

We're going to go over some potential answers for Exercise 1 just to kind of give you the examples so you can compare them against what you may have done.

Again, I want to stress, these aren't the end-all answers. These are just examples to show you ways of doing this, and, of course, it depends on your project and what data you have, et cetera.

So let's just go down through the list really quick.

For transportation, for example, some examples of impact indicators can be density of traffic, or something called level of service that you can make an assessment of wait times at stoplights or other parameters for level of service.

Socioeconomics. One thing with socioeconomics is it's very easy to get impact indicators for economics. It's harder for the social element. Economics indicators can be tax revenue, wages or infrastructure requirements for various alternative of of your proposed action.

Air quality. National ambient air quality standards is a very good indicator for potential impacts to air quality and almost universally used. In order to assess how you compare with national ambient air quality standards, though, you're probably going to have to do air quality modeling to get dispersion versus just an air quality inventory.

Decibels for noise, obviously, is one. Distance. Those distances can travel and attenuation can also be tied into that.

Presence of cultural or prehistoric sites that are eligible for the National Register is a pretty standard cultural resource indicator. If you have a big programmatic project, you may even do something more broad scale like levels of site density like low, moderate, high levels of site density and the acreage of impact in each one of those categories.

Visual resources. VRM is a very good -- the VRM inventory and management class is very good indicator to assess both existing condition and potential impacts.

Land use categories and whether you're consistent with those land use categories is a good indicator for land use and reality.

Soil erodibility. Acreage of soil type and erodibility is a good one for soils impacts.

Water resources. Obviously if you can quantify potential impacts to water volume or flow in comparison with existing flows or volume or water quality, which usually requires modeling, that's good. Sometimes for water resource impacts you have to defer to related indicators like acres of disturbance to soils with high erodibility.

Fisheries. It could be impacts to fish habitat in terms of square feet or square meters of fish habitat that could be impacted, and some fisheries have actual good enough population estimates that you can actually make an assessment of changes in population from loss of habitat.

Vegetation impacts. Of course, easy one is acres of vegetation disturbed or lost.

Wetlands impact. Acres of wetland or square meters of wetland impacted. Also you may want to do something along the lines of a functional value assessment. When you're not going to have a direct impact on a wetland but you may have an indirect impact through sedimentation, then impacts to functional value can be something that can be an impact indicator.

AUMs for grazing. Changes in AUMs, or you can actually estimate forage, even though it's not necessarily an adjudicated AUM, AUM can be used to represent amount of forage, and so impacts to amount of forage from projects can be assessed through AUM as an impact indicator.

Rangeland health. Doing rangeland health assessment also can be something that can be an indicator.

Wildlife. Acres of habitat is always a good impact indicator for wildlife. And then also you can make assessments or assumptions regarding numbers of individuals supported by that habitat, disturbance. A lot of times with disturbance, people do a qualitative assessment. We're going to make noise and that will disturb wildlife. There are numbers out there for how much decibels of noise is shown to cause certain species of wildlife to move out, and you can use that noise decibel level and attenuation to actually do a buffer of habitat that would not be useful for wildlife and measure that with acres. So acres of habitat can still be your measuring indicator for disturbance impacts rather than just having to go with the qualitative route.

Biodiversity is not used so much as a resource discipline anymore, but if you do -- or are working with something, a project that involves a biodiversity resource impact analysis, habitat heterogeneity, species richness, there's several ways of measuring that, several formulas for coming up with that.

Recreation can be difficult because it's so much a part of satisfaction, and assessing current recreational conditions, it can be done with visitor satisfaction surveys, but that doesn't help you with predicting it in the future. One technique that works well is marking down the criteria or recording the criteria that indicate visitor satisfaction and then projecting how likely those criteria will be met under each alternative in the future provides a very good semi-quantitative analysis of what's likely going to happen for recreational satisfaction in the future, and it's really good if you're talking brought programmatic analyses involving multiple users.

And so this is just kind of a review of our potential resource impact indicators for

you to think about and, you know, obviously you want to use some creativity if you need to. In the end you want to use the simplest most quantifiable form possible that will meet the requirements of your analysis.