

# Regional Mitigation Strategies for BLM Solar Energy Zones

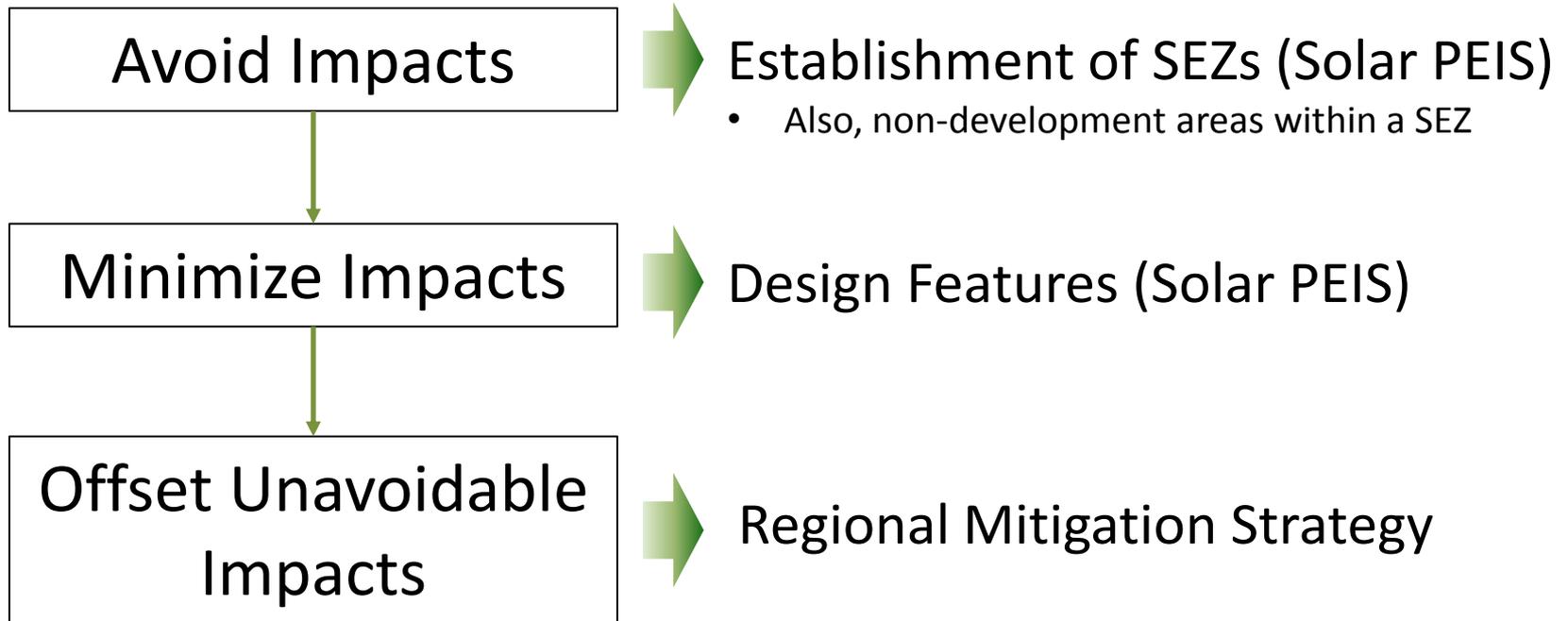
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BLM, Nevada

# Regional Mitigation

- Policy
  - Secretarial Order 3330, Improving Mitigation Policies and Practices of the Department of the Interior, Oct. 2013
  - IM 2008 & 2004: Offsite Mitigation
  - BLM Manual MS-1794: Regional Mitigation

# BLM Mitigation Hierarchy



# BLM Solar Energy Zones (SEZs)

## Solar Programmatic EIS, 2012

### Solar PEIS

FES 12-24 • DOE/EIS-0403

Volume 6, Part 1, Appendix A. Sec 2.5

- For those impacts that cannot be avoided or minimized, the BLM will consider the implementation of measures to offset (or mitigate) impacts...

Final Programmatic Environmental Impact Statement (PEIS) for Solar Energy Development in Six Southwestern States

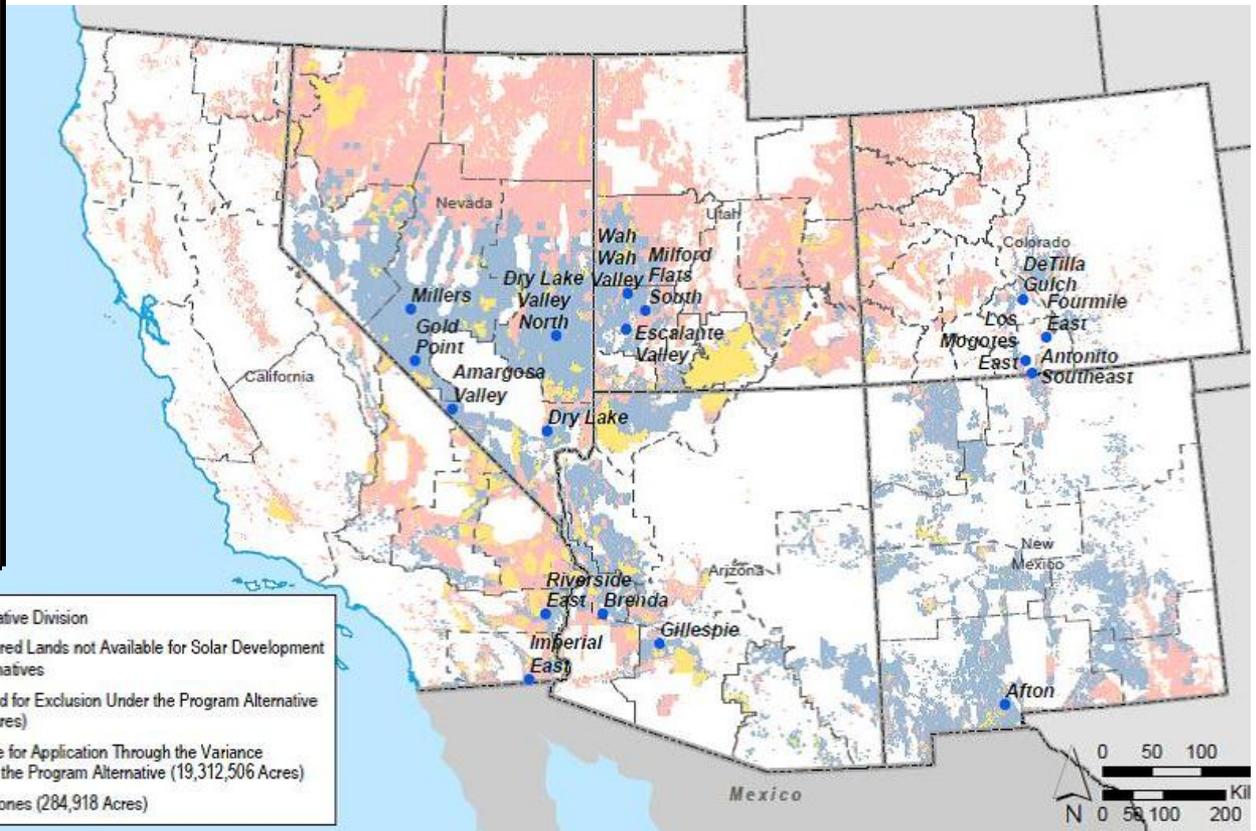
Executive Summary

(Electricity Delivery and Transmission)

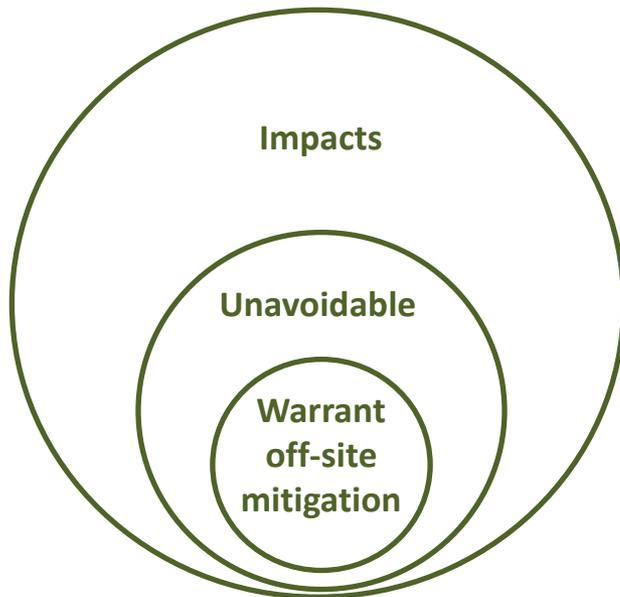
July 2012

- To accomplish this goal ... the BLM proposes to establish regional mitigation plans.

Bureau of Land Management  
U.S. Department of Energy

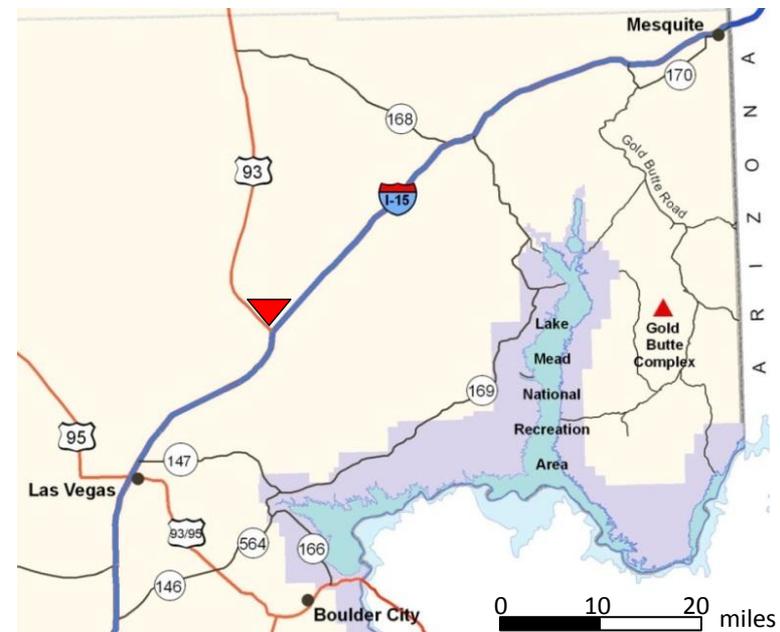
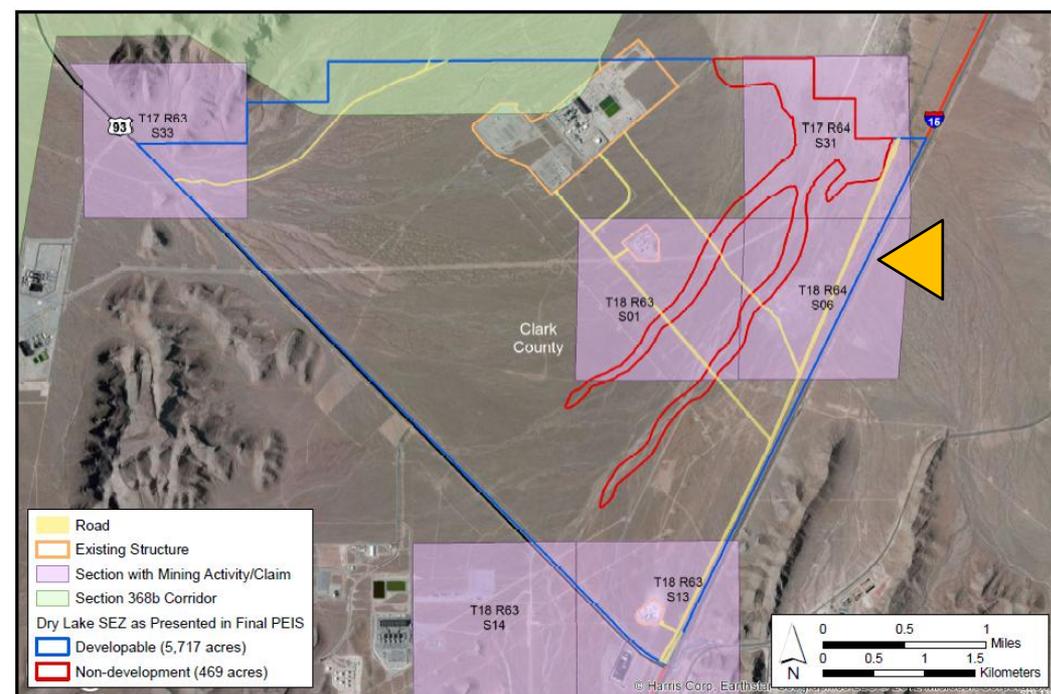


# Regional Mitigation Strategy Process/Content



1. Impacts?
2. Unavoidable impacts?
3. Unavoidable impacts that warrant off-site mitigation?
4. Mitigation goals?
5. Mitigation actions & locations?
6. Fee?
7. Monitoring & Adaptive Management?

# Dry Lake SEZ



# 1. Impacts



## 2. What were the unavoidable impacts on the Dry Lake SEZ?

### Definitely

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- Soils/Erosion
- Vegetation
- Wildlife Habitat
  - Special Status Species
- Visual Resources



### Maybe

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- Invasive/Noxious Weeds
- Hydrology
- Riparian
- Military uses
- Cultural
- Native American Concerns

Monitoring & Adaptive Management

## Dry Lake SEZ: Resource Impacts, On-Site Mitigation, and Mitigation Priorities

Resource/Issue	Impacts	On-site Mitigation		Unavoidable Impacts?
		Avoidance	Minimization	
Soils/Erosion	<p><b>Direct:</b> Soils in the SEZ likely to be impacted through compaction and erosion. Soil loss through sediment transport may occur. Loss of biotic soils and desert pavement.</p> <p><b>Indirect:</b> Increased runoff into the Dry Lake basin may result in soil/sediment transport. Increased wind erosion caused by grading (if needed). Soil contamination from spills could occur.</p> <p><b>Cumulative:</b> Solar energy development would be a major contributor to cumulative impacts on soil from foreseeable development in the region</p>	n/a	Require soil stabilization during construction and operation. Engineering options to minimize transport. Minimize the surface area that is graded and cleared of vegetation.	Yes
Riparian	<p><b>Direct:</b> Development may alter ephemeral stream channels that can impact flooding and debris flows during storms, groundwater recharge, ecological habitats, and riparian vegetation communities. Reductions to the connectivity of these areas with existing surface waters and groundwater could limit water availability and thus alter the ability of the area to support vegetation and aquatic species. Reduced overall stability of the natural landscape.</p> <p><b>Indirect:</b> None identified.</p> <p><b>Cumulative:</b> Cumulative impacts to riparian areas could occur with multiple developments in the region; contributions from solar facilities within the SEZ likely to be relatively small.</p>	Prohibit development in major washes	Require engineering controls on surface water runoff/erosion	Maybe
Minerals	<p><b>Direct:</b> There are existing mining claims and two active mine authorizations within the SEZ – the mill site is of most concern with respect to limiting solar development. Existing mining claims may adversely affect solar development.</p> <p><b>Indirect:</b> None identified.</p> <p><b>Cumulative:</b> None identified.</p> <p><b>Data Gaps:</b> Need to identify the size of the exclusions in the mining claims.</p>	No leasing in areas with existing mining and mill-site claims.	n/a	No

### 3. Unavoidable Impacts that Warrant Off-site Mitigation?

- Criteria from draft off-site mitigation handbook
  - Level of protection in law/policy
  - Rarity
  - Resilience
  - Importance assigned in land-use plans
- Effect on problematic regional trends
- Role in ecosystem

### 3. Unavoidable Impacts that Warrant Off-site Mitigation



Gila Monster

- Loss of Special Status Species habitat
  - Animals
  - Plant
- Loss of ecosystem services
  - Soils, vegetation, wildlife
- Visual Resources

# 4. What are the Regional Mitigation Goals?



Desert Tortoise

- Sustain the populations of the Federally listed species
- Sustain viable populations of the affected special status species
- Sustain ecosystem services
- Restore visual resource values

**Clark County  
Habitat  
Conservation  
Plan**

**Las Vegas RMP (1998)**

A diagram consisting of a brown rectangular box with a black border. Inside the box, the text 'Las Vegas RMP (1998)' is written in black. A white arrow with a black outline points upwards from the top center of the box.

## 5. What mitigation actions at what locations will be undertaken to off-set the selected impacts?

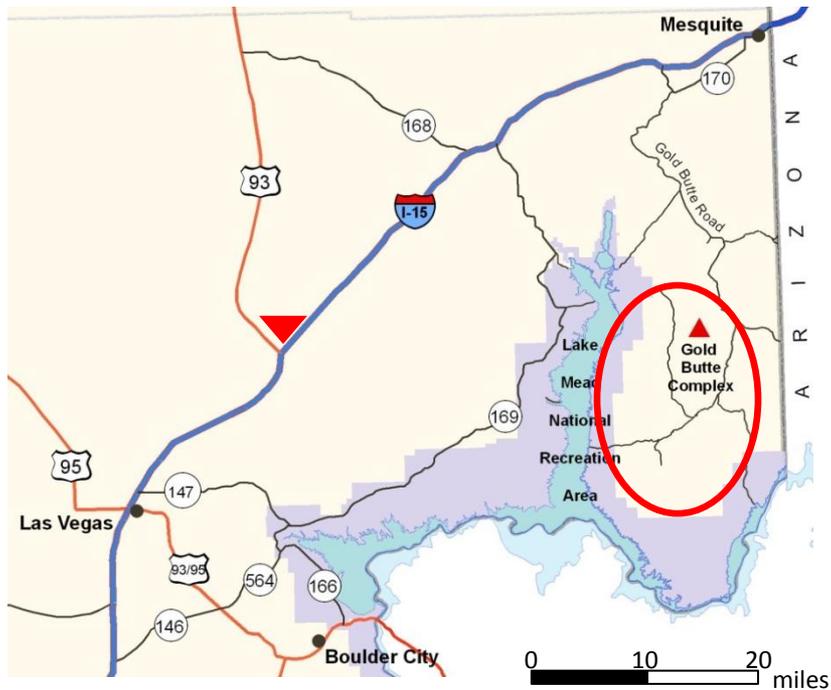


Ferruginous Hawk

- Criteria for ranking alternative locations
  - Same region and state
  - Opportunities to achieve mitigation goals
  - Consistency with Resource Management Plan
  - Potential for durability of mitigation investment
  - Actions are ‘additive’

# 5. What mitigation actions at what locations will be undertaken to off-set the selected impacts?

## Gold Butte Area of Critical Environmental Concern (ACEC)

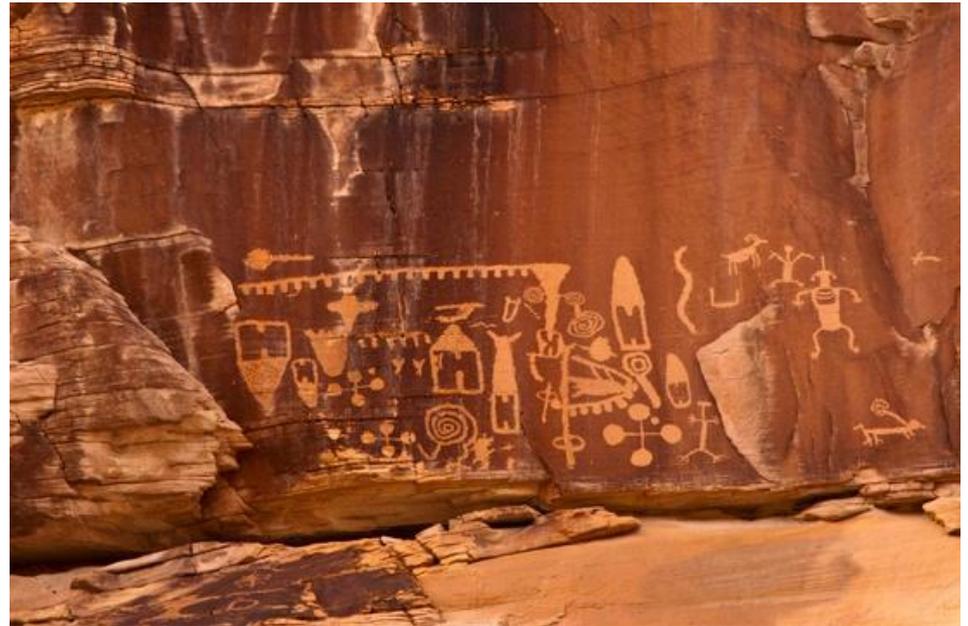


### Primary resource values:

- Special status species habitat
- Botanical resources
- Scenic values
- Wildlife habitat
- Cultural and historic resources

# Why Gold Butte?

- Same region and state
- Opportunities to achieve mitigation goals
  - Multiple wildfires in 2005-6
  - Transportation Plan
- Consistency with Resource Management Plan
  - Important wildlife corridor
- Potential for durability of mitigation investment
  - ACEC designation
  - Climate change analysis
- Benefits multiple resources



## **5. What mitigation actions will be undertaken in the Gold Butte ACEC to off-set the selected impacts?**

1. Restore creosote-bursage vegetation on closed roads, burn scars, and other disturbed areas.
2. Prevent further degradation and ensure the durability of the conservation investment by:
  - a. Adding staff to monitor and respond to activities that threaten resource values
  - b. Providing treatment for noxious weeds
  - c. Maintaining fuel breaks

## 6. How will the off-site mitigation actions be funded?

- Recommended Mitigation fee
  - Estimated cost of regional mitigation actions over the life of the impacts
  - Adjusted for the existing landscape condition in the SEZ
  - Provide an incentive for developing in a SEZ
  - Credit for Endangered Species Act Section 7 fee
- Recommend a third-party entity manage mitigation funds

\$1,836 per acre

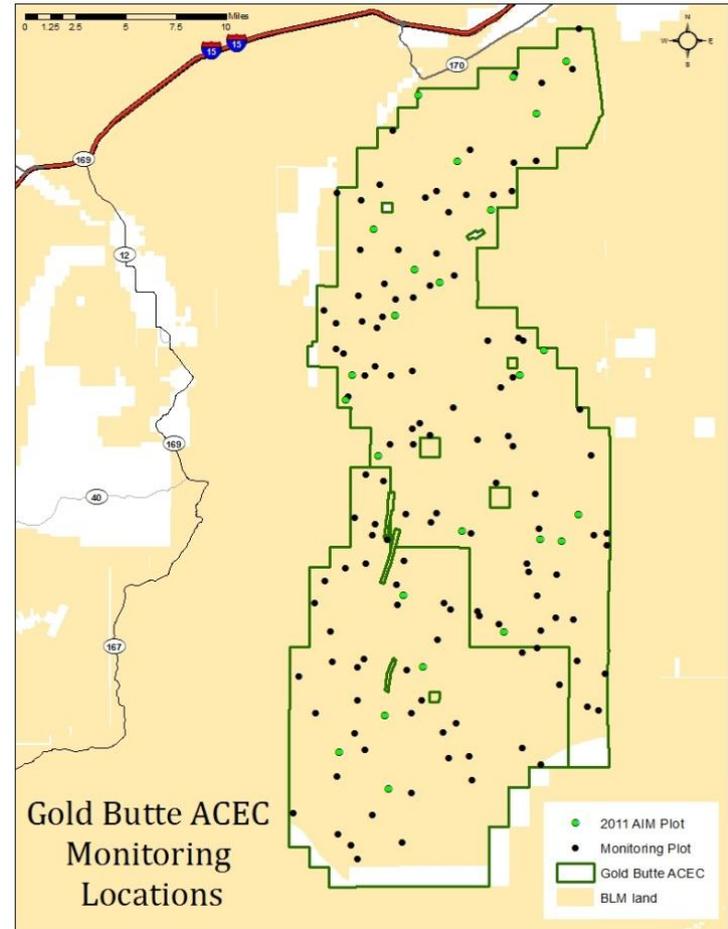
# 7. Monitoring & Adaptive Management

## Monitoring & Assessment

- How do actual impacts compare to projected impacts?
  - Design features effective?
- Off-site mitigation actions achieve the objectives?
- Regional trends?

## Adaptive Management

- What if not achieving desired results?



# Findings, Observations

- Triggered by a commitment in the Solar PEIS
  - As opposed to an application
- Started with an EIS
  - Started with impacts and design features
- Not a Decision Document
  - A recommendation - Informs future decisions
- Will be incorporated with NEPA process when we have a POD
- Not required to mitigate for all impacts

# Findings, Observations

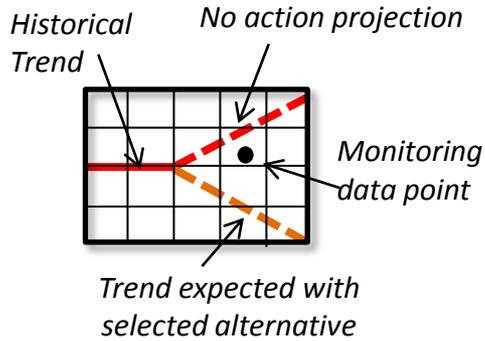
- Big picture
  - Regional perspective
    - Big picture of cumulative impacts
  - Ecosystem perspective
    - Conceptual understanding of interrelationships
    - Functioning system versus component parts
- Mitigation Fee
  - Finding a balance

# Findings, Observations

- Stakeholders
  - Conservation interests concerned that mitigation actions are
    - Durable
    - Additive
  - Industry concerns
    - Cost
    - Certainty

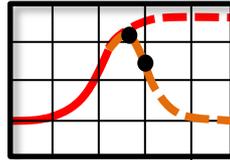


# Ecosystem Functionality Dashboard

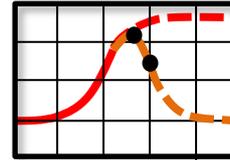


## Hydrologic Function

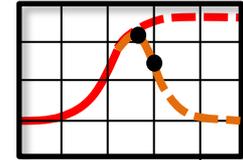
### Soil/Site Stability



Bare ground

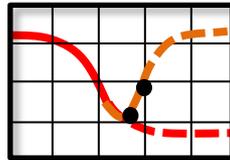


Proportion of soil surface covered by basal gaps longer than a defined minimum

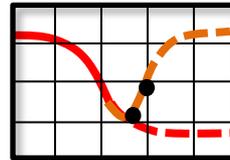


Proportion of soil surface covered by canopy gaps longer than a defined minimum

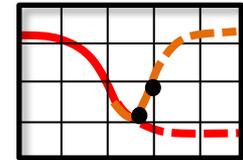
## Biotic Integrity



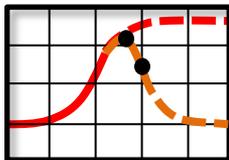
Plant canopy (foliar) cover by functional group



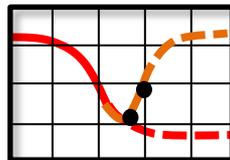
Soil macro-aggregate stability in water



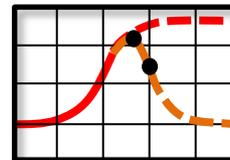
Plant basal cover by functional group



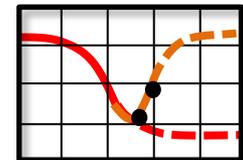
Invasive plants density



Plant production by functional group



Invasive plant cover



Litter cover

# Questions?

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