongoing improvement of avoidance, minimization, and compensatory actions.

When underpinned by sound science, an array of tools can be used to significantly enhance and inform decision-making, provide a basis for the analysis of costs, benefits and trade-offs, and aid in understanding the long-term impacts of near-term decisions. These science-based tools include geospatial data integration, remote sensing, predictive modeling, habitat evaluation, scenario development, and forecasting and simulation, along with traditional tools like natural histories and condition assessments of species and communities.



In practice, the application of the mitigation hierarchy to manage the lands and resources under the Department's jurisdiction presents numerous challenges for land managers, project proponents, and other stakeholders. These challenges complicate not only the application of mitigation and other management tools, but also the ability to measure progress toward established mitigation goals. In this chapter we describe several of the major mitigation challenges, and in succeeding chapters we present a strategy for addressing them, including ways to enhance the effectiveness of the Department's overall mitigation policies and practices.

1. Resources at Risk:

Increasing Pressure and Cumulative Impacts

Not surprisingly, predictions suggest that pressures on natural and cultural resources will increase with population growth. "Our lands, air and waters are increasingly in demand for a wide diversity of uses including recreation, energy development – both renewable and conventional – and other forms of commerce. The *cumulative* impacts of these uses are having a significant effect on the landscape. The term cumulative impacts refers to the combined effects of human activity on a resource or community; impacts of an action may be relatively insignificant on their own, but as they accumulate over time and combine with the impacts from other sources they can lead to significant overall degradation of resources.

To date, analyzing and addressing these cumulative impacts has proven challenging. In the case of air quality, for example, a single oil and gas well or small group of wells generally cannot be identified as causing an exceedance of a specific threshold—be it a health based standard or a requirement to protect visibility in national parks. Tools exist, however, for analyzing cumulative impacts from multiple wells and determining whether mitigation is needed on individual operations to avoid exceedances.

2. Changing Climate: Increasing Uncertainty

Climate change has many known and potential impacts. Known impacts include increased temperature and evaporation, changes in precipitation patterns, extreme weather events, sea level rise and higher storm surge. These impacts can have significant effects on the natural and cultural resources managed by the Department, including changes in stream flow, increased wildfire risks, increased spread of invasive species, changes to wildlife health and behavior, and increased occurrence of flood

damage to historic properties. In addition to ecological impacts, climate change presents profound implications for social, cultural, and economic conditions. Science suggests that regions such as the Arctic are moving toward conditions never before witnessed.⁵ The increasing uncertainty of near and long-term impacts of a changing climate requires decision-makers to manage toward less predictable future scenarios, and limits the effectiveness of current management tools that are based on more predictable variables, such as historical condition.

This increased uncertainty can have a significant effect on mitigation efforts that are designed to address impacts well into the future – impacts that cannot be easily predicted. New tools and approaches are necessary to allow managers to consider a range of plausible scenarios, make contingency plans, assess the resilience of the proposed mitigation strategies, provide for adaptive management, and ensure a precautionary approach in the face of uncertainty.

3. Science: Assessments, Baselines, Monitoring and Evaluation

The lack of adequate scientific information can be a constraint in the implementation of mitigation efforts. Scientific baselines that are necessary for understanding, monitoring and evaluating resources and their interactions are not always available. Without baseline information and an understanding of the complex interactions within and between natural systems, developing useful, quantifiable measures of mitigation success is extremely difficult. Effective and consistent monitoring of mitigation efforts at multiple scales is also needed to ensure that the measures are actually undertaken and that these measures are accomplishing their intended results. Fiscal resources should be allocated to ensure that monitoring and evaluation take place, particularly for system level impacts, multiple stressors, and/or the durability of the mitigation over the lifetime of the mitigation period.

When the science is inadequate, the promise of mitigation may not be realized, leading to potential ecological and compliance failures. In the case of salmon in the Pacific Northwest, for example, hatcheries were intended to compensate for the unavoidable loss of naturally spawning fish caused by dams. Unfortunately, however, it has turned out that artificial production of salmon has negatively impacted wild salmon stocks through competition for space and food, predation by

hatchery fish on wild stocks, introduction of disease and parasites, and a host of other factors.

To add to the challenges, effective mitigation requires many different types of scientific information and processes. Examples of scientific requirements for effective mitigation include monitoring conditions and processes in a comprehensive and consistent manner across jurisdictional boundaries; quantifying resources in both the impacted and mitigated areas; developing a system of metrics for adequately analyzing the comparability of development impacts and compensatory mitigation actions; assessing habitat quality for specific species of interest and assigning ecological equivalence to different locations; identifying tipping points that may lead to major degradation of natural and cultural resources and ecosystem services; developing models that accurately simulate environmental conditions in order to assess future possible scenarios; and providing useful data and training to land managers.

4. Durability of Mitigation

The durability of mitigation efforts over time is another important area of concern. To be successful, compensatory mitigation measures must be effective at least as long as the impacts – specifically those impacts the measures are designed to offset. Easements, covenants, and title conveyance are all widely used mechanisms that can ensure against new actions that harm resources on private land. However, many mitigation areas also require ongoing management to prevent dumping, control invasive plants, respond to natural or human-caused disturbances, and address unexpected contingencies. Such management often requires significant financial resources.

Thus, a key challenge in ensuring the durability of mitigation efforts is ensuring the availability of needed resources over the long term. On federal lands, the challenge of ensuring durability of mitigation efforts has two added dimensions in that the laws applicable to such lands may restrict long-term encumbrances upon them and agency action is often dependent on yearly appropriations. Further complicating matters, current regulatory structures may restrict federal agencies from requiring compensatory mitigation beyond the life cycle of the project, which, even if the project site is later reclaimed, may not represent the full duration of the impacts.

5. Additionality of Mitigation Measures

The goal of compensatory mitigation is typically to offset a proposed development action's expected impact on a resource value through conservation

measures that create, restore, enhance, or protect that same resource value in another location. For this goal to be achieved, it is essential that the offsetting conservation measures would not otherwise have occurred. If they would otherwise have occurred, then the impacts of development will not have been offset. In short, the beneficial effects of compensatory mitigation must be *additional* to what would otherwise have occurred.

When compensatory mitigation takes place on private land, it is usually not difficult to demonstrate additionality. When compensatory mitigation takes place on public lands, however, demonstrating additionality can be more problematic. The Fish and Wildlife Service, as a general matter, does not allow wetland restoration on National Wildlife Refuges to serve as compensatory mitigation for wetlands losses elsewhere, because the Service is already committed to restoring wetlands on its Refuges – wetland restoration efforts on Refuges would not be additional to what would otherwise happen there. For other land managing agencies with missions that encompass conservation, sorting out what would likely have occurred anyway from what will occur only because of compensatory mitigation initiatives is often very complex, entailing consideration of not only agency authorities, but possibly also agency budgets, plans, and historical practices.

6. Issues of Scale

Project-by-project compensatory mitigation, particularly when guided by a rigid presumption that such mitigation should be located as near to the impact site as possible, can be inefficient and ineffective for many reasons. Most notably, the narrow focus of project-by-project development and associated mitigation foregoes the opportunity to consider and address broadly the full impacts of a project upon the functional values of the place that is impacted. By examining the conservation needs of a more expansive area, such as a watershed or landscape, it may be possible to determine how mitigation decisions could more effectively and efficiently compensate for the project's impacts. Limited by scale and scope, project-by-project mitigation is more likely to result in inefficient use of mitigation resources and can reduce overall environmental benefit.

Adding to the challenge of addressing impacts at larger scales, the lack of landscape-scale scientific information, and the tools to use it, can make it difficult to identify and prioritize mitigation opportunities at a greater scale. If available at the appropriate scale, such information could be

incorporated into decision support tools that would help policy makers and managers to better plan landscape-scale mitigation.

7. Timeliness of Mitigation Considerations

The timing of mitigation considerations can be a concern for permitting agencies, project proponents and the public. Project planning involves many steps, and mitigation requirements are often inconsistently addressed and take place late in the planning process. The failure to coordinate these considerations at an early stage in the permitting process can result in efforts that are unsatisfactory for the permitting agency, inefficient or costly for the project proponent, and/or ineffective as mitigation measures – an outcome frustrating for all partners and stakeholders. When a project proponent is required to provide costly compensation for impacts that may have been avoided if mitigation expectations were understood and addressed early in the planning process, for example, both the proponent and the resources being impacted suffer.

Discussions early in the process can facilitate the application of the mitigation hierarchy and help to avoid or minimize environmental impacts before more costly mitigation efforts are planned. Without these early discussions, project proponents can face uncertain requirements and costs, constraints that may compromise the success or sustainability of development efforts.⁶

8. Consideration of the Full Mitigation Hierarchy

Although mitigation includes avoidance, minimization, and compensation, the structures and procedures that have been developed to accommodate *compensatory* mitigation provide the clearest guidance thus far for project proponents and resource managers. Because of this and because few managers have the information and resources in place to consider issues and impacts across a landscape scale, reported mitigation activities tend to focus primarily on well-established compensatory mitigation approaches at a project site, and typically do so on a project-by-project basis. Although not all impacts can be avoided, there is currently no clear guidance on how to develop and apply avoidance criteria or how to measure and evaluate the degree to which avoidance was considered as an option. While mechanisms to encourage avoidance have been incorporated into some bureau planning and development functions in recent years (e.g., Western Solar Energy Plan and Master Leasing Plans), greater attention to avoidance early in the proposal process can help forestall considerable expense and/or conflict for the project proponent.

9. Transparency and Efficiency

Because compensatory mitigation at a landscape scale inherently involves making tradeoffs between resources, the transparency of mitigation decision-making is particularly important. Where clearly described and justified mitigation ratios or other criteria exist, are publicly available, and are consistently followed, transparency is seldom a concern. In the absence of such ratios or other criteria, however, mitigation decisions can appear to be ad hoc rather than principled, giving rise to the suspicion that those decisions are influenced by political or other inappropriate considerations. Coordination, consultation, and collaboration are essential to transparency. While some statutes, such as NHPA, require outreach and transparency, such measures are often not fully realized.

In addition to transparency, efficiency is an ongoing concern for project proponents concerned about the length of time it can take to acquire a permit. Studies are beginning to provide guidance for advancing more efficient, effective approaches to compensatory mitigation planning while ensuring opportunity for meaningful public input into such planning. For example, a recent analysis of Clean Water Act Section 404 permitting data shows that mitigation banks and in-lieu fee programs result in a shorter average time to permit than both on-site permittee-responsible mitigation and off-site permittee-responsible mitigation for wetland and stream mitigation. On average, mitigation banks took 107 days to permit and in-lieu fee programs took 123 days, while permittee-responsible mitigation took 189 days for on-site, and 222 days for off-site. Reduced permitting time can help decrease uncertainty for developers and increase mitigation efficiency.⁷ The challenge is to reduce permitting times and uncertainty without sacrificing the opportunity for meaningful public input.

10. Collaboration

Although working at the landscape scale provides the best approach for addressing the challenges described above, it often requires the involvement of a number of partners – particularly for those efforts that cross jurisdictional boundaries and involve multiple government agencies. Effective coordination among federal, state, tribal, and local agencies, and private and NGO landowners and stakeholders can avoid duplication and lead to more effective mitigation efforts. In addition, certain situations may arise where appropriate large-scale mitigation efforts could benefit some agencies and adversely affect others. Mechanisms need to be developed both at the Departmental and interagency level to address these potential conflicts.



Finally, it should be noted that all of the above concerns exist even when the impacts to be mitigated involve only a single type of resource, such as an endangered species or a wetland. Mitigation becomes much more complicated when the goal is to address impacts to a variety of resources, including species, habitats, historic and cultural resources, water quantity and quality, air quality, scenic views, night skies, natural soundscapes and others. Conducting a comprehensive assessment and developing a mitigation plan for these different resources and associated ecological services at the landscape scale is a major challenge in light of current capabilities and the requirements of the various laws that apply. The fact that primary responsibility for these various resources may rest with several different state and federal agencies adds still more complexity. The coordination of mitigation decisions among several agencies must be a primary focus as the Department develops a landscape-level approach to mitigation.

Meeting the Challenge

As a result of the many complexities and challenges described above, the application and effectiveness of the mitigation hierarchy to date has been uneven and difficult to evaluate. Rigid bureaucratic procedures are now straining to accommodate escalating expectations for federal lands at the same time that the resilience of those lands is increasingly compromised by rapid environmental change. Over a decade ago, the EPA

requested that the National Research Council (NRC) form a committee to evaluate the practice of compensatory mitigation for wetlands. In 2001, the NRC report found that compensatory mitigation projects “often are not undertaken or fail to meet permit conditions.” More recently, mitigation experts have noted, “[T]he way mitigation is currently applied does not capture cumulative impacts associated with development; it does not provide a structured decision-making framework to determine when projects can proceed or should be avoided; and it does not harness the full potential of offsets (conservation actions applied away from the development site).”⁹

To address these challenges and improve mitigation practices while accommodating both infrastructure development and the conservation needs of America’s rapidly changing landscapes, the Department and its bureaus need modern mitigation policies, procedures and practices that more effectively avoid, minimize, and compensate for the impact of development on the lands and resources under the Department’s jurisdiction; provide better information and greater predictability to project proponents and land managers; improve the resilience of our Nation’s resources in the face of climate change; encourage more strategic conservation investments in lands and other resources; and increase compensatory mitigation effectiveness, durability, transparency and consistency. The following chapters describe a strategy for developing such policies and procedures.

Mitigation is an essential part of the Department's efforts to implement its mission and those of its bureaus. The challenges described in the previous chapter present important considerations for improving Departmental mitigation policies and procedures. The strategy described in the following chapters addresses these challenges head-on in order to enhance the efficiency and effectiveness of mitigation practices at the Department.

This strategy advances ongoing efforts at the Department to embrace a landscape-scale approach to managing natural and cultural resources and improve the implementation of the mitigation hierarchy. The term "landscape-scale" can represent many different spatial scales depending on the resource values being managed. For the purposes of this report and related Departmental efforts, a "landscape" is defined as a large area encompassing an interacting mosaic of ecosystems and human systems that is characterized by a set of common management concerns. The landscape is not defined by the size of the area, but rather by the interacting elements that are meaningful to the management objectives.

In the mitigation context, the landscape approach dictates that it is not sufficient to look narrowly at impacts at the scale of the project; it is necessary to account for impacts to resource values throughout the relevant range

of the resource that is being impacted. While "landscape-scale" and "regional" are not synonymous, they indicate a similar consideration of interacting systems at a scale larger than the ecosystem, and should not be constrained by administrative boundaries.

As described below, a landscape-scale approach to mitigation – in contrast to project-by-project and single-resource mitigation approaches that focus on small spatial areas – can improve permitting efficiencies, reduce conflict, and better achieve development and conservation goals. Such an approach provides a broader palette of mitigation opportunities and improves the opportunity for mitigation success.

Guiding Principles for Landscape-Scale Mitigation

In order to realize the promise of landscape-scale mitigation, the Department and its bureaus will institute policies and procedures that reflect the following guiding principles:

- 1. Landscape-scale:** *Incorporate landscape-scale approaches into all facets of development and conservation planning, project review, and mitigation implementation.*

Consideration of the landscape-scale context provides the opportunity to see project development in the context of the larger landscape it will occupy and



associated resource values it will affect; enhances the ability to evaluate cumulative effects of multiple projects; expands the capacity to avoid, minimize, and offset project impacts; and allows managers to make avoidance and compensatory mitigation site selection decisions that optimize for multiple resource values.

Generally speaking, advancing landscape-scale mitigation involves assessing existing and projected landscape conditions; establishing management goals and strategies for the landscape; incorporating those goals and strategies into plans and actions; identifying landscape-scale issues, threats, and impacts; tailoring strategies to address those threats or impacts; and developing and implementing monitoring and evaluation protocols and metrics in an adaptive framework.

2. Full Mitigation Hierarchy: *Utilize the full mitigation hierarchy in project planning and review.*

Agency officials, project developers, and other stakeholders will use landscape-scale strategies and plans to more effectively design projects that avoid potential conflicts with natural, cultural, and other valued resources and minimize impacts to those resources. Bureau protocols and guidelines will be established to inform, monitor, and report on these avoidance and minimization efforts. For projects that have unavoidable impacts, compensatory actions will be designed to address those impacts by protecting or restoring resources of similar function and value within the context of the landscape strategy. Such compensatory actions will be characterized by the principles described in this chapter.

3. Promote Certainty: *Establish protocols to simplify planning and project review while improving operational certainty for project proponents.*

Implementing landscape-scale mitigation approaches can increase agency efficiency by reducing the time, costs, and complexities associated with project reviews, environmental analysis, and permitting. However, Departmental bureaus should seek to establish additional practices and procedures that will improve operational certainty and reduce costs. Some important practices, such as advance determination of mitigation needs, providing scientific information and tools for assessing baselines and trends, and instituting cross-agency collaboration, are described below, while others will be specific to the development sector or resource under consideration.

To enhance certainty for compensatory mitigation, policies and plans should clarify up front: (1) the types of actions that will qualify as compensatory mitigation; (2) the manner in which mitigation obligations will be quantified; and (3) the consequences of mitigation failure or unexpected developments. There is no single correct approach to dealing with unexpected future circumstances that render mitigation efforts less effective

than anticipated. However, transparent and consistent approaches and expectations will foster a more adaptive and effective response to these uncertainties and reduce surprises for project proponents.

To further improve certainty, bureaus should take steps to ensure that mitigation commitments are implemented consistent with the specific mitigation outcomes identified in each project decision or resource management plan. For mitigation actions to be undertaken by a particular bureau, the bureau should commit to seek necessary funding. If impacts to resource values and functions cannot be adequately mitigated, the bureau may deny the proposed land-use authorization or project approval. In order to advance a transparent and consistent approach to mitigation, the Department will clearly identify in decision documents the commitments to mitigation measures designed to achieve environmentally-preferable outcomes.

4. Advance mitigation planning: *At the outset of the project planning process, incorporate mitigation and landscape objectives into the design and development of projects that are likely to impact natural or cultural resources.*

Ensuring consideration of the mitigation hierarchy and landscape strategies up-front in the project planning process can dramatically increase operational certainty and advance management objectives. For resource developers, identifying mitigation needs early in the project development process can provide greater predictability and certainty in the design, development and implementation of projects by avoiding the need for late project revisions and analyses, and by providing for coordination and consistency among agencies. This can serve to reduce project costs and increase the confidence of investors, purchasers, and other project beneficiaries in the ultimate success of the project.

In order to determine the mitigation requirements of a proposed development at the beginning of the planning process, bureaus should clearly state the management objectives and legal requirements for the affected landscape. This ensures that the project developer understands any potential conflicts with these objectives and the mitigation requirements for a proposed project. Providing clear descriptions of these management objectives requires that landscape-scale strategies, informed by landscape-scale scientific information and tools, be developed and made accessible for all of the involved partners. Strategies should use the best available science and be inclusive of, and incorporated into, any existing plans that describe the agency's intended use and management of a particular landscape, such as Bureau of Land Management (BLM) resource management plans, Fish and Wildlife Service (FWS) threatened and endangered species recovery plans, and National Park Service (NPS) park unit plans.

- 5. Science and Tools:** *Develop and utilize the scientific information and tools necessary to identify the most efficient and effective means of mitigating the effects of development and to inform monitoring and evaluation of mitigation efforts.*

The concept of mitigation begins with a detailed understanding of the resources that are impacted by development, which resource values need to be protected, the current baseline status of these resources, and other projected threats such as the impacts associated with climate change, invasive species, or changing fire regimes. This baseline information is necessary in order to develop landscape-scale strategies, compare mitigation scenarios, and assess the effectiveness of mitigation actions over time. Scientific data and tools are therefore needed to gain an understanding of the condition of existing resources, to identify where these resources are found and best conserved across broad geographies, and to understand how the resources respond to the impacts of development.

Science at the landscape-scale is also necessary to place mitigation decision-making in the context of changing environments, influences, and impacts that are beyond the local or project scale. Geospatial tools, now capable of optimizing for more than one species or resource value at a time, should be used to identify priorities for avoidance and compensation for these multiple resource values.

- 6. Foster Resilience:** *Identify and promote mitigation efforts that improve the resilience of our nation's resources in a rapidly changing climate.*

Climate change impacts and trends are an important consideration for conservation and development goals; this is increasingly true if development impacts or conservation goals have long time horizons. The Department's climate change adaptation policy, issued in December 2012, requires the Department and its bureaus to "use the best available science to increase understanding of climate change impacts, inform decision making, and coordinate an appropriate response to impacts on land, water, wildlife, cultural and tribal resources, and other assets." It also established the Department's policy to promote landscape-scale, ecosystem-based management approaches to enhance the resilience and sustainability of linked human and natural systems and consider climate change when developing or revising management plans, setting priorities for scientific research and assessments, and making major investment decisions.

The policy promotes several practices essential to mitigation decision making, including protecting diversity of habitat, communities and species; protecting and restoring core, un-fragmented

habitat areas and the key habitat linkages among them; anticipating and preparing for shifting wildlife movement patterns; maintaining key ecosystem services; monitoring and preventing the spread of invasive species; focusing development activities in ecologically disturbed areas when possible, and avoiding ecologically sensitive landscapes, culturally sensitive areas, and crucial wildlife corridors. Landscape-scale mitigation provides opportunities to build resilience by considering the cumulative effects of development, incorporating conservation principles such as habitat connectivity into landscape strategies, and ensuring that conservation and development activities take place within a comprehensive regional strategy.

- 7. Durability:** *Ensure that mitigation measures are durable.*

Mitigation must be durable to be effective. Mitigation is only durable if it is effective for the duration of the development's impacts on the affected resource values and functions. Durability also requires that resources protected or restored must remain "un-impacted" by subsequent development and minimally vulnerable to other stressors (e.g., fire, invasive species) for the duration of the impacts of the proposed development. Ensuring such durability requires the use of multiple approaches, particularly on public lands. For example, BLM is exploring potential new approaches, including easements, cooperative agreements, conservation rights of way, and withdrawals, for ensuring effective and durable mitigation actions.

- 8. Transparency:** *Promote transparency and consistency in the development of mitigation measures.*

Ensuring the transparency and predictability of mitigation decision-making begins by clarifying what management objectives are to be met by these decisions. The objectives may depend upon the nature of the resource being affected by a particular project and by the legal authority protecting that resource. For example, some resources are inherently unique and irreplaceable, so the option of offsetting their loss by creating or restoring them elsewhere is not possible. For other resources for which offsets are possible, the goal of mitigation can be expressed as maintaining or expanding a resource, value, or function, or it could seek to offset unavoidable impacts "to the maximum extent practicable," or to achieve through compensatory mitigation a "net conservation benefit." Still other formulations are possible. Thus, Departmental mitigation policies should clearly state the resource values and functions for which mitigation is being implemented, the mitigation objectives in terms of specific, measurable performance standards; and expected results consistent with existing authorities, policies, guidance, and instruction memoranda.

To serve this transparency principle and ensure consistency in mitigation actions, the Department and its bureaus will ensure that mitigation measures are demonstrably additional and durable when compensating for unavoidable impacts, and always reflect the guiding principles described in this report, including the need to monitor the results of mitigation actions. When monitoring indicates that mitigation outcomes have not been met, additional corrective measures must be undertaken. Such measures should be provided for through assurances established as part of the compensatory mitigation agreement.

9. Collaboration: *Coordinate with other federal and state agencies, tribes, and stakeholders in conducting assessments of existing and projected resource conditions, forming mitigation strategies, and developing compensatory mitigation programs.*

For projects likely to impact multiple resources administered by different agencies, landscape-level mitigation can be used to bring these entities together early in the planning process to assemble the best available science and focus jointly on finding means to resolve any potential conflicts. In developing and implementing a landscape-scale approach to management, the Department will work with other federal and state agencies, tribes, scientific institutions, and stakeholders.

The networks of Landscape Conservation Cooperatives, Climate Science Centers, and other partnerships should be engaged to provide essential information in the development of landscape-level mitigation strategies across sectors, scales, and levels of government. For example, the Western Governors Association Wildlife Council's initiative on wildlife corridors and crucial habitats provides a regional data base that can support landscape-level project planning and mitigation. Tribes have off-reservation treaty and co-management rights that reflect long held traditions of cultural and spiritual site management and access concerns; the Department's special relationship with tribes requires special efforts to communicate and coordinate regarding these concerns.

10. Monitoring: *Monitor and evaluate the results of mitigation over time to ensure that the intended outcomes are achieved.*

Mitigation can fail to fully meet expected outcomes if the mitigation actions are not properly designed and implemented, if the actions prescribed are not the right ones to address a specific project impact, or if unanticipated changes in resource conditions (e.g., wildfire or drought) occur. To remain adaptive and effective, mitigation strategies and plans must be adjusted over time to respond to changing conditions or unanticipated or inadequate outcomes to ensure that such efforts successfully achieve their intended



purpose.¹⁰ As part of the initial phases of project planning and in concert with project implementation, a monitoring strategy must be developed that permits accurate and transparent assessment of the current status of the resources of concern, how development has affected those resources, and progress in achieving the specific mitigation objectives for the resources and values impacted by the project.

Should monitoring reveal that mitigation objectives are not being achieved, or the outcomes of the mitigation are not producing the intended benefits, then changes in the mitigation strategy for current and future projects should be developed and adopted. A successful adaptive management process requires the establishment of management benchmarks to ensure progress toward mitigation goals, the establishment of protocols to monitor progress in relation to these benchmarks, and the resolve, fiscal resources, and ability to make adjustments as new information becomes available to ensure that mitigation objectives are ultimately achieved.

To effectively integrate the guiding principles described above and enhance the ability of state and federal agencies to address wildland fire, invasive species, climate change and other large-scale stressors, the Department's management bureaus are implementing a landscape approach that involves four distinct steps: 1) identifying key landscape-scale attributes, and the

conditions, trends, and baselines that characterize these attributes; 2) developing landscape-scale goals and strategies; 3) developing efficient and effective compensatory mitigation programs for impacts that cannot be avoided or minimized; and 4) monitoring and evaluating progress and making adjustments, as necessary, to ensure that mitigation is effective despite changing conditions (Figure 1).

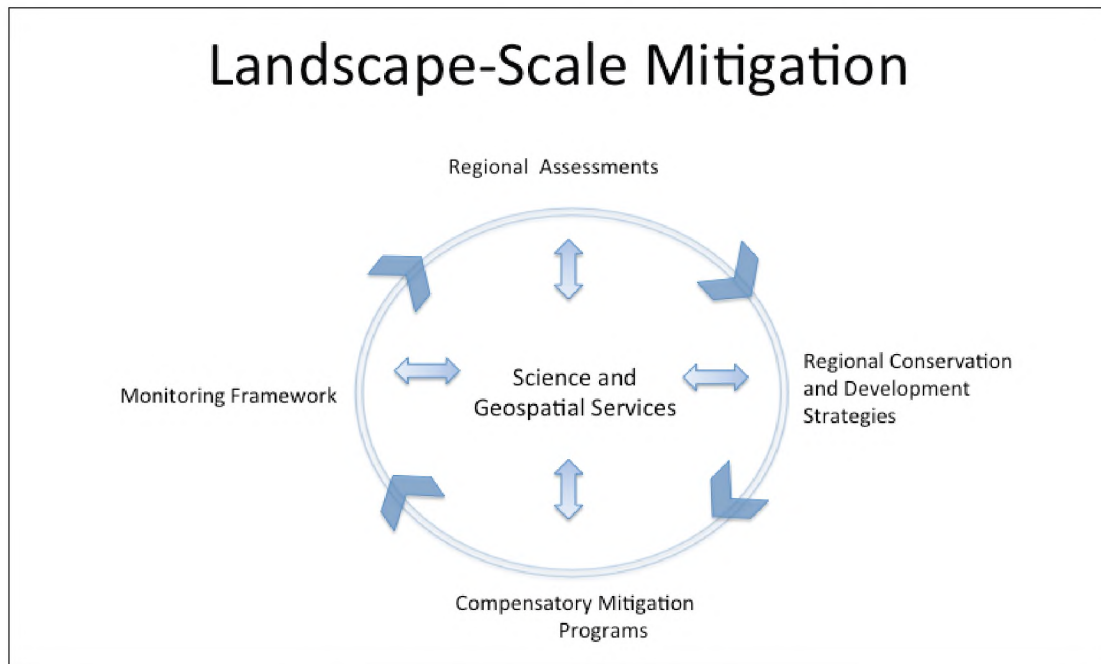


Figure 1. A Landscape Approach to Mitigation

Departmental bureaus are currently advancing a landscape approach to mitigation in various contexts in collaboration with multiple agencies and partners, and anticipate that these practices will evolve over time. To ensure consistent policies and practices and align the efforts of the bureaus to advance their respective missions, the bureaus will work together to advance a coherent landscape-scale strategy based on each of the four steps described above, and will do so in collaboration with other federal, state, and tribal agencies and non-governmental organizations, including industry. The outcomes for each of the steps are as follows:

- 1. Geospatial Assessments:** Data and subject matter experts from across the Department, collaborating with partners in other federal, state, and tribal agencies, will develop and maintain geospatial information systems for use in identifying existing and potential conservation priorities and development opportunities. These experts will develop tools and provide training to enable the appropriate scaling and use of these

geospatial data sources and maps. Much of this work has already been initiated; the United States Geological Survey (USGS) and other Departmental bureaus are developing science products and collaborating with state and non-governmental experts to help inform this landscape approach. These ongoing efforts include conducting research to help understand causal relationships and to identify potential thresholds, developing models to project future conditions, and providing remotely sensed imagery. Tools being developed by other federal agencies and several states will also inform this effort, including the Western Governors Association's Crucial Habitat Assessment Tool (CHAT) and State Wildlife Action Plans. **Outcomes:** a) A geospatial information system (or systems) that permits identification of existing and potential conservation priorities and development opportunities at the regional scale; and b) tools and the training necessary to promote their effective use in mitigation strategies. **Next Step:** Conduct a data and tools workshop and needs assessment, to be led by USGS in collaboration with other bureaus at the Department.

2. Landscape-level Strategies: Experts within the bureaus and offices of the Department will develop guidance for bureaus to employ in establishing landscape-scale goals and strategies. These goals and strategies will guide future resource planning and management decisions to advance a landscape level approach. This process will utilize the geospatial tools and data described above to help guide application of the mitigation hierarchy. Existing and planned policies will inform this effort, including the BLM Master Leasing Plans, BLM's interim Regional Mitigation Policy, the Dry Lake Solar Energy Zone Regional Pilot Mitigation Strategy, and subsequent regional mitigation strategies. Ongoing efforts to mitigate for impacts to the greater sage-grouse will also inform this work. Strategies will be utilized in agency planning efforts, such as BLM's Resource Management Plans (when each plan is updated), and used to enhance project-specific NEPA processes. *Outcome:* Guidance for developing landscape-scale strategies that ensure the effective implementation of the mitigation hierarchy in planning major development activities, including energy and infrastructure, minerals, and water resources development. *Next Step:* Undertake a multi-bureau survey of existing and planned guidance related to mitigation strategies, to be led by BLM in collaboration with other bureaus at the Department.

3. Compensatory Mitigation Programs: Experts within the bureaus and offices of the Department will develop a template to inform future compensatory mitigation efforts. The purpose of this template will be to ensure that compensatory mitigation programs advance landscape-scale mitigation strategies; provide appropriate means for addressing the unavoidable impacts to resources associated with development; frame the management of compensatory mitigation funds; set standards for the certification of regional mitigation and/or conservation banks, and provide for periodic reporting on the effectiveness of completed mitigation actions. This work will build upon existing efforts across Departmental bureaus, other federal agencies, and states, and will incorporate best practices from ongoing programs, including compensatory mitigation programs for impacts to streams, wetlands, and endangered species. *Outcome:* A template for developing compensatory mitigation programs that achieve landscape level strategic goals and incorporate the guiding principles described in this report. *Next Step:* Prepare a multi-state comparison of existing compensatory mitigation programs and practices, led by FWS.

4. Monitoring and Evaluation: In consultation with their counterparts in federal, state, and tribal agencies, experts within the bureaus and offices

of the Department will develop a framework for monitoring and evaluating the effectiveness of specific mitigation actions or strategies. Utilizing the geospatial systems and data sources described above, this framework will build upon existing and evolving monitoring protocols and be integrated at a landscape scale. The framework will be used for projects, mitigation actions, and regional mitigation strategies or plans and will include the establishment of metrics and benchmarks that will help inform the application of the mitigation hierarchy over time, including periodic reviews of specific mitigation strategies. This framework will ultimately inform adaptive management strategies for achieving landscape-level management goals. *Outcome:* A monitoring and evaluation framework to measure the effectiveness of mitigation projects and actions, to measure progress toward the goals established by the landscape-level strategies, and to direct adjustments to these strategies when necessary to correct mitigation failures and adapt to changing conditions. *Next step:* Conduct a multi-agency review of existing landscape-scale programs for monitoring change in terrestrial condition, aquatic condition, and landscape pattern, to be led by Departmental bureaus working with the Interagency Land Management Adaptation Group.

Near-Term Policy Deliverables

The above outcomes will provide the foundation for developing a meaningful landscape-scale approach in the face of increasing pressures and accelerating change across American landscapes. In order to facilitate the four outcomes described above, incorporate the guiding principles into practice, and ensure the implementation and reporting that will be required, the Department will complete the following policy and process deliverables while examining additional measures that would advance the landscape-scale mitigation strategy:

- 1. Department Manual Mitigation Chapter – Q3 2014.** The Office of Policy Analysis will develop guidance, in the form of a new chapter to the Department Manual, for implementing, Department-wide, the principles and procedures outlined in this strategy.
- 2. Interagency Coordination –** The Department will work with the Steering Committee on Infrastructure Permitting and related working groups to execute the Implementation Plan for the Presidential Memorandum on Modernizing Infrastructure Permitting, including its provision to "Expand Innovative Mitigation Approaches."
- 3. Develop Mitigation Framework for Greater Sage-Grouse Conservation – Complete Q4 2014.** The Department, with leadership from the BLM, USGS, and the FWS, will develop a landscape-scale mitigation framework for greater sage-

grouse conservation in collaboration with states, tribes, and local governments, as well as industry and other stakeholders.

4. **Initiate Guidance for Mitigation in National Environmental Policy Act Analysis – Q3 2014.** The Office of Environmental Policy and Compliance will convene a working group of Department NEPA specialists to develop Departmental guidance based on the Council on Environmental Quality's 2011 guidance on the "Appropriate Use of Mitigation and Monitoring and Clarifying the Appropriate Use of Mitigated Findings of No Significant Impact." This guidance will reflect CEQ guidance on integrating compliance with NEPA and section 106 of NHPA.
5. **Develop Geospatial Data Tools for Landscape-scale mitigation – Q4 2014.** The Department, with leadership from the Geospatial Information Officer and the USGS, will convene a workshop of partners and experts to identify and evaluate existing landscape analysis data and tools and issue guidance for their use in mitigation decision support as described in section 4.2 above.
6. **Develop Technical Reference for Solar Energy Zone Regional Mitigation.** The BLM will conduct a stakeholder workshop to discuss the lessons learned from the Dry Lake SEZ Regional Mitigation Pilot Strategy and develop a technical reference document for developing future regional mitigation strategies for solar development. Lessons learned from the Dry Lake pilot effort, as well as public feedback on the strategy, will inform the development of mitigation strategies for additional SEZs.
7. **Finalize BLM Regional Mitigation Policy – Q3 2014** The BLM will finalize its "Interim Draft Regional Mitigation Manual Section 1794" in accordance with this strategy. This policy will include a commitment to avoid, minimize, and compensate for residual impacts to appropriate resources, including conservation areas within and outside the jurisdiction of the bureau in collaboration with relevant land managers such as NPS, FWS, USFS, and state resource management agencies.
8. **Initiate Development of Handbook for Implementing Regional Mitigation Policy – Q1 2015.** The BLM will initiate development of a handbook for implementing its Regional Mitigation Policy and will work to incorporate mitigation principles into relevant programmatic handbooks and manuals. The BLM will also develop training modules for field staff.
9. **Develop and Implement Regional Workshops and Training for Implementation of Landscape-Level Mitigation – Q1 2015 and ongoing.** An interagency team will conduct regional workshops on implementation of the policies, programs, and guidance for landscape-level mitigation described in this strategy. Training and resources will address lessons learned and best management practices, and may include non-agency stakeholders. USGS, in collaboration with other bureaus within the Department, will provide training, technical assistance, and tool development for incorporating best available science, design of monitoring frameworks, adaptive management, and use of Structured Decision Making for evaluating mitigation alternatives.
10. **Policy Forum on Landscape-Scale Analysis – Q4 2014.** In conjunction with other bureaus within the Department and the U.S. Forest Service, the BLM will convene a policy forum of federal scientists and policy experts, working with state authorities and other key stakeholders, to share methods for identifying potential landscape-scale conservation and development priorities and to discuss how those methods may be better integrated into BLM Resource Management Plans and U.S. Forest Service Forest Plans.
11. **Propose Revisions to FWS Mitigation Policy – Q4 2014.** The FWS will formally propose revisions to its 1981 Mitigation Policy consistent with the principles outlined in this strategy.
12. **Propose Revisions to FWS Mitigation Banking Policy – Q4 2014.** The FWS will formally propose revisions to its 2003 "Guidance for the Establishment, Use, and Operation of Conservation Banks" consistent with the principles outlined in this strategy.
13. **Propose FWS Policy on Mitigation for Candidate Species – Q2 2014.** The FWS will formally propose new policy regarding mitigation for established "candidate species" that ensures the validity of those commitments should the species be listed under the ESA.
14. **Initiate Guidance for Landscape Scale Mitigation Under Section 106 of NHPA – Q1 2015.** The NPS will convene a workgroup of experts from DOI land managing bureaus, the Advisory Council on Historic Preservation, and other stakeholders to develop guidance for landscape-scale mitigation of impacts to cultural resources under Section 106 of the NHPA.
15. **Initiate Guidance for Landscape Level Mitigation for Shared Scenic Resources and Values – Q1 2015.** The NPS will convene a workgroup of experts from Departmental land managing bureaus and other stakeholders to collaboratively develop guidance for addressing landscape-level mitigation for preserving shared scenic views.

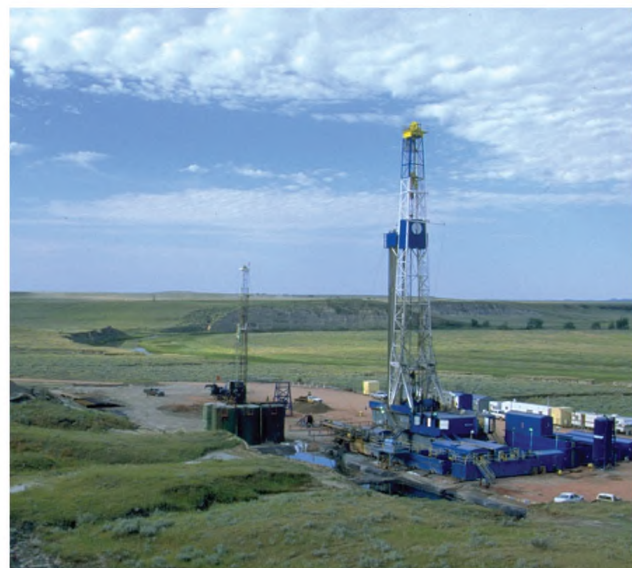
The preceding strategy provides a blueprint for improving the effectiveness of the Department's mitigation policies and practices. In developing this proposed strategy, the authors reviewed many efforts, tools, and initiatives already ongoing or planned at the state and federal level that will inform the implementation of these reforms. The following sampling of efforts provides both proof-of-concept and a hopeful sign that many of the principles described above are already embedded in initiatives at all levels of government. Our challenge now is to build from these endeavors to construct a consistent and effective set of policies for the Department of the Interior and nationwide.

- **The Maryland Water Resources Registry (WRR)** is a collaborative effort by multiple federal and state agencies to streamline permitting processes while simultaneously enhancing ecological outcomes. The stated objective of the WRR is to “map natural resource areas that are a priority for preservation” and to “identify sites best-suited for ecosystem preservation and restoration”. The WRR interagency team worked in partnership to 1) Integrate agency conservation priorities associated with the Clean Water Act; 2) Develop criteria for prioritizing areas suitable for conservation and restoration; and 3) Publish a web site where mitigation “opportunities” can be explored via a Geographic Information System. Published mitigation opportunities include the protection or restoration of wetlands, uplands, streamside areas, and storm water infrastructure areas. The interactive-mapping tool uses a scoring system to rate mitigation opportunities with the goal of attracting developers towards mitigation opportunities with the highest ecological value. The benefits of the WRR include the following:
 - *Permit applicants can easily identify priority mitigation opportunities during the planning phase, before the review process is initiated.*
 - *Private developers can guide their land use and mitigation decisions based on multi-agency priorities.*
 - *Public land trusts and wetland bankers can target areas for purchase and preservation.*
 - *Local and County planners can inform resource protection, zoning, and land use plans. Registry Web site: <http://www.watershedresourcesregistry.com>.*
- **Advance Permitting for Bridge Modernization in Oregon.** In 2003 the Oregon State Legislature enacted the third Oregon Transportation Investment Act (OTIA III), an infrastructure and economic stimulus law that established a State Bridge Delivery Program requiring advance permitting and environmental mitigation planning prior to design and build. In 2008

the Oregon Department of Transportation conducted a cost/benefit comparison of a traditional project permitting approach with the programmatic process developed for the OTIA III State Bridge Delivery Program. The analysis noted that “the expected need for mitigation as a result of bridge construction has been a fraction of what was anticipated at the beginning of the program due to the avoidance of resources during the development process...” While \$54 million in savings was projected, the realized savings exceeded \$73 million in 2008.

In addition to cost avoidance and a substantial reduction in delays, the qualitative benefits of the programmatic approach versus the project-by-project approach were also described in the analysis as substantial, including increased trust and improved flexibility in resolving issues. “The economies of scale realized by addressing regulatory obligations at a program level have taken negotiations on mitigation and enhancement opportunities off of the critical path for individual projects. This has led to decreased construction schedules and better environmental outcomes.”¹¹

- **North Carolina Ecosystem Enhancement Program.** North Carolina's Ecosystem Enhancement Program (EEP), a State-backed in-lieu fee program that provides offsite compensatory wetland and stream mitigation offsets, has allowed the state's Department of Transportation (NCDOT) to integrate their transportation planning with landscape-level watershed planning in order to streamline the overall mitigation process. In doing so, the EEP has reduced wetland mitigation expenses, as a percent of NCDOT project costs, from 8 percent to less than 3 percent, representing an annual cost savings of \$32.5 to \$65.0 million.¹² The North Carolina Department of



Environment and Natural Resources reports that, since 2003, the EEP has allowed the NCDOT to advance nearly \$14 billion in transportation projects without a single delay due to mitigation permitting (from: <http://portal.ncdenr.org/web/eeep/why-eeep-matters>).

- **The Western Governors' Crucial Habitat Assessment Tool (CHAT).** The CHAT is a cooperative effort of 16 Western states to provide the public and industry a high-level overview of "crucial habitat" across the West. As defined by the Western Governors Association (WGA), crucial habitats are areas that are "likely to provide the natural resources important to aquatic and terrestrial wildlife, including species of concern, as well as hunting and fishing species." The CHAT, built from state wildlife agency data, is intended to help project proponents during pre-planning of development or in comparing wildlife habitat areas. The tool is designed to help developers reduce costs, conflicts and surprises while ensuring wildlife values are better incorporated into land use decision-making. The online tool is an example of WGA's collaboration with federal agencies – including the FWS, the BLM, and the U.S. Forest Service – to enable state fish and wildlife data and analyses to inform land use, planning and other land use decisions. "The Western Governors encourage widespread use of CHATs to better inform energy, transportation, and land use planning while providing for healthy and productive landscapes." (from: http://www.westgov.org/policies/cat_view/95-reports/280-2013?orderby=dmdatecounter&ascdesc=DESC).
- **Dry Lake Solar Energy Zone.** In conjunction with the Western Solar Energy Plan, the BLM developed a pilot mitigation strategy for solar energy projects that may occur in the Dry Lake Solar Energy Zone. The Solar Energy Plan calls for the development of mitigation strategies for each solar energy zone (SEZ) to identify opportunities for compensatory mitigation to offset the impacts of projects on resource values in the SEZ. Through the development of these mitigation strategies, project proponents will have a better understanding of the mitigation measures required, and the associated costs, for compensatory mitigation actions in conjunction with development in the particular SEZ. Lessons learned from the Solar Regional Mitigation Strategy for the Dry Lake Solar Energy Zone will be used to inform the development of future mitigation strategies for other solar energy zones.
- **Multi-State Habitat Conservation Plans.** Habitat conservation plans (HCPs) under the Endangered Species Act have been used both to offset the impacts of single-landowner development projects

and to integrate endangered species conservation considerations into local land-use ordinances. Increasingly, habitat conservation plans are being used to address activities occurring in multiple states. A recent example is the plan approved for NiSource, Inc., a natural gas pipeline and distribution company. This HCP mitigates the impacts of pipeline construction and maintenance activities on dozens of endangered species in fourteen states. Similar multi-state HCPs are under development for wind energy projects within the migratory corridor of the whooping crane and within the range of the endangered Indiana bat.

- **Desert Renewable Energy Conservation Plan.** The Desert Renewable Energy Conservation Plan (DRECP) is a comprehensive and coordinated state/federal effort to provide effective protection and conservation of California's desert ecosystems while guiding the development of appropriate renewable energy projects throughout the region (over 22,585,000 acres).

Goals and objectives for the DRECP: Provide for the long-term conservation and management of Covered Species*; preserve, restore, and enhance natural communities and ecosystems; identify and avoid impacts to sensitive cultural resources; build on the Competitive Renewable Energy Zones identified by previous studies; further identify the most appropriate locations for utility-scale renewable energy projects; provide a framework for a more efficient process for regulatory authorization resulting in greater conservation than project-by-project or species-by-species reviews can obtain; provide durable and reliable regulatory assurances; identify and incorporate climate change adaptation research, management objectives, and/or policies into the final plan document.

- **Advance Mitigation for Greater Sage-Grouse and Lesser Prairie-Chicken**

Greater Sage-Grouse

In conjunction with the development of a conservation strategy for the greater sage-grouse, federal and state land management agencies are developing guidance for measures to mitigate the effects of development activities that may pose a threat to the continued existence of the species. This strategy will apply to all management actions on BLM, Forest Service, and state lands within the remaining range of the species while providing each state the flexibility to develop tools (e.g., mitigation banks, fee structures) to meet the desired mitigation outcomes.

* Proposed Covered Species are plants and animals identified in the Plan for which conservation and management are provided and "take" will be authorized over a long-term permit period. The Covered Species list is developed through an iterative planning process incorporating input from the public stakeholders, and independent scientific review.

Lesser Prairie-Chicken

The five states with lesser prairie-chickens (CO, KS, NM, OK, and TX) have developed a rangewide conservation plan that relies heavily on a mitigation program in which agricultural landowners will be paid to undertake conservation measures on their lands. Funds for these payments will come from assessments on oil and gas and other development activities. Under the special 4(d) rule proposed by the FWS, development activities that result in the taking of lesser prairie-chickens will be authorized, provided that those development activities are covered by the mitigation program. Thus, even though the lesser prairie-chicken is a federally listed threatened species, the state-developed rangewide conservation plan and its mitigation program will effectively leave the states with the authority to continue to manage and conserve the species.

- **Offshore Wind Energy.** In 2010, the Department's Bureau of Ocean Energy Management (BOEM) launched an offshore 'Smart from the Start' program designed to facilitate efficient and environmentally responsible siting, leasing and construction of new offshore wind energy projects on the Atlantic Outer Continental Shelf (OCS). The Initiative calls for BOEM, in close coordination with local, state and Federal partners, to identify priority wind energy areas for potential development and accelerate the leasing process for those areas. BOEM has convened 10 intergovernmental state Task Forces engaged in planning for Atlantic OCS wind leasing and development, and has also launched Task Forces in Oregon and Hawaii. The Task Forces are central to planning and designing wind energy areas that provide opportunities for significant wind energy generation while minimizing and managing potential conflicts with environmental concerns and important other uses, such as fishing, shipping, tourism, National Seashores, and Native American and cultural interests.

BOEM uses the best available science and a stakeholder-driven process to identify resources, conflict-use areas and suitable placement of offshore energy facilities. Through the Task Forces and the environmental review process, BOEM will identify necessary mitigation needs for potential environmental risks early in the process. Mitigation may include avoiding archaeological resources, reduced vessel traffic, avoiding high value fishing grounds, requiring minimum separation distances for marine mammals, preserving important ocean views, or adjusting the locations of meteorological towers and buoys to avoid adverse effects to offshore cultural resources or biologically sensitive habitats.

- **Rapid Ecoregional Assessments.** The BLM's Rapid Ecoregional Assessments (REA) Program was initiated in 2010. REAs are peer-reviewed science products that synthesize existing information (including a significant

amount of non-BLM data) about resource conditions and trends. They highlight and map areas of high ecological value; gauge potential risks from stressors including climate change; and establish landscape-scale baseline ecological data to gauge the effect and effectiveness of future management actions. It is the policy of the BLM to use this REA information and similar information from other large-scale assessments to help identify potential development and conservation priorities; prepare land use plans and plan amendments; conduct cumulative impact analyses; develop best management practices; and authorize public land uses. Like the Western Governors Association's Crucial Habitat Assessment Tool, the REAs are foundational to a landscape approach to management. The BLM released four Rapid Ecoregional Assessments (REAs) in 2013 and is planning to release four additional REAs in 2014, six in 2015, and one in 2016. Taken together, these 15 REAs cover over 700 million acres of public and non-public lands.

- **Transportation Infrastructure.** With the understanding that existing mitigation efforts do not always provide the greatest environmental benefits or promote ecosystem sustainability, the U.S. Department of Transportation and a team of representatives from eight other federal agencies and Departments of Transportation from four states developed guidance for making transportation infrastructure development more sensitive to wildlife and ecosystems through enhanced interagency and stakeholder collaboration. This effort culminated in the 2006 report *Eco-Logical: An Ecosystem Approach to Developing Infrastructure Projects*. In 2012, the State of California adopted a draft framework for Regional Advanced Mitigation Planning (RAMP) that embraced the principles from *Eco-Logical* but also established guidelines for streamlining permitting processes as well as improving conservation outcomes – essentially integrating infrastructure and conservation planning. This approach has been endorsed by the California Departments of Transportation, Water Resources, and Fish and Game, as well as the California Wildlife Conservation Board, the California State Water Resources Board, the U.S. EPA, National Marine Fisheries Service, and the U.S. Department of Transportation.

The initiatives and programs described above are only a few of the many programs now being developed at state and federal levels to address the need to better integrate development and conservation planning at the landscape scale on both public and private lands and waters. To varying degrees they all address the guiding principles from Chapter 4 and seek to improve mitigation efficiencies and effectiveness, provide more transparency and predictability, and foster more resilient human and natural systems in the face of a changing climate.

This report describes an advanced form of collaborative problem-solving at a time when the uncertainties of a rapidly changing climate and the imperative of an energy transformation pose challenges for sustaining the natural ecosystems that buffer us from extreme weather events and play a fundamental role in the maintenance of America's clean air, clean water, agricultural productivity, world class recreational opportunities, and economy.

The list of promising efforts described in the previous chapter demonstrates that there is a widely shared understanding of the need to work collaboratively to advance landscape-scale approaches. It also demonstrates that there are as many variations on the approach as there are management needs. To advance the multiple missions of the Department and its bureaus, these approaches must be aligned as much as possible across bureaus, agencies, states, and partners.

The strategy described in this report is intended to establish a common approach that will evolve and adapt to changing needs but ensure consistent policies and practices Department-wide. Getting it right on mitigation will improve our Nation's ability to more effectively balance the Department's responsibilities for managing development and conserving America's incomparable natural and cultural resources. This report, and the strategy it describes, is the Department's first step in building upon the innovative efforts that have been emerging across the country to avert resource conflicts prior to development and to advance sustainable solutions that ensure the highest and best use of our natural resources.



References

- ¹ Under NHPA, federal agencies are required to consider the effects of their “undertakings” on historic properties; regulations require that the federal agency consult States, Tribes, and the public to identify historic properties, assess, and resolve adverse effects (if any).
- ² The Wild and Scenic Rivers Act requires the avoidance of adverse impacts to river values.).
- ³ Compensatory mitigation is not a concept explicitly expressed under the NHPA, but in practice it does sometimes occur. For example, an activity that adversely affects some properties in a historic district might be mitigated through creation of a dedicated funding source to care for the remaining properties. In general, however, due the uniqueness of cultural and historic resources, avoidance and minimization are usually essential to the successful conservation of these resources. Similarly, avoidance of impacts to parks, wilderness areas, and conservation system lands from nearby development will best ensure the integrity of these areas and avoid the need for compensatory mitigation of uncertain efficacy.
- ⁴ World Bank. 2007. *Global economic prospects 2007: Managing the next wave of globalization*. Washington, DC: World Bank.
- ⁵ Clement, J.P., J.L. Bengtson, and B.P. Kelly. 2013. *Managing for the Future in a Rapidly Changing Arctic. A Report to the President. Interagency Working Group on Coordination of Domestic Energy Development and Permitting in Alaska* (D.J. Hayes, Chair), Washington, D.C.
- ⁶ David J. Hayes, “Addressing the Environmental Impacts of Large Infrastructure Projects: Making ‘Mitigation’ Matter,” 44 *Environmental Law Reporter* 10016 (Jan. 2014).
- ⁷ Birnie, Katherine (Ecosystem Investment Partners). May 9, 2013. “State of the Market: National Market Analysis and Overview.” Presentation at 2013 National Mitigation & Ecosystem Banking Conference. New Orleans, LA.
- ⁸ National Research Council. 2001. *Compensating for Wetland Losses under the Clean Water Act*. Washington, DC: National Academy Press.
- ⁹ Kiesecker, Joseph M., Holly E. Copeland, Bruce A. McKenney, Amy Pocerwicz, and Kevin E. Doherty. 2011. *Energy by Design: Making Mitigation Work for Conservation and Development*. Chapter 9 in: David E. Naugle (Ed.), *Energy Development and Wildlife Conservation in Western North America*. pp. 159-181.
- ¹⁰ Williams, B.K., and E.D. Brown. 2012. *Adaptive Management: The U.S. Department of the Interior Applications Guide*. Adaptive Management Working Group, U.S. Department of the Interior, Washington, DC.
- ¹¹ Oregon Department of Transportation. October 2008. “OTIA III State Bridge Delivery Program: Environmental Programmatic Permitting Benefit/Cost Analysis.
- ¹² Anderson, M. 2005. “Enhancing wetlands and watersheds using wetland banking, land trusts, and preservation within transportation mitigation: An analysis of the North Carolina Ecosystem Enhancement Program.” *Trust for Public Lands*.

Selected Major Authorities, Regulations, and Guidance Addressing Mitigation

This strategy is supported by a variety of authorities, regulations, and guidance including, but not limited to:

National Environmental Policy Act (NEPA) - 42 U.S.C. § 4371 et seq. NEPA aims to integrate environmental values into decision making by requiring agencies to analyze the environmental impacts of proposed actions that may significantly impact the environment. 42 U.S.C. § 4332(2)(C). Council on Environmental Quality and Department of the Interior regulations implementing NEPA recognize the potential for mitigation to ameliorate impacts of a proposal and require agencies to include in their analyses appropriate mitigation measures not already included in the proposed action or alternatives. 40 C.F.R. §§ 1502.14(f), 1502.16(h); 43 C.F.R. § 46.130. Mitigation is defined broadly, to include means by which impacts can be avoided, minimized, rectified, and reduced, as well as means for compensating for impacts through replacement of resources. 40 C.F.R. § 1508.20. The regulations further require that agency decisions must “[s]tate whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted, and if not, why they were not.” 40 C.F.R. § 1505.2(c). CEQ guidance recognizes the importance of mitigation, including the use of mitigation to ensure that impacts of a proposed action will not be significant, along with monitoring and other mechanisms for ensuring that mitigation is implemented, thus enabling agencies to reach a Finding of No Significant Impact (i.e., a “mitigated FONSI”). *Appropriate Use of Mitigation and Monitoring and Clarifying the Appropriate Use of Mitigated Findings of No Significant Impact* (January 14, 2011).

Federal Land Policy and Management Act (FLPMA) - 43 U.S.C. § 1701 et seq. FLPMA requires that the public lands be managed “on the basis of multiple use and sustained yield,” 43 U.S.C. § 1701(a)(7), and “in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resources, and archeological values....” 43 U.S.C. § 1701(a)(8). Under the broad discretion afforded by FLPMA, the BLM can condition uses of the public lands authorized through various instruments (e.g., rights-of-way, permits, licenses, easements, etc.) on the implementation of mitigation measures intended to reduce impacts. The BLM’s recently issued draft mitigation policy provides policy, procedures, and instructions for developing strategies that identify and facilitate regional mitigation strategies, using BLM’s land use planning process to identify potential mitigation sites and measures, and identifying and implementing appropriate mitigation within or outside of the area of impact for particular land-use authorizations. *Interim Draft Policy on Regional Mitigation*; Manual Section 1794 (June 13, 2013).

Mineral Leasing Act (MLA) - 30 U.S.C. § 181 et seq. The MLA governs leasing of several minerals, most notably oil and gas. The BLM is required, at a minimum, to hold quarterly auctions of oil and gas leases in each state, 30 U.S.C. 226(b)(1). Leases are issued for 10 year terms and may be extended for as long as they produce oil or gas in paying quantities, and include stipulations for reducing impacts of development, *Id.*, 226(e); 43 C.F.R. 3101.1-3. Prior to drilling, operators must file an application for a permit to drill (APD) that, when issued, can require additional measures for mitigating anticipated impacts of development, 30 U.S.C. 226(f),(g).

National Landscape Conservation System (NLCS, Organic Act) - 16 U.S.C. § 7201 et seq. The NLCS was established “in order to conserve, protect, and restore nationally significant landscapes that have outstanding cultural, ecological, and scientific values for the benefit of current and future generations” and that “The Secretary shall manage the system...in a manner that protects the values for which the components of the system were designated.” Under this direction, the BLM has implemented policy to require mitigation of impacts in order to protect the objects and values for which the units of the NLCS were designated. For example, BLM Manual Section 6100 § 1.6.A.3 describes how “valid existing rights and other non-discretionary uses occurring within NLCS units will be managed to mitigate associated impacts to the values for which these lands were designated”. Similarly, BLM Manual Section 6220 § 1.6.E.5.b describes how “the effects of projects from the grants of the (rights-of-way) must be mitigated” for National Monuments and National Conservation Areas. Additionally, BLM Manual Section 6100 § 1.6.C.5 identifies how NLCS units provide good locations for compensatory mitigation projects.

Endangered Species Act of 1973 (ESA) - 16 U.S.C. § 1531 et seq. Under sections 7 and 10 of the ESA, the FWS may recommend means to avoid and minimize the take of listed wildlife species, as well as to establish targeted habitat. Under section 7, Federal agencies must consult with FWS or National Marine Fisheries Service to ensure that agency actions are not likely to jeopardize the continued existence of a listed species or destroy or adversely modify designated critical habitat. The biological opinion issued by FWS or NMFS includes an incidental take statement, if appropriate, and provides reasonable and prudent measures that must be implemented to minimize the impacts of any anticipated take of listed wildlife species. Where a jeopardy or adverse modification opinion is rendered, reasonable and prudent alternatives will be recommended. Landowners who wish to develop private lands inhabited by listed wildlife species may receive an incidental take permit from FWS under Section

10, provided they have developed an approved habitat conservation plan (HCP), which sets out steps that the permit holder will take to avoid, minimize, and mitigate the impacts on species likely to occur from the proposed action. Off-site mitigation banks often play a key role in meeting conservation requirements under an HCP. Candidate Conservation Agreements, also under section 10, are voluntary agreements where landowners agree to carry out measures to assist in the conservation of candidate and other at-risk species.

The FWS issued a mitigation policy in 1981 to help the agency make consistent and effective mitigation recommendations to protect and conserve the most important and valuable fish and wildlife resources, while facilitating balanced development of the Nation's natural resources; U.S. Fish and Wildlife Service Mitigation Policy (46 FR 7644-7663, 1981). FWS has also issued guidance to help the agency evaluate proposals for establishing conservation banks for the purpose of off-setting adverse impacts to listed species. Guidance for the Establishment, Use, and Operation of Conservation Banks (May 2, 2003). More recently, FWS issued draft guidance that describes a crediting framework for Federal agencies in carrying out recovery of threatened and endangered species. Under the draft guidance, Federal agencies could show how adverse effects of agency activities to a listed species are offset by beneficial actions taken elsewhere for that species, so long as there is a net conservation benefit to the species. Draft Guidance on Recovery Crediting for the Conservation of Threatened and Endangered Species; 72 Federal Register 62258 (November 2, 2007).

Fish and Wildlife Coordination Act (FWCA) - 16 USC § 661-667e. The FWCA establishes fish and wildlife conservation as a coequal objective of all federally-funded, permitted, or licensed water-related development projects. Under the FWCA, Federal agencies developing such projects must consult with FWS (and NMFS in some instances) and the states regarding fish and wildlife impacts. The statute provides FWS with authority to investigate and prepare reports providing mitigation analyses on all water-related development projects; FWS mitigation recommendations may include measures addressing a broad set of habitats beyond the aquatic impacts triggering the FWCA and species beyond those covered by other resource laws.

National Historic Preservation Act (NHPA) - 16 U.S.C. § 470 et seq. The NHPA is a procedural statute that requires Federal agencies under Section 106 to take into account the effects of their undertakings on historic properties, and to afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment on these undertakings. For the purposes

of NHPA, historic properties include properties that are listed in or eligible for listing in the National Register of Historic Places. Through the implementing regulations of Section 106, which are contained in 36 CFR Part 800, "Protection of Historic Properties," federal agencies are required to consult with State/Tribal Historic Preservation Officers, Indian tribes or Native Hawaiian Organizations, local governments, interested parties such as historic preservation advocacy organizations, the public, and the ACHP. Consultation includes assessing whether or not the undertaking will have adverse effects on such properties and measures to resolve those adverse effects. Section 110(f) specifically addresses mitigation of adverse effects to properties of national significance, requiring that "prior to the approval of any Federal undertaking which may directly and indirectly affect any National Historic Landmark, the head of the responsible Federal agency shall, to the maximum extent possible, undertake such planning and actions as may be necessary to minimize harm to such landmark." In many instances, the Section 106 consultation process will result in the execution of a memorandum of agreement, see 36 C.F.R. § 800.6(c), which may include federal agency commitments to avoid or mitigate any adverse effects.

Clean Water Act - 33 U.S.C. § 1251 et seq. Section 404 of the Clean Water Act provides extensive authority to the U.S. Army Corps of Engineers and the Environmental Protection Agency to conduct mitigation where federal actions impact waters of the United States. The FWS has specific authority under section 404(m) to secure mitigation for impacts to aquatic resources nationwide. Section 404 (m) requires the Secretary of the Army to notify the Secretary of the Interior, through the FWS Director, when a permit application has been received or when the Secretary proposes to issue a general permit, and FWS can submit written comments within 90 days. Through its comments, FWS can assist the Corps of Engineers in developing permit terms that avoid, minimize or compensate for permitted impacts. Through its policy on compensatory mitigation related to the National Wildlife Refuge System, FWS has established guidelines for using Refuge lands for siting compensatory mitigation for impacts permitted through section 404 or section 10 of the Rivers and Harbors Act. Final Policy on the National Wildlife Refuge System and Compensatory Mitigation under the Section 10/404 Program (64 FR 49229-49234, 1999).

Clean Air Act - §7401, et seq. The Clean Air Act calls for the prevention and control of air pollution across the country and includes a national goal to "to preserve, protect and enhance the air quality in national parks, national wilderness areas, national monuments, national seashores, and other areas of special national or regional natural, recreational, scenic or historic value" (42 U.S.C. §7470(2)). It sets forth an affirmative duty to protect air quality and air quality related values (e.g., visibility and

ecosystem resources) of national parks and wilderness areas designated as Class I areas under the statute by avoiding and minimizing impacts to such areas. The Clean Air Act also provides for the banking and trading of emissions reductions and use of emission offsets to capture cost efficiencies. The NPS, BLM, FWS, US Forest Service and the EPA have entered into a memorandum of understanding that adopts a standardized approach that facilitates the completion of NEPA environmental analyses for federal land use planning and oil and gas development decisions and leads to improved design and implementation of mitigation measures that will both protect air quality and air quality related values and provide opportunities for future oil and gas development.

NPS Organic Act of 1916 and General Authorities Act of 1970, as amended - 16 U.S.C. §1, et seq. Under the Organic Act, the National Park Service (NPS) in the Department of the Interior is charged with managing the units of the National Park System so as to “conserve the scenery and the national and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations. Through the General Authorities Act as amended, Congress directed that “the authorization of activities shall be construed and the protection, management and administration of these areas shall be conducted in light of the high public value and integrity of the National Park System and shall not be exercised in derogation of the values and purposes for which these various areas have been established, except as many have been or shall be directly and specifically provided by Congress.” These authorities, among others, provide a framework for the Secretary of the Interior to be proactive in protecting the resources and values of the National Park System and for bureaus within the Department to mitigate the impacts of their discretionary activities on the resources and values of park units.

Paleontological Resources Preservation Act (PRPA) - 16 U.S.C. § 470 aaa et seq. This statute states that federal agencies “shall manage and protect paleontological resources on Federal land using scientific principles and expertise.” In areas determined to have high or undetermined potential for significant paleontological resources, the agency must implement an adequate program for mitigating the impact of development, including surveys, monitoring, salvage, identification and reporting, and other activities required by law.

White House Guidance and Initiatives

Executive Order (EO) 13604 on Improving Performance of Federal Permitting and Review of Infrastructure Projects (March 28, 2012). The EO calls for more timely and efficient Federal permitting and review of infrastructure projects while improving environmental

and community outcomes. To achieve that objective, the order calls on agencies to integrate reforms into project planning processes “so that projects are designed appropriately to avoid, to the extent practicable, adverse impacts on public health, security, historic properties and other cultural resources, and the environment, and to minimize or mitigation impacts that may occur.”

A Federal Plan for Modernizing the Federal Permitting and Review Process for Better Projects, Improved Environmental and Community Outcomes, and Quicker Decisions (June 2012). The Plan calls on Federal agencies to identify opportunities to improve mitigation processes by integrating intra- and inter-agency processes and encouraging mitigation planning at the regional, watershed and landscape levels, and to move away from addressing mitigation at the end of project development and on a project-by-project basis.

Presidential Memorandum on Modernizing Federal Infrastructure Review and Permitting Regulations, Policies, and Procedures (May 17, 2013).

The Memorandum recognizes landscape- and watershed-level mitigation practices as means by which agencies have achieved better outcomes for communities and the environment and realized substantial time savings in review and permitting. The Memorandum directs an interagency leadership team to, among other things, expand the use of IT tools to facilitate monitoring of mitigation commitments and “identify improvements to mitigation policies to provide project developers with added predictability, facilitate landscape-scale mitigation based on conservation plans and regional environmental assessments, facilitate interagency mitigation plans where appropriate, ensure accountability and the long-term effectiveness of mitigation activities, and utilize innovative mechanisms where appropriate.”

Implementation Plan for the Presidential Memorandum on Modernizing Infrastructure Permitting (March 2014). The Plan includes actions to identify policy changes to promote in-advance, landscape-scale mitigation; to facilitate high-quality and efficient permitting and review processes; to identify best practices for early engagement with tribal, state, and local governments; and to expand innovative mitigation approaches that facilitate landscape-level mitigation planning, consistent and transparent standards for applying the mitigation hierarchy, and use of in-lieu fee program and mitigation banks. The overall goal of the plan is to “modernize the Federal permitting and review process for major infrastructure projects to reduce uncertainty for project applicants, reduce the aggregate time it takes to conduct reviews and make permitting decisions by half, and produce measurably better environmental and community outcomes.”

Appendix II

Subsequent to the Secretarial Order and during the preparation of this report, the Climate and Energy Task Force communicated with many federal, state, and private partners and stakeholders. This outreach process is ongoing and will continue to inform the development and implementation of the Department's mitigation policies as this strategy takes shape. The following entities are representative of the many partners contacted:

- U.S. Department of Agriculture
- U.S. Department of Transportation
- U.S. Army Corps of Engineers
- U.S. Environmental Protection Agency
- White House Office of Management and Budget
- Federal Energy Regulatory Commission
- Advisory Council on Historic Preservation
- State of California, Office of the Governor
- State of Maryland
- Western Governors Association
- Solar Energy Industries Association
- American Wind Energy Association
- National Mitigation Bankers Association
- The Nature Conservancy
- The Wilderness Society
- Defenders of Wildlife
- The Conservation Fund
- Natural Resources Defense Council
- Theodore Roosevelt Conservation Partnership
- Southern Nevada Water Authority
- Noble Energy
- Ultra Petroleum
- Newfield Exploration Company
- Bill Barrett Corporation
- Beatty and Wozniak, P.C.



Key To Acronyms

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| BLM | Bureau of Land Management | NEPA | National Environmental Policy Act |
| BOEM | Bureau of Ocean Energy Management | NHPA | National Historic Preservation Act |
| CHAT | Crucial Habitat Assessment Tool | NPS | National Park Service |
| DRECP | Desert Renewable Energy Conservation Plan | OCS | Outer Continental Shelf |
| EEP | Ecosystem Enhancement Program | OTIA | Oregon Transportation Investment Act |
| ESA | Endangered Species Act | SEZ | Solar Energy Zone |
| FWS | United States Fish and Wildlife Service | USGS | United States Geological Survey |
| FLPMA | Federal Land Policy and Management Act | WGA | Western Governors Association |
| NCDOT | North Carolina Department of Transportation | WRR | Water Resources Registry |



