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COMPASS

COMMUNITY PLANNING ASSOCIATION
of Southwest Idaho

Environmental Review Process Report

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Introduction

The federal transportation law of 2005, *Safe, Accountable, Flexible, Efficient Transportation Equity Act – A Legacy for Users* (SAFETEA-LU), requires metropolitan planning organizations (MPOs) to consult with federal and state resource agencies during development of their long-range transportation plans. In addition to consultation with agencies responsible for land use management, natural resources, environmental protection, conservation and historic preservation, using comparisons of resource maps and inventories, the process should include discussion of potential environmental mitigation strategies.

This document summarizes environmental issues, data and resources relevant in the COMPASS long-range transportation planning area. It serves as a baseline information resource and reference, part of an ongoing environmental consultation process with environmental and resource interests.

Regulations implementing SAFETEA-LU state that environmental elements include:

A discussion of types of potential environmental mitigation activities and potential areas to carry out these activities, including activities that may have the greatest potential to restore and maintain the environmental functions affected by the metropolitan transportation plan. The discussion may focus on policies, programs, or strategies, rather than at the project level. The discussion shall be developed in consultation with Federal, State, and Tribal land management, wildlife, and regulatory agencies (23 CFR 450.322.f(7)).

The purpose of linking transportation planning and environment more closely together is to allow consideration of environmental, community, and economic goals early in the planning stage, and to carry them through project development, design and construction. The goal is a seamless decision-making process that minimizes duplication of effort, promotes environmental stewardship and reduces delays in project implementation.

Process

In preparation for the *Communities in Motion* 2010 update, COMPASS framed the following parameters for environmental consultation:

1. Resource agency participation in the process
 - a. Agency participates: interaction with COMPASS; identify issues, resource policies
 - b. Agency does not participate: failure of resource agencies to participate is not a failure of COMPASS to comply with SAFETEA-LU
2. Focus on areas of "regulatory" concern; transportation impacts only
 - a. Resource agencies are part of a process, but COMPASS is the decision-maker concerning the plan

- b. COMPASS will provide relevant sections of the long-range transportation plan to the resource agencies
3. Consideration of staff and resource limitations
 - a. Agencies will consider participation/consultation with regards to its core mission
 - b. Use technology to transfer materials and communications
4. Develop a continuous process - should not be reinvented each time a plan is adopted or changed
5. Outcome of the process:
 - a. Agreement about the process, agencies' roles and involvement
 - b. Inventory of environmental amenities and concerns in the planning area
 - c. General mitigation strategies
 - d. Procedures for sharing data

Eighteen environmental and resource agency directors were sent a letter on October 7, 2008, from the COMPASS executive director requesting their agency's participation in the environmental review process and designation of a contact person.

The first meeting with the resource agencies was held on November 5, 2008, and was attended by representatives from 16 agencies. This first meeting introduced the purpose of the environmental review process and the federal guidelines for it, reviewed the current long-range regional transportation plan's major roadways and transportation corridors, and identified other agencies or entities that should be part of the process. (List of participating agencies is in Appendix A.)

The participants discussed the identification or exclusion of areas that are not feasible for transportation projects based on environmental or resource issues. No new data will be created for this environmental review process, but participating agencies will share information that is already publicly available. As new information becomes available it should be provided to COMPASS in order to update the characterization. New information can be provided in the course of the continuous environmental consultation process, where existing information will be reviewed periodically.

As a first step, the participating agencies generated a list of currently available data to create an environmental data inventory for the planning area. The information (electronic information or a list of other resources that cannot be shared electronically) was forwarded to COMPASS staff in December 2008.

A second meeting was held on January 23, 2009, to review the information agencies had shared in December. The participants reviewed the following maps:

- Open Space and Grazing Lands
- Environmental Wetlands (rivers, lakes and waterways)
- Bureau of Land Management (BLM) Areas of Critical Environmental Concern

- Idaho Transportation Department-Idaho Department of Water Resources Bridges and Dams
- Idaho Department of Fish and Game: Habitat for Elk Winter Range, Deer Winter Range, and Wildlife Zones
- Idaho Department of Fish and Game: Habitat for Slick Spot Pepper Grass
- BLM: Habitat for Sage Grouse
- Historical Trails and Buildings. It was noted that the display of the Ada County information available from Idaho State Historical Society for historical buildings was incomplete; there are about 22,000 historical properties in Ada County and in Canyon County about 20,000. However, most of these data were not available in a digital format and could not be mapped.
- Idaho Department of Environmental Quality: Impaired Streams and Stream Monitoring Locations
- Natural Resources Conservation Service provided soil data (wetland characteristics, private farmland characteristics, etc.) but it wasn't included, because the maps were focused on "above-ground" characteristics.

Participating agencies identified additional information to be mapped, including parks and schools, Ridge to Rivers trails, the Birds of Prey area, and additional data about agricultural lands in Canyon county. Additional information is also available about at-risk plants and animals from Idaho Department of Fish and Game. The maps are listed in Appendix D.

Agencies in the environmental review process also discussed how to effectively use information from environmental impact statements that have already been prepared for transportation projects, how to consider project pros and cons collectively and how to approach the concept of cumulative impacts.

The consultation and environmental review process next step will be bringing the participating agencies together to review transportation projects in the update of the regional long-range transportation plan, *Communities in Motion*.

Environmental Concerns

The following is a brief description of the broad environmental issues and concerns in the regional transportation planning area.

Air Quality and Climate Change

Transportation projects affect air quality in the short-term during construction and in the long-term for those living next to busy streets and highways (Brugge, 2007: <http://www.ehjournal.net/content/6/1/23>). The federal government mandates that any transportation projects using federal funds or deemed to be "regionally significant" in nonattainment and maintenance areas cannot contribute to a degradation of air quality (40CFR93). Thus, transportation plans must "conform" to air quality plans. Transportation conformity is demonstrated when a nonattainment or maintenance area can show, within the applicable guidelines and regulations,

that planned transportation projects listed in a transportation program or plan will not cause or contribute to exceedances of the Environmental Protection Agency's (EPA's) health based air quality standards. A finding of nonconformance would prevent the implementation of certain federally funded and/or regionally significant transportation projects.

The *Northern Ada County PM10 SIP Maintenance Plan and Redesignation Request* contains motor vehicle emissions budgets for three pollutants: coarse particulate matter (PM10), oxides of nitrogen (NOX), and volatile organic compounds (VOCs).

There is heightened concern for human health from projects that result in air toxics emissions and particulate matter from mobile sources, particularly diesel exhaust. The *National Air Toxics Assessment*, <http://www.epa.gov/ttn/atw/nata>, asserts that a large number of human epidemiology studies show increased lung cancer associated with diesel exhaust and significant potential for non-cancer health effects. Also, the Control of Emissions of Hazardous Air Pollutants from Mobile Sources Final Rule (66 FR 17230, March 29, 2001) lists 21 compounds emitted from motor vehicles that are known or suspected to cause cancer or other serious health effects.

Transportation is the source of more than 27% of the greenhouse gas emissions in Idaho, a close second to agriculture's contribution of 28% (statistics from the Center for Climate Strategies report *Idaho Greenhouse Gas Inventory and Reference Case Projections 1990-2020*, Spring 2008, http://www.deq.idaho.gov/air/prog_issues/climate_change/pdfs/ghg_inventory_idaho_sp08.pdf).

Water Quality: Surface and Groundwater

Typical water quality impacts of transportation projects result from runoff from construction sites, and stream or wetland disturbances.

The state of Idaho is required to identify water bodies that don't meet surface water quality standards and to establish a "cleanup plan," called a Total Maximum Daily Load (TMDL), for each. A TMDL includes recommendations for reducing pollution loading, as well as a monitoring plan to verify compliance.

Within Ada and Canyon Counties, there are two water bodies with water quality TMDL plans:

- Lower Boise River - *Lower Boise River TMDL: Subbasin Assessment, Total Maximum Daily Loads*. Approved in January 2000. *Sediment and Bacteria Addendum* approved in December 2003.
- Snake River - *Mid Snake River/Succor Creek Subbasin Assessment and Total Maximum Daily Load*. Approved in January 2004. *Succor Creek Temperature Revised Addendum* approved in December 2007.

Once developed, the TMDLs are tied to U.S. Army Corps of Engineers Section 404 and 401 water quality permit requirements for dredging and filling. The dredging and filling of waters of the United States is regulated under the federal Clean Water Act by the U.S. Army Corps of Engineers, with oversight by EPA. Preliminary identification of such waters, including wetlands, can be done using National Wetland Inventory maps. Since these maps are general, wetland boundaries must be identified more clearly through a delineation process that reviews the soils, vegetation and hydrology of the potentially impacted property. Some wetlands on the National Wetland Inventory maps may not be regulated under the Clean Water Act, and it is possible there are wetlands that are regulated, but not identified on the maps.

Construction and on-going operation of transportation facilities can result in groundwater effects, such as contamination from sediments and transportation-related chemicals, and loss of aquifer recharge as permeable surfaces are covered by concrete and asphalt.

Hazardous Waste

Contamination can be a result of current or historic land uses, for example, leaking underground storage tanks, or activities such as dry cleaning plants, auto body shops, industrial facilities, or fuel/chemical storage facilities.

Soil and groundwater contamination from hazardous substances and petroleum products is often encountered on transportation projects. Also, some projects may generate hazardous materials. For example, projects with structures (enhancement or bridge projects) may involve asbestos-containing materials and/or lead-based paint requiring testing and analysis during project development. During project development, an initial site assessment can also uncover existing contamination via site visits and soil testing.

Wildlife, Fish, and Habitat

The likely transportation effects on wildlife include wildlife mortality from road construction activities, wildlife mortality from collisions with vehicles, and modification of animal behavior. Roads fragment animal populations and their habitats, reduce genetic interchange, and limit dispersal of young. The effect of road avoidance caused by traffic disturbance is much greater than just increased mortality.

Improperly designed and/or constructed stream crossings can also create barriers to fish and other aquatic species' movement.

Roads also influence human development patterns on the landscape, such as where development will likely occur in the future and therefore indirectly affecting wildlife and their habitat. Transportation projects and associated land uses can contribute

to the increased human use and activities in formerly remote areas, spread of exotic and invasive species, and loss and fragmentation of wildlife habitat.

Another consideration is the likely effects on threatened and endangered species. Issues of concern include:

- Direct effects from construction such as noise disturbance or other disruption of habitat.
- Interference with essential wildlife functions such as wintering, foraging, migration, breeding and/or rearing.
- Degradation or loss of essential habitat.
- Habitat fragmentation and edge effects.
- Collisions between vehicles and animals.
- Loss of animal or plant populations.
- Impacts to wildlife food resources.
- Water quality impacts.
- Effects on migration or dispersal of organisms including mammals, reptiles, amphibians, fish, insects, and/or ground dwelling birds, where the project could create or exacerbate barriers to movement.

Threatened and Endangered Species in Ada and Canyon Counties (April 2009)

Listed Species ¹	Comments	Ada County	Canyon County
Gray wolf (<i>Canis lupus</i>)	Experimental/Non-essential population	X	X
Bald eagle (<i>Haliaeetus leucocephalus</i>)	Listed Threatened - Wintering/Nesting area	X	X
Bull trout (<i>Salvelinus confluentus</i>)	Listed Threatened	X	
Idaho springsnail (<i>Pyrgulopsis idahoensis</i>)	Listed Endangered - Mainstem Snake River Only	X	X
Proposed Species			
Slick Spot Peppergrass (<i>Lepidium papilliferum</i>)	Proposed Endangered ²	X	X
Candidate Species			
Yellow-billed cuckoo (<i>Coccyzus americanus</i>)		X	X
Proposed Critical Habitat for Bull Trout		X	

¹ Source: Idaho Governor's Office of Species Conservation. Informational list on the Internet. Not intended for consultation purposes. Information found on Internet in April 2009 at http://species.idaho.gov/thr_endgr.html.

² Listed Threatened in October 2009: <http://www.fws.gov/news/NewsReleases/showNews.cfm?newsId=10C976CA-94AB-ED13-DF6945564CBAB05D>. Retrieved on 10/16/09.

Noise

All Idaho Transportation Department (ITD) projects and some local transportation projects must adhere to procedures and requirements established by federal law, Federal Highway Administration (FHWA) regulations, and ITD noise analysis guidelines.

The level of noise (defined as unwanted sound) near state highways depends on six things:

- Traffic volume
- Speed of the traffic
- Percentage of trucks in the flow of traffic
- Distance to the highway
- Intervening topography and structures
- Atmospheric conditions

The Federal Highway Administration has established noise abatement criteria guidelines (absolute noise impact) for several categories of land use activities, which include the following "equivalent sound level" (Leq) noise:

Type	Noise Level	Land Use Description
Category A	Leq = 57 dBA*	Lands on which "serenity and quiet are of extraordinary significance and serve an important public need....."
Category B	Leq = 67 dBA	Picnic areas, recreation areas, parks, residences, motels, schools, churches, libraries, and hospitals.
Category C	Leq = 72 dBA	Developed lands, properties or activities not included in Category A or B (i.e., most commercial and industrial activities).
Category D	Leq = n.a.	Undeveloped lands.
Category E	Leq = 52 dBA	Interior of residences, libraries, etc.

*Acceptable noise level

Future projects and alternatives within a corridor must analyze existing noise levels and predict future noise levels to determine noise impacts.

In determining and abating traffic noise impacts, primary consideration is to be given to exterior areas. Abatement will usually be necessary only in frequently used areas that would benefit from a lowered noise level.

Social and Economic Conditions

Communities adjacent to or bisected by a transportation project usually will experience social and economic changes. The FHWA publication, *Community Impact Assessment: A Quick Reference for Transportation* [publication No. FHWA-PD-96-

036, HEP-30/8-96(10M) P], and pertinent websites provide information and guidance.

The Idaho Transportation Department has prepared three report checklists (below) to assist in preparing the social and economic impacts sections of environmental documents. These studies should be performed in coordination with local agencies.

- The Social Impacts Report covers community cohesion (neighborhood population characteristics and linkages with churches, schools, and other community facilities); parks and recreation activities and facilities; population characteristics and growth government, religious and social facilities and services; pedestrian and bicycle facilities; and environmental justice.
- The Economic Impacts Report covers overall economic climate, farm and business activity, employment, property values, and local economic issues.
- The Relocation Impacts Report covers population characteristics (ethnicity and race, handicapped, elderly, family, income level, owner/tenant status); businesses (numbers and types of businesses and farms), employment, availability of replacement sites; and long term stability of the area. For related information on environmental justice issues, see The Civil Rights Act of 1964, Title VI (§ 2000d et seq.) of chapter 21 of Title 42, The Public Health and Welfare.

Environmental Justice

According to the 1994 Executive Order *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, federal agencies are required to identify and address disproportionate adverse human health and environmental effects, including the interrelated social and economic effects of their programs, policies, and activities on minority and low-income populations in the United States. This environmental justice analysis requires in-depth studies of communities affected by transportation projects and requires effective community outreach to correctly identify potential impacts. This process is intended to ensure that the project avoids, minimizes or mitigates adverse effects on minority and low-income populations.

Areas of Concerns

The purpose of compiling the environmental and resource data and the use of maps to display the information is to help identify general "areas of concern" that could trigger relevant agencies to be invited into the transportation planning process as early as possible.

The following sections describe general areas of concern within the COMPASS long-range transportation planning area.

Floodplains

Building transportation facilities across a river or stream (transverse) or along a river or stream (longitudinal) can trigger a NEPA process. The 100-year floodplain boundary is the trigger point in Idaho. (A 100 year floodplain means that in any year, there is a 1% chance of flooding—not that flooding would only occur once every 100 years.) For work in floodplains that requires permit approval, environmental documentation must explain the impacts the project will have on the areas, and on the resources within the areas. Furthermore, Presidential Executive Order 11988 (May 24, 1977) directs federal agencies to avoid to the extent possible adverse impacts associated with floodplains and to avoid direct or indirect support of floodplain development. Longitudinal intrusions are of special concern.

Three new river crossings are recommended in the long-range transportation plan along the Boise River:

- Vicinity of Franklin Road in Canyon County (study only).
- State Highway 16 extension from State Highway 44 to Interstate-84 (environmental work underway).
- Three Cities River Crossing connecting State Highway 20/26 to State Highway 44 between Cloverdale and Fairview (environmental work completed in 2006).

Widening of existing river crossings is recommended at:

- Middleton Road.
- Linder Road.

In addition to the Boise River crossings, a number of flood zones along area streams would be affected by the recommended roadway projects in the plan.

Wetlands

Wetlands are areas that are inundated or saturated by surface or groundwater and support vegetation typically adapted for life in saturated soils. Wetlands generally include swamps, marshes, bogs, and similar areas and provide important amenities, including groundwater recharge, flood flow alteration, water quality improvements, erosion control and shoreline stabilization, and fish and wildlife food and habitat.

Impacts of transportation projects may harm wetlands due to increased sediment loads and deposition; toxic runoff; alteration of natural drainage patterns; water level increases or decreases; wetland filling or displacement; wetland draining due to channel straightening, deepening, or widening; and development in the wetland buffer areas that protect and shield the wetland from adverse impacts to water quality and habitat functions. When wetlands are adversely affected by a transportation project, ITD provides compensation for the impacts by restoring or enhancing existing wetlands and/or creating new wetlands.

Contaminated Sites

Locating transportation facilities over contaminated sites can be expensive due the high cost of remediation. Map 4 depicts storage tank sites in Ada and Canyon Counties.

Agricultural and Farmland

The loss of productive farmland to highways, urban sprawl, and other types of development is a cause for concern. Highways may increase the pressure for conversion from farming to other uses. By making inaccessible areas more accessible, highways increase potential for development. In turn, development increases land values and property taxes, tending to make farming economically infeasible. Adjacent development is seen as incompatible with farming, and farming activities may be considered a "nuisance" by newcomers. Additional traffic moving at high speeds creates a safety hazard for slow moving farm machinery. Farmlands defined as "prime,"³ "unique,"⁴ or of state or local significance are protected by federal and state legislation.

Map 15 depicts prime farmlands. Note that these prime farmlands do not include lands outside irrigated areas. Many of the prime farmlands within the areas affected by the proposed corridors are within areas of impact already identified for urban development.

Public and Outdoor Recreation Lands

A significant publicly owned park, recreation area, wildlife or waterfowl refuge, or historic site, as well as designated wild and scenic rivers are subject to federal requirements (Section 4(f) of the Department of Transportation Act of 1966 [49 USC 303]; [23 CFR 771.135]) and need to be considered in any NEPA document. Section 4(f) declares a national policy to preserve, where possible, "the natural beauty of the countryside and public park and recreation lands, wildlife and

³ *Prime Farmland* is land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion. Prime farmland includes land that possesses the above characteristics and may include land currently used as cropland, pastureland, rangeland, or forestland. It does not include land already in or committed to urban development or water storage.

⁴ *Unique Farmland* is land other than prime farmland that is used for production of specific high-value food and fiber crops. It has the special combination of soil quality, location, growing season, and moisture supply to economically produce sustained high quality or high yields of specific crops when treated and managed according to acceptable farming methods. Examples of such crops include lentils, nuts, annual cropped white wheat, cranberries, fruits, and vegetables.

waterfowl refuges, and historic sites." A NEPA action does not always require a "4(f)" evaluation.

Transportation projects can cross "special lands" only if there is no "feasible and prudent alternative" and the sponsoring agency demonstrates that all possible planning to minimize harm has been accomplished. Any time a new alignment or expansion of an existing alignment threaten to impact a 4(f) property, the proposed alternatives must include an avoidance alternative. The avoidance design will document the information needed to determine if avoidance is feasible and prudent and if it may exhibit cost considerations of extraordinary magnitude.

In addition, before approving use of these lands for a transportation project, supporting information must demonstrate that there are unique problems or unusual factors involved in the use of alternatives that avoid these properties or that the cost, social, economic and environmental impacts, or community disruption resulting from such alternatives are extraordinary. In addition to mandating protection of certain land uses, FHWA rules require that when the project's impacts in the proximity of the protected area are so severe that the resources' activities, features, or attributes are substantially impaired, then Section 4(f) is also called into effect even if the project does not actually intrude into the protected use.

Impacts may include:

- Resources affected by noise levels.
- Aesthetic features of the resource compromised by the transportation facility.
- Access restricted or substantially diminishing the utility of the resource or special area.
- Vibrations impair use of the resource and diminish the value of wildlife habitat.

Map 14 (Parks & Schools) shows the locations of public parks, schools, and cemeteries around the region.

Historic, Cultural, and Archaeological Resources

Areas of historic, cultural, or archeological resources are subject to several state and federal regulations:

- The National Historic Preservation Act of 1966, as amended (16 USC 470f, Section 106), requires federal agencies, including FHWA, to take into account the effects of a project on properties included in or eligible for inclusion in the National Register of Historic Places and, to the maximum extent possible, complete planning and actions necessary to minimize harm to any National Register eligible property.
- The Department of Transportation Act, Section 4(f), declares it a national policy to preserve, where possible, "the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites." Highway projects can use these special lands only if there is no feasible and prudent alternative and the sponsoring agency demonstrates that all possible planning to minimize harm has been accomplished.
- The Archaeological Resources Act of 1979 (ARPA) applies to archaeological resources on tribal lands and non-tribal lands under federal jurisdiction, such as

lands managed by the BLM, National Park Services, or U.S. Army Corps of Engineers. Under this legislation, ITD must apply for and obtain a permit when such resources could be impacted by a project (see Section 1800.07 of the Archaeological Resources Act of 1979).

- The Idaho Graves Protection Act (Title 27 Idaho Statutes, Cemeteries and Crematoriums, Chapter 5 - Protection of Graves) requires that graves disturbed by construction or other activities be re-interred at public expense.
- The National Environmental Policy Act, 42 USC Section 4231, requires that all actions sponsored, funded, permitted, or approved by federal agencies undergo planning to ensure that historic and cultural resources are given due weight in project decision-making.

Map 11 depicts some historical trails and buildings in the region. This map does not include potential properties that could be listed or other properties that could fall under the above regulations. Due to concerns about protecting archeological and some historic sites, these locations are not published and are available only to authorized persons.

Mitigation Strategies

The following sections discuss general mitigation strategies, as identified by the participating environmental and resource agencies, for the long-range regional transportation plan and its projects.

The National Environmental Protection Act (NEPA) process is intended to help public officials make decisions based on understanding of environmental consequences and to take actions that protect, restore and enhance the environment (40 CFR § 1500.1(b): Purpose)⁵. These regulations define mitigation as:

- Avoiding the impact altogether by not taking a certain action or parts of an action.
- Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- Compensating for the impact by replacing or providing substitute resources or environments.

The Federal Highway Administration has produced a document called *Eco-Logical: An Ecosystem Approach to Developing Infrastructure Projects*, which encourages federal, state, tribal and local partners involved in infrastructure planning, design, review, and construction to use flexibility in regulatory processes. Specifically, *Eco-*

⁵ NEPA and Transportation Decisionmaking. Mitigation of Environmental Impacts. <http://environment.fhwa.dot.gov/projdev/tdmmitig2.asp> Retrieved 1/22/2009.

Logical puts forth the conceptual groundwork for integrating plans across agency boundaries, and endorses ecosystem-based mitigation of infrastructure impacts that cannot be avoided. The document can be found at:
http://www.environment.fhwa.dot.gov/ecological/eco_index.asp.

Air Quality and Climate Change

As a general mitigation strategy, a more compact and walkable community design, expanded public transportation and non-motorized transportation systems, and maintaining and maximizing the use of the existing transportation infrastructure would likely reduce transportation related air emissions. Examples of these strategies include making use of the existing rail line between Caldwell, Nampa, and Boise for commuter rail and enhancing the corridor for use by non-motorized modes; providing infrastructure to support flexible carpooling; and providing frequent service public transport to heavily used public events and cultural centers, such as Boise State University and the Idaho Center.

Mitigation Measures for Fugitive Dust and Emissions During Construction

Mitigation strategies include developing a dust prevention and control plan prior to the project, according to local ordinances. Dust control measures include:

- Watering roadways
- Covering loads
- Sweeping roadways
- Reducing speed limits through construction zone

Additional mitigation measures during construction can include:

- Properly maintaining construction equipment.
- Evaluating the use of available alternative engines and diesel fuels.
 - Engines using fuel cell technology
 - Electric engines
 - Engines using liquefied or compressed natural gas
 - Diesel engines that meet the proposed EPA 2007 regulation of 0.01 g/bhp-hr (grams per brake horsepower hour)
 - Diesel engines outfitted with catalyzed diesel particulate filters and fueled with low sulfur (less than 15 ppm sulfur) fuel
 - o Diesel engines fueled with biodiesel (diesel generated from plants rather than petroleum)
 - o Fueling on-site equipment, such as mining equipment, with lower sulfur highway diesel instead of off-road diesel fuel
- Reducing construction-related traffic trips and unnecessary idling .
- Using newer, "cleaner" construction equipment.
- Installing control equipment on diesel construction equipment.
- Rerouting the diesel truck traffic away from communities and schools.

Adopting a "Construction Emissions Mitigation Plan" (CEMP) would help to ensure that the procedures for implementing all proposed mitigation measures are

sufficiently defined to ensure a reduction in the environmental impact from diesel PM and nitrogen oxides due to the project's construction.

Design and implementation of mitigation measures should include consultation of ITD, local highway district, cities, counties and the Department of Environmental Quality (DEQ).

Water Quality

General water quality/run-off mitigation may include:

- Establishing procedures for control of runoff from construction projects.
- Designing storm sewers to catch sediment runoff and prevent it from reaching streams and rivers.
- Using basins to detain runoff and allow absorption.
- Reducing materials such as sand on icy roads.
- Increasing road/surface sweeping to pick up materials before they can enter the storm sewers.
- Using permeable surfaces where appropriate to reduce the loss of aquifer recharge.

Generally, all projects that may result in the placement of fill into wetlands or other waters of the United States must be evaluated to determine how to avoid the filling, and if unavoidable, how to minimize and mitigate for the loss. Furthermore, if federal funds are accepted for a project, the transportation agency will be subject to Federal Highways Administration (or Western Federal Lands) policies regarding wetland mitigation.

On April 10, 2008, final rules were published in the Federal Register (Vol 73, No. 70, pages 19594-19704) explaining new requirements for mitigating the losses of waters of the United States associated with permitted fills (40 CFR Part 230, Compensatory Mitigation for Losses of Aquatic Resources, "Mitigation Rule"). The rule explains the responsibilities of the permittee for ensuring the mitigation selected succeeds in replacing the lost waters. Traditionally, a mitigation site is located at or adjacent to the impact site (i.e., on-site compensatory mitigation) or at another location generally within the same watershed as the impact site (i.e., offsite compensatory mitigation). If agencies implementing the transportation projects intend to develop offsite mitigation banks for future mitigation needs, they must follow the procedures set out in the Mitigation Rule. Participation in an in-lieu fee program to mitigate for losses may be possible in the near future. The Fish and Wildlife Foundation is developing such a program. Mitigation requirements for projects are determined at the time of permitting, but it is prudent to plan ahead by evaluating areas potentially affected and identifying potential mitigation sites or ideas for mitigation.

Run-Off (Stormwater)

To mitigate water quality impacts from run-off, the first steps are to check on Construction General Permit applicability and to develop a Stormwater Pollution Prevention Plan (SWPPP):

- Ensure stormwater requirements are planned/met prior to project implementation.
- Implement the SWPPP if applicable; if not applicable implement Stormwater best management practices.
http://www.deq.idaho.gov/water/data_reports/storm_water/catalog/sec_1/t_ext.pdf
- Implement recommended erosion and sediment control practices as found in the *Idaho Construction Site Erosion and Sediment Control Field Guide* published by the Idaho Small Business Development Center.
<http://www.idahosbdc.org/index.cfm?fuseaction=content.fieldguide>
- Involve ITD, EPA, Idaho Department of Water Resources (IDWR), U.S. Army Corps of Engineers (ACE), local canal or drainage district, health districts, local public works, and local highway district.

Stream or Wetlands Disturbances

To mitigate adverse effects on streams and wetlands, avoid to the fullest extent practicable any activities that would harm wetlands during the design, construction, and maintenance of the state transportation system. Avoid streams or wetlands via an alternate route.

If this is not possible, incorporate federal and state “no net loss” policies by protecting, restoring, and enhancing natural wetlands that are unavoidably and adversely impacted by transportation-related construction, maintenance, and operations activities. The emphasis is to take appropriate action to minimize impacts and to mitigate impacts that cannot be avoided, as required by federal, state, and local laws. In the event of unavoidable impacts, project development would consider the use of mitigation concepts. These include wetland mitigation banking and advanced mitigation such as wetland preservation where no overall net loss of functions will result.

Ensure any permit requirements are met prior to the project, such as 401/404 “dredge and fill” permit applicability/certification process, or for streams explore the potential for use of a “Short Term Activity Exemption” from DEQ. Involve ITD, local highway districts, EPA, ACE, IDWR, and DEQ early in the process.

Groundwater

The indirect effects of growth, both with and without low impact development techniques for new development and re-development, should be estimated and compared to assess the impacts to drinking water supplies and to communities that are dependent upon groundwater wells. This analysis should also note where there is evidence of decreasing aquifer levels, such as well test data, diminished stream base flows, dry streambeds, and so on. Growth impacts should also be examined

with respect to source water protection areas, preventing pollution, and excessive drawdown of groundwater supplies, and the ability to implement effective well head protection.

Mitigating Groundwater Impacts from Excavation

General strategies to mitigate excavation impacts on groundwater include:

- Avoid areas of higher groundwater.
- Develop a plan for de-watering in areas of expected groundwater intrusion.
- Apply for a Short Term Activity Exemption from DEQ.
- Implement steps in the Short Term Activity Exemption for dewatering operations
- Involve DEQ, IDWR, EPA, ITD, and local highway districts in mitigation activities.

Hazardous Waste

Discovery of localized contamination or abandoned underground storage tanks could be mitigated by conducting a site assessment/prior use inventory for known or suspected contamination using DEQ's Waste Division Inventory (<http://www.deq.idaho.gov/Applications/WDI>). Conduct a remedial investigation per DEQ's *Risk Evaluation Manual* if contamination is encountered (<http://www.deq.idaho.gov/Applications/Brownfields/index.cfm?site=risk.htm>).

Involve DEQ, EPA, ITD, local highway districts and cities and counties early in the process. There may be advantages to the use of brownfield sites, or other sites contaminated with hazardous wastes, for transportation projects because the sites would be cleaned up and re-used, thereby avoiding impacts to uncontaminated sites and providing benefits to the community.

Wildlife, Fish and Habitat

General mitigation strategies include identifying critical wildlife habitat areas and avoiding and minimizing impacts to those areas. Consult with the appropriate agencies early in the planning process and encourage applicable scientific data collection and sharing among agencies to help integrate transportation and land use decisions early on in relevant planning processes.

The following measures could be taken to mitigate impacts on wildlife when avoidance and minimization aren't feasible:

- To avoid mortality from road construction activities:
 - Locate future roadways away from important wildlife habitat
 - Conduct a survey of wildlife present prior to construction
 - Alter timing of construction to limit impacts to wildlife
- To avoid mortality from collision with vehicles:
 - Locate future roadways away from important wildlife habitat
 - Alter and enforce speed limits

- Establish wildlife crossing areas, including underpasses, overpasses, etc.
- Use wildlife-proof fencing in conjunction with wildlife crossing areas
- Use de-icing chemicals that don't attract wildlife
- Remove or alter vegetation composition along roadways so that vegetation doesn't attract wildlife
- Properly design and construct stream crossings
- To avoid disruption of landscape processes and loss of biodiversity:
 - Integrate transportation and land use decisions early on in both respective planning processes
 - Locate future roadways away from important wildlife habitat
 - Mitigate for the loss of habitats, and the disruption of ecological processes, in important wildlife habitat areas
 - Consider replacing, protecting, or restoring lost habitat
 - Look beyond the actual footprint of the roadway when determining the number of acres of habitat loss
 - Properly design and construct stream crossings
 - Use other best management practices
- To avoid spread of exotic or invasive species:
 - Monitor for exotic species and treat as necessary. Maintain this monitoring and treatment program for a specific number of years after construction is complete.
 - Use best management practices.
 - Ensure plantings used for projects do not include exotic or invasive species.

Involve the following agencies early in the process: Idaho Department of Fish and Game, EPA, Idaho Department of Lands, U.S. Forest Service, BLM, other public land management agencies (if lands affected by project), U.S. Fish and Wildlife Service (if threatened, endangered, or candidate species habitat is involved), ITD , FHWA, IDWR, DEQ, counties and local highway districts.

Habitat or "green infrastructure" means "an interconnected network of natural areas and other open spaces that conserves natural ecosystem values and functions, sustains clean air and water, and provides a wide array of benefits to people and wildlife." (Benedict and McMahon (2006) *Green Infrastructure – Linking Landscapes and Communities*). The preferred mitigation strategy is to avoid such areas or habitat, followed by restoration on-site, replacement, and specific mitigation measures.

Inter-modal Surface Transportation Efficiency Act of 1991 (ISTEA) established a Transportation Enhancement Program (23 U.S.C. 101(g)-133(b)), which offers broad opportunities and federal dollars for actions to integrate transportation into communities and the natural environment. Eligible activities include acquisition of scenic easements and scenic or historic sites, scenic or historic highway programs, landscaping and other scenic beautification, historic preservation, preservation of abandoned railway corridors (including the conversion and use for pedestrian or bicycle trails), and control and removal of outdoor advertising.

For ecological processes, habitat fragmentation can be mitigated by providing bridges or other hydrological connectivity structures to span streams, wetlands, seepage areas, riparian areas, shorelines, open water, and so on. These structures are often designed to accommodate both wildlife and water movement.

The Idaho Comprehensive Wildlife Conservation Strategy was completed in 2005 (http://fishandgame.idaho.gov/cms/tech/CDC/cwcs_table_of_contents.cfm). The strategy recognizes that ecosystem management is more successful to ensure species survival and biodiversity than management for individual taxonomic groups. It is critical that land use and transportation plans fully consider and incorporate the elements of this strategy to help preserve and conserve the region's species, habitats, and genetic diversity. The Owyhee Uplands section of the plan pertains to the Treasure Valley and provides lists of species found in the area. The Idaho Batholith section may be appropriate in reference to the upper elevations of the foothills. Other relevant sources of information include:

- Idaho Wetland Conservation Strategy (Idaho Wetlands Working Group)
- U.S. Fish and Wildlife Service recovery plans for bull trout (for above Lucky Peak dam, if applicable), and other plant and animal species
- The Boise River Total Maximum Daily Load for total suspended solids
- Idaho Conservation Data Center (formerly the Natural Heritage Program) data (<http://fishandgame.idaho.gov/cms/tech/CDC/>). (See Jankovsky-Jones, M. 2001. *Wetland conservation strategy for the middle and western Snake River and lower reaches of its major tributaries including the Boise River and Payette River. Conservation Data Center, Idaho Department of Fish and Game, Boise. 35 pp. plus appendices*)
- Existing local watershed protection/restoration plans
- Idaho's Strategic Plan for Invasive Species (<http://www.agri.idaho.gov/Categories/Environment/InvasiveSpeciesCouncil/StrategicActPlan.php>).

Planning for permeability in developed and developing areas would mitigate storm water effects in the Boise River. Both land use and transportation planning should emphasize/require redevelopment over new development; require low impact development and strongly encourage zero impact development; restore permeability, habitats, and ecosystems wherever possible; and avoid and/or fully accommodate sensitive ecological areas, such as streams, riparian areas, wetlands, buffers, groundwater recharge areas, etc.

Noise

To help ensure that comparative analyses of project alternatives include consideration for minimizing or avoiding traffic noise impacts, comprehensive planning and coordination should be accomplished as early as possible in the project development process. This could reduce or eliminate the need for costly abatement later in the design process.

In general, heavier truck volumes, higher speeds, and a greater percentage of commercial vehicles (e.g., trucks) results in increased noise levels. Traffic/noise data concerning such factors is most pertinent within or near urban settings.

Based on past findings, abatement for traffic noise impacts needs to be considered and studied in future projects and developments that occur within any major highway corridor as well as any major local arterial roadways. It is also recommended that cities and counties study and require noise abatement on developments that encroach on such highways and roadways.

Historical and Archeological Resources

Mitigation strategies include:

- Early consultation with the State Historic Preservation Officer (SHPO) and other interested persons and parties during the early stages of planning.
- As with many environment issues the first preferred strategy is to avoid adverse impacts.
- If it is not possible to avoid adverse impacts, minimization and mitigation of impacts would be pursued.
- Relocation, marking and other measures are as appropriate.

Agricultural and Farmland

Based on the U.S. Department of Agriculture – Natural Resources Conservation Service areas of expertise and resource concerns, transportation projects would likely impact prime farmlands, increase soil erosion, and change areas to non-agricultural use.

As a general mitigation strategy, a more compact and walkable community design, expanded public transportation systems, and maintaining and maximizing the use of existing transportation infrastructure would help avoid or minimize prime farmland encroachment.

There is no mitigation for loss of prime farmland or a change in use to any non-agricultural use. Increased soil erosion can be mitigated by using accepted erosion control methods during construction and the design of adequate water removal systems for runoff.

When federal funds are used for transportation, loss of prime and important farmlands is monitored. Avoidance of prime farmland is always preferred. The process should involve local planning and zoning agencies and the Natural Resources Conservation Service.

Appendices

A. Participating Agencies

The following agencies participated in the environmental review process, beginning in November 2008, by attending meetings, sharing information, and/or reviewing documents:

- Idaho Transportation Department
- Idaho Department of Fish and Game
- Idaho Department of Environmental Quality
- Idaho Department of Water Resources
- Idaho State Historical Society
- Idaho Office of Species Conservation
- Idaho Department of Lands
- Idaho Department of Agriculture – Soil Conservation Commission
- Local Highway Technical Assistance Council
- Ada County Development Services
- U.S. Department of Transportation – Federal Highway Administration
- U.S. Bureau of Reclamation
- U.S. Army Corps of Engineers
- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service
- U.S. Forest Service
- U.S. Bureau of Land Management
- U.S. Natural Resources Conservation Service
- U.S. Department of Agriculture

B. Matrix of Environmental and Resource Agency Involvement

	Air Quality	Water Quality	Flood-plains	Wetlands	Haz. Waste	Contam. Sites	Wildlife, Fish, Habitat	Agri & Farmland	Noise	Historic, Cult, Arch.	Social & Econ. Conditions
Idaho Transportation Department	x			x	x	x	x		x		x
Idaho Department of Fish and Game		x		x			x				
Idaho Department of Environmental Quality	x	x			x	x	x				
Idaho Department of Water Resources			x	x			x				
Idaho State Historical Society										x	
Idaho Office of Species Conservation							x				
Idaho Department of Lands							x				
Idaho Department of Agriculture								x			
Soil Conservation Commission								x			
Local Highway Technical Assistance Council	x			x	x	x	x				x
Ada County Development Services			x					x			x
Federal Highway Administration				x					x		x
U.S. Bureau of Reclamation			x	x							
U.S. Environmental Protection Agency	x	x		x	x	x	x				
U.S. Fish and Wildlife Service							x				
U.S. Forest Service							x	x			
U.S. Bureau of Land Management							x	x			
U.S.D.A. Natural Resources Conservation Service								x		x	

C. Major Environmental Impacts that Should Be Covered in Environmental Impact Statements for Specific Projects

The United States Environmental Protection Agency recommends that the following environmental concerns be covered in the Environmental Impact Statements for specific projects. These and additional impacts of concern would include:

- Climate change
- Biodiversity
- Ecological connectivity
- Surface water runoff and impervious surface
- Water quality
- Health of Boise River Watershed
- Groundwater quality and quantity, including recharge capability and source water protection
- Air quality and air toxics
- Wildlife and wildlife habitat, species recovery
- Native plants/vegetation, species recovery
- Invasive species
- Cultural and historical impacts
- Tribal impacts
- Environmental justice
- Community and human health impact assessment
- Land use
- Indirect and cumulative effects
- Energy use

D. Maps

The following maps are available at:

http://www.compassidaho.org/prodserv/mapgis-maps_cim_environmental.htm

1. Environmental Themes Overlay
2. Birds of Prey Area (Bureau of Land Management)
3. Bridges and Dams (Idaho Transportation Department-Idaho Department of Water Resources)
4. Storage Tanks (Department of Environmental Quality)
5. Environmental Justice Areas – Ada County (COMPASS)
6. Environmental Justice Areas – Canyon County (COMPASS)
7. Habitat for Elk Winter Range, Deer Winter Range, and Wildlife Zones (Idaho Department of Fish and Game)
8. Habitat for Slick Spot Pepper Grass (Idaho Department of Fish and Game)
9. Habitat for Sage Grouse (Bureau of Land Management)
10. Areas of Critical Environmental Concern (Bureau of Land Management)
11. Historical Trails and Buildings (Idaho State Historical Society)
12. Impaired Streams and Stream Monitoring Locations (Idaho Department of Environmental Quality)
13. Open Space and Grazing Lands (COMPASS; Bureau of Land Management)
14. Parks and Schools
15. Prime Farmland (irrigated, currently undeveloped)
16. Ridge-to-Rivers Trails
17. Environmental Wetlands (rivers, lakes and waterways)

General Landuse and Transportation (*Communities in Motion 2030*) is at:

<http://www.communitiesinmotion.org/Documents/datareports/genlanduseandtranspmap.pdf>