

CHAPTER 9

ENVIRONMENTAL CONSIDERATIONS

Federal regulations require MPOs to take a comprehensive approach to environmental and natural resource issues when developing their long-range transportation plans. For example, MAP-21 directs MPOs to consult with federal and state agencies to identify potential mitigation activities that can help restore and maintain environmental functions affected by the plan.

By working closely with both transportation and natural resource organizations, COMPASS was able to take into account key environmental, community, and economic goals early on in the CIM 2040 planning process. Ongoing cooperation among these groups will help ensure CIM 2040 goals are considered during the design and construction of any new transportation projects.

To address the Treasure Valley’s unique blend of geographic features and natural resources—from the foothills and the Boise River to wide expanses of farmland and open space—COMPASS incorporated the following goals into CIM 2040:

Goal 1.1: Enhance the transportation system to improve accessibility to jobs, schools, and services; allow the efficient movement of people and goods; and ensure the reliability of travel by all modes considering social, economic, and environmental elements.



Indian Creek, Bernie Fisher City Park, Kuna. Photo: Troy Behunin, as part of the *Your Treasure Valley Future Photo Challenge*.

Note: A glossary of terms is available at www.compassidaho.org/comm/glossary.htm. Acronyms in this document are defined in Appendix B.

Goal 5.1: Promote a transportation system and land-use patterns that enhance public health, protect the environment, and improve the quality of life.

Goal 7.1: Promote development and transportation projects that protect and provide all of the region's population with access to open space, natural resources, and trails.

Goal 8.2: Protect agricultural land for food, fiber, and fuel production and support of other agricultural and food-related businesses.

Environmental Review Process

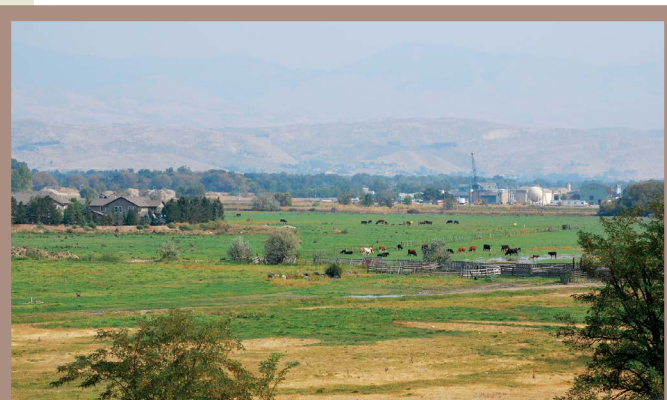
COMPASS has collaborated with a work group of environmental and natural resource agencies since 2008 to address environmental issues relevant to long-range transportation planning. Details about work group activities can be found in the *COMPASS Environmental Review Process, 2008–2013* (see App. A for a list of participating agencies).

Environmental Suitability Analysis

Through the work group partnership, COMPASS is able to access the most current and complete environmental and resource data available for the two-county area. COMPASS has produced environmental and resource maps using the shared data, but wanted to use the data for more than simply mapping. To this end, the work group discussed various methods for employing the data to determine which Treasure Valley areas

would be the most and least suitable for new or widened roads. COMPASS and the work group drafted a methodology for using a *CommunityViz suitability analysis tool* to assess priority transportation corridors for environmental and resource values. (As discussed in Chapter 3, COMPASS used CommunityViz software in the CIM 2040 scenario planning process.)

The group suggested categorizing the various environmental data sets to help stakeholders and the public visualize clusters of environmentally sensitive areas as well as enable the CommunityViz suitability analysis tool to identify key areas for preservation and/or conservation.



View from Eagle Road north of Chinden Boulevard. Photo: Toni Tisdale, as part of the *Your Treasure Valley Future Photo Challenge*.

Data categories governed by federal requirements were weighted with the highest values.

In May 2013, the work group reviewed results of the environmental suitability analysis of priority transportation corridors for CIM 2040 (Figure 9.1). Corridor summaries, which include descriptions of environmental concerns and likely issues for each corridor, are available [online](#).

Figure 9.1. Potential environmental issues along priority corridors.¹

The following categories were used in the *initial analysis* to pinpoint potential environmental impacts along the prioritized corridors:

- Hydrological areas
 - o water quality and quantity
 - o runoff (stormwater)

¹ www.compassidaho.org/documents/prodserv/CIM2040/PotentialEnvironmentalPriorityCorridors.pdf

- o streams, wetlands, and canals
- o groundwater
- o floodplains and floodway areas



Deer feeding near Boise State University, on the south side of the Boise River. Photo: Liz Paul, as part of the *Your Treasure Valley Future Photo Challenge*.

- Habitat and wildlife areas
 - o Boise foothills
 - o aquatic and riparian habitats
 - o wildlife management areas
 - o endangered species
- Traffic noise
- Hazardous materials/contaminated sites
 - o potential remediation sites
 - o gas stations

- Cultural and historic resources
 - o historic sites, trails, and/or structures
 - o aesthetics
- Environmental justice
- Open space, parks, and recreation areas
 - o parks
 - o cemeteries
- Agricultural and farmland
- Land use
 - o existing residential neighborhoods
 - o schools
 - o railroads
 - o tank trail
 - o airports/private airstrips

Mitigation Strategies

From an environmental standpoint, mitigation strategies refer to actions that can avert or lessen the environmental impact of a project.

Once the CIM 2040 environmental review work group identified and mapped environmentally sensitive areas, it then identified general mitigation strategies for CIM 2040 prioritized corridors and projects. These are discussed in brief below, along with mitigation strategies that address the air quality maintenance area designation in northern Ada County. A more extensive discussion of mitigation strategies is included in the [COMPASS Environmental Review Process, 2008-2013 report](#).

Mitigation measures should be approached in the following order, per the [National Environmental Policy Act \(NEPA\)](#):

1. Avoid the impact altogether by not taking a certain action or parts of an action.
2. Minimize impacts by limiting the degree or magnitude of the action and its implementation.
3. Rectify the impact by repairing, rehabilitating, or restoring the affected environment.
4. Reduce or eliminate the impact over time by preservation and maintenance operations during the life of the action.
5. Compensate for the impact by replacing or providing substitute resources or environments.

Streams and wetlands are governed under [federal mitigation standards](#), which require projects to

- adhere to “avoid, minimize, compensate” sequencing—that is, avoid impacts to a wetland or other aquatic resource but, if that’s not possible, minimize impacts and compensate for them;
- compensate for the lost functions of the impacted aquatic resources; and
- set measurable and enforceable ecological performance standards to ensure successful compensation.



Boise River angler. Photo: Ken Miracle, as part of the *Your Treasure Valley Future Photo Challenge*.

Hydrological Areas

Water quality and quantity are key considerations in any planning process. To minimize impacts in this arena, planning efforts should

- emphasize/require redevelopment over new development to preserve existing permeable lands;
- 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, and groundwater recharge areas.²

Runoff (Stormwater)

Runoff from roads, parking lots, and other impermeable surfaces can collect pollutants and carry them to local rivers and other water bodies such as the Boise River and Lake Lowell. Permeable surfaces, where water can sink into the ground, like lawns, fields, and even some types of cement, filter water as it sinks into the ground, thus reducing the amount of pollutants carried into local bodies of water and recharging underground aquifers.

General runoff mitigation strategies include

- establishing procedures to control runoff from construction projects;
- designing storm sewers to catch sediment runoff and prevent it from reaching streams and rivers;
- using water catch basins to detain runoff and allow water absorption;
- reducing the use of materials such as sand on icy roads;
- increasing road/surface sweeping to pick up materials before they enter storm drains; and
- using permeable surfaces where appropriate.

Road construction projects may be subject to a federal Construction General Permit and development of a Stormwater Pollution Prevention Plan (SWPPP) or a Stormwater Management Plan.³ General mitigation strategies include

- ensuring stormwater requirements are planned/met prior to project implementation;
- implementing the SWPPP or stormwater management best practices;
- implementing erosion- and sediment-control practices; and
- involving relevant agencies early, including ITD, IDWR, US Environmental Protection Agency (EPA), US Army Corps of Engineers (ACE), local canal or drainage districts, health districts, city/county public works, and local highway districts.

Wetlands and Other Sensitive Areas

When planning transportation-related projects, avoiding streams and wetlands is the preferred strategy. Federal “no net loss” policies protect, restore, and enhance natural wetlands and other aquatic resources that could be adversely impacted by construction, maintenance, and operations activities. In the event of unavoidable impacts, federal mitigation rules require some sort of mitigation to help ensure no overall net loss of wetland functions; this may include wetland mitigation banking or wetland or stream corridor preservation.

Generally, all transportation projects that may result in the placement of fill (soil or rock) into wetlands, streams, rivers, and other water bodies must be evaluated to determine how to avoid the filling and, if unavoidable, how to minimize and mitigate for the loss. If federal funds are used for a project, the agency building or maintaining the road will be subject to FHWA or Western Federal Lands Highway Division policies regarding wetland mitigation, per Executive Order 11990, Protection of Wetlands.

All permitting requirements, such as those falling under federal 401/404 “dredge and fill” permits, short-term activity exemptions from the Idaho Department of Environmental Quality (DEQ), and Stream Channel Protection Act permits from IDWR, must be met prior to project construction. Transportation agencies should involve IDWR, DEQ, EPA, and ACE early in the planning and/or design process.

² “Compensatory Mitigation for Losses of Aquatic Resources.” *Code of Federal Regulations*. Title 40, 230. September 6, 2013.

³ The ACHD NPDES permit requires a stormwater management plan outlining a project’s planned runoff control measures.

Groundwater

Groundwater provides a significant portion of the drinking water in southwest Idaho, and thus is extremely important to our growing population. However, population growth has the potential to negatively impact groundwater via increased pollution and new development, which can prevent water from seeping into the ground to recharge the groundwater storage (aquifers).

General strategies to mitigate construction impacts on groundwater include

- avoiding areas of high groundwater (where groundwater is close to the surface);
- implementing steps in DEQ's short-term activity exemption for dewatering operations to prevent intrusion into groundwater; and
- involving local highway districts, ITD, IDWR, DEQ, and EPA in groundwater mitigation activities.

Floodplains

Floodplains are areas that are likely to flood. They possess significant natural features and perform numerous functions important to the public interest. Federally funded projects and those involving federal lands must be evaluated for their impact on floodplains.⁴ Regulations are intended to reduce the risk of flood loss; minimize the impact of floods on human safety, health, and welfare; and restore and preserve the natural and beneficial values served by floodplains.

Local agencies require permits under floodplain ordinances for structures in floodplains, including roads and berms. Most local ordinances do not allow structures in a floodway, the channel that carries water in a river or stream.⁵

Habitat and Wildlife Areas

Transportation projects can severely impact wildlife and their habitats. Road construction activities may spread exotic or invasive species, and routes that divide—or “fragment”—wildlife habitats often cause animals to cross roadways, resulting in auto crashes.

⁴ The intent of Executive Order 11988, Floodplain Management, is to “avoid to the extent possible the long and short term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative...” www.archives.gov/federal-register/codification/executive-order/11988.html. September 6, 2013. For example, see the ACE regulation, 33 CFR 320.4(l), www.gpo.gov/fdsys/pkg/CFR-2008-title33-vol3/xml/CFR-2008-title33-vol3-sec320-4.xml.

⁵ According to the Federal Emergency Management Agency (FEMA), the regulatory floodway “means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood...” www.fema.gov/floodplain-management/floodway.

Habitat fragmentation can be avoided by consulting mapped habitat areas (see Environmental Suitability Analysis, above) when planning roads, and modifying routes accordingly. When a project unavoidably affects wildlife habitat, impacts can be mitigated by providing bridges or other structures to span streams, wetlands, seepage areas, riparian areas, shorelines, and open water. These structures are often designed to accommodate both wildlife and water movement.

Several agencies should be involved early in the process: Idaho Department of Fish and Game, Idaho Department of Lands, EPA, US Forest Service, Bureau of Land Management (BLM), other public land management agencies (if lands are affected by the project), US Fish and Wildlife Service (if threatened, endangered, or proposed species habitat is involved), FHWA, ITD, IDWR, DEQ, counties, and local highway districts.

Traffic Noise

Traffic noise can be an ongoing issue for homes and businesses located on or near busy roads. General strategies to mitigate traffic noise address heavy truck volumes and high speeds, both of which typically increase noise levels.

Planners need to incorporate noise impact abatement techniques into projects and developments within or encroaching any major highway corridor or major local arterial roadway. Abatement options include the use of noise barrier walls, siting less-noise-sensitive uses, such as commercial or industrial facilities, closer to major roads, and designing buildings with no windows or other openings toward the roadway.

Noise can also be a short-term issue during road construction. Construction noise can be mitigated by controlling hours of work, shielding the work site, requiring certain equipment types and mufflers, and eliminating the use of backup beepers on equipment. Beepers may be eliminated if a flagger is used for backing of equipment or could be replaced by a flashing strobe light at night. FHWA's *Construction Noise Handbook and construction noise model* provide guidance for mitigating construction noise.

Hazardous Materials/Contaminated Sites

If there are any indications that a tract of land pending development could possibly be contaminated with hazardous materials—such as from a leaking or abandoned underground storage tank (e.g., from an old gas station)—a site assessment should be conducted. The property should also be crosschecked against DEQ's inventory of prior uses. If contamination is encountered, a remedial investigation can be conducted using DEQ's

Risk Evaluation Manual for Petroleum Releases.

The presence of contamination or hazardous materials should not be cause to relocate a project. The cleanup and re-use of contaminated sites for transportation projects actually has several advantages: it avoids impacts to uncontaminated sites and provides economic and safety benefits to the community. EPA, DEQ, ITD, local highway districts, and cities and counties should be involved early in the assessment and remediation process.

Cultural and Historical Resources

Impacts to cultural and historic resources, such as historic buildings and areas with tribal significance, may come under National Historic Preservation Act and Section 4(f) regulations,⁶ and should be avoided if at all possible.

General mitigation strategies include

- consulting early on with the state historic preservation officer and other interested persons and parties to determine what resources may exist in a specific area; and
- employing relocation, marking, and other measures as appropriate.

Environmental Justice

State and local transportation agencies have a legal obligation to prevent discrimination and to protect the environment through their plans and programs. Any projects funded with federal dollars and those requiring federal action (like a permit) must comply with the 1994 Executive Order “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,” which states:

[F]ederal 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.

⁶ Department of Transportation Act of 1966, 49 U.S.C §303; 23 CFR 774.4(f). 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 waterfowl refuges, and historic sites.”

COMPASS has mapped minority and low-income populations in Ada and Canyon Counties to determine where priority corridors intersect with populations of minority and low-income individuals (Figure 9.2). This information is considered when prioritizing projects for the TIP and the long-range transportation plan.

Note: Low-income areas are calculated for each census tract using the 2007-2011 American Community Survey five-year data, the most recent data available at the time of publication. Minority areas are calculated using the 2010 Decennial Census, which allows for the analysis of block groups (smaller than census tracts). Income information is not available from the 2010 Decennial Census. Low-income areas maintain a median household income that is 60% of the median household income of the respective county. Minority areas maintain at least 30 percent of the population that is Non-white or Hispanic.

Figure 9.2. Map of Canyon and Ada Counties’ Environmental Justice special consideration areas⁷

⁷ www.compassidaho.org/documents/prodser/CIM2040/Maps/EJ_PriorityCorridors_9_2.pdf

Open Space, Parks, and Recreation Areas

A 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 under [Section 4\(f\) of the Department of Transportation Act of 1966](#). 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 waterfowl refuges, and historic sites.”

Transportation projects can cross “special lands” only if there is no other “feasible and prudent alternative” and the sponsoring agency demonstrates that all possible planning to minimize harm has been accomplished.

Section 4(f) is also called into effect when a project’s impacts in the proximity of the protected area are so severe that the resources’ activities, features, or attributes are substantially impaired, even if the project does not actually intrude into the protected use.

Agricultural and Farmland

Encouraging growth within existing community footprints is the primary way to minimize encroachment and development on agricultural lands. Planners and developers should consider designing compact and walkable communities, expanding public transportation systems, and maintaining and maximizing use of existing infrastructure.



Agricultural field on Black Cat Road, Kuna. Photo: Troy Behunin, as part of the *Your Treasure Valley Future Photo Challenge*.

Transportation planners working on projects in close proximity to farmlands should involve local planning and zoning agencies and the Natural Resources Conservation Service in the process to preserve and minimize the loss of farmland.

There is no way to mitigate for loss of prime farmland or a change in use to non-agricultural uses.

Land Use

The density and mix of buildings and other constructed features shape people’s travel needs and habits, which in turn also shape urban form. For example, in areas with higher

densities and mixed commercial and residential buildings, people walk, cycle, and use other non-motorized transport more because trip distances are typically shorter and are less likely to require travel on major roadways. When personal vehicles are used in these areas, trips tend to be shorter, and ride sharing is more feasible because there is a greater likelihood that individuals are traveling to and from similar locations. Transportation planning and design should incentivize high-density and mixed-use building to minimize land consumption from urban sprawl.

Air Quality

Strategies to preserve air quality and reduce pollution can be incorporated into general land use and transportation planning, and are included in the goals and objectives of this plan. For example, compact and walkable community designs, 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. Practical examples of these strategies include providing infrastructure to support carpooling and implementing bicycle and pedestrian plans.

Northern Ada County is an air quality “maintenance area” for carbon monoxide and coarse particulate matter (PM₁₀), meaning that northern Ada County has violated federal health-based air quality standards for these pollutants in the past, but is now in compliance with those standards and has federally approved plans to maintain compliance in the future. As a maintenance area, COMPASS must demonstrate that federally funded and “regionally significant” transportation projects will not degrade air quality in the Treasure Valley. This is referred to as an “air quality conformity demonstration.” Through required computer modeling, COMPASS demonstrated that the estimated impacts of the funded projects in CIM 2040 (Chapter 6) meet air quality conformity requirements for northern Ada County and will not degrade air quality. [Appendix A](#) contains the full air quality conformity demonstration documentation and report.

The Treasure Valley airshed is subject to stagnant air, which exacerbates the concentration of air pollutants and contributes to the future possibility of exceeding health standards. Pollutants of particular concern are PM_{2.5} and ozone. Strategies in this plan also address these pollutants and are intended to reduce the likelihood of future exceedances.

In addition to air quality impacts of using our transportation system, dust generated by transportation-related construction can also cause short-term impacts. These impacts can be mitigated by developing and following a dust prevention and control plan and employing control measures such as

- watering roadways;
- covering loads;
- sweeping roadways; and
- reducing speed limits through construction zones.

Additional mitigation measures during construction can include

- properly maintaining construction equipment;
- evaluating the use of available alternative engines and diesel fuels;
- reducing construction-related traffic trips and unnecessary idling;
- using newer, “cleaner” construction equipment;
- installing control equipment on diesel construction equipment; and
- rerouting truck traffic away from communities and schools.

Adopting a construction emissions mitigation plan (CEMP) will help ensure procedures are sufficiently defined, thereby reducing air quality impacts.

Design and implementation of mitigation measures should include consultation with ITD, DEQ, local highway districts, cities, and counties.

In addition to the mitigation measures discussed above, state and local agencies and even private businesses have been proactive in protecting air quality throughout the Treasure Valley for several decades. In 1999, the Division (now Department) of Environmental Quality published *Treasure Valley Air Quality*, a regional look at air pollution issues in Ada and Canyon Counties and a discussion of proactive strategies to control air pollution. The *Practical Paths to Clean Air Governor’s Conference* was held in 2003; following this, in 2005, then-Governor Dirk Kempthorne signed the Regional Air Quality Council Act into law. The act established the Treasure Valley Air Quality Council, which then developed the *Treasure Valley Air Quality Plan* in 2007.

While each of these has moved the conversation forward with new data and specific actions to curb air pollution, these plans, conferences, and reports have all focused on the same types of recommendations: educate the public, plan a transportation system that encourages the use of alternatives and discourages idling, plan land use to reduce (or slow the growth of) vehicle miles traveled, and facilitate change in government and business practices and processes through incentives or, when necessary, regulation.

Some programs and projects have spawned specifically due to these collaborative efforts, while others developed of their own accord. A few of the many programs that support clean air in the Treasure Valley include

- the adoption of CIM 2040, CIM 2035, and CIM 2030, including growth scenarios (“Community Choices” for CIM 2030 and 2035 and the CIM 2040 Vision) that promote development patterns that support the use of transportation alternatives (and, therefore, decrease reliance on single-occupancy vehicles);
- an expanding alternative-transportation network, including improvements in public transportation, vanpools/carpools, and bicycle and pedestrian facilities;
- public education and awareness campaigns, including campaigns in the early to mid-2000s sponsored by the Treasure Valley Partnership and Department of Environmental Quality and a new campaign initiated in 2013, funded by the Air Quality Board and Department of Environmental Quality and managed by COMPASS;
- the implementation of a Stage I Vapor Recovery program;⁸
- employer-based programs to reduce employees’ vehicle miles traveled, including incentives to use alternative transportation and/or work from home;
- improving signal timing to reduce idling of cars in traffic;
- the implementation of local ordinances regulating open burning and limiting indoor residential burning based on air quality forecasts; and
- organization-specific initiatives, such as purchasing fuel-efficient and alternative-fueled vehicles and maintenance equipment and using paints and other chemicals low in volatile organic compounds.

In addition, any business or industry that emits air pollutants into the air is required to have an air-pollution-control permit from DEQ; this helps ensure compliance with state and federal air-pollution-control rules.

⁸ Vapor recovery is a process of capturing gasoline vapors that would otherwise escape during the transfer of fuel from delivery trucks to storage tanks at retail gas stations; when unchecked, these vapors contribute to air pollution.

Environmental Performance Measures and Targets

CIM 2040 addresses the environment in goal 5.1: *Promote a transportation system and land use patterns that enhance public health, protect the environment, and improve the quality of life.*

COMPASS will track progress toward meeting goal 5.1 through monitoring the following performance measures and advancement toward their specific targets in 2040:⁹

- Vehicle emissions (PM10)
 - Current: 24.4 tons/day
 - Target: Less than 60.1 tons/day
- Ratio of regional preserved open space to population
 - Current (2010): 22.3 acres/1,000 people
 - Target: 25 acres/1,000 people

The annual performance monitoring report, with data on progress toward meeting all regional performance measures, as well as reports from past years, are available on the [COMPASS Performance Dashboard](#). The 2014 report will be the first to address these specific performance measures.

⁹ See Chapter 10 for a discussion on the development of CIM 2040 performance measures and targets.