

SECTION 3
ENVIRONMENTAL

3.01 INTRODUCTION

3.01.01 Environmental Clearance

Environmental Clearance is required for every project before advertisement. This introduction describes how to navigate the environmental clearance process for National Environmental Policy Act (NEPA) projects. Following the introduction are individual sections for each environmental resource, presenting resource-specific information to aid in the clearance process. Information includes a description of the resource, its associated regulations, a list of tasks that should be completed by the Environmental Resource Specialist, a list of tasks to be completed by the Resident Engineer, a general timeline for clearance of each resource, and a list of potential red flags. Red flags are generally considered to be those things that would significantly lengthen the project schedule or be costly to mitigate. These sections are for informational purposes; your regional resource specialist, or headquarters specialist, will assist you with impact analysis, permitting and mitigation.

More detailed information on resource clearance processes, and the entire NEPA process, can be found in the CDOT NEPA Manual, and your Region Planning and Environmental Manager (RPEM) or associated region environmental staff, and CDOT headquarters environmental staff should be consulted on every project.

3.01.02 Overview of NEPA

The National Environmental Policy Act (NEPA) requires that federal agencies use a systematic, interdisciplinary approach to decision-making when actions may affect the quality of the human environment. NEPA is implemented by the Council on Environmental Quality (CEQ) through Title 40 Code of Federal Regulations [CFR] § 1500 – 1508. To address the NEPA responsibilities established by CEQ, the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) jointly issued regulations, Environmental Impact and Related Procedures (FHWA and FTA, 23 CFR 771 § 771.101 – 771.131). The FHWA and FTA NEPA process allows transportation officials to make project decisions that balance engineering and transportation needs with social, economic, and natural environment factors.

Transportation projects vary in type, size, complexity, and can have impacts ranging from negligible to significant to both the natural and human environment. To account for the variability of project impacts, there are three basic classes of action that prescribe the level of documentation required in the NEPA process:

- Class I – Environmental Impact Statement (EIS)
- Class II – Categorical Exclusion (CatEx)
- Class III – Environmental Assessment (EA)

Table 3-1 summarizes the definition, examples, requirements and general schedules for the different classes of action. After reviewing the needs in the project area, FHWA, in consultation with CDOT (typically the RPEM), will decide which class of action is appropriate. More detailed information for each class of action can be found in the CDOT NEPA Manual. Most CDOT projects are completed through the CatEx process.

Class I (EIS)	Class II (CatEx)	Class III (EA)
<p>Required for actions likely to have significant environmental effects that cannot be mitigated.</p> <p>An EIS details the process through which a transportation project is developed, including consideration of a range of reasonable alternatives and detailed analysis of the potential impacts to the environment resulting from each.</p>	<p>Required for actions that do not individually nor cumulatively have a significant environmental effect or have substantial controversy. Necessary environmental studies and compliance with all applicable requirements are still required for the project. There are two types of CatExs: the programmatic CatEx that CDOT can sign as authorized by FHWA; and the non-programmatic CatEx that requires FHWA signature.</p>	<p>Required for actions that do not qualify as CatEx, but where there is insufficient information to determine whether the project's impacts warrant an EIS. The EA should concentrate attention on environmental resources with impacts that may be significant or that could be a discerning factor in alternative selection; therefore, this approach should result in a much shorter and more focused document than with an EIS. An EA details the process through which a transportation project is developed, including consideration of a range of reasonable alternatives and detailed analysis of the potential impacts resulting from each.</p>

Class I (EIS)	Class II (CatEx)	Class III (EA)
<p>Examples include:</p> <ul style="list-style-type: none"> • A new, controlled-access freeway/highway • A project having public controversy • New construction or extension of fixed rail transit facilities 	<p>Examples include:</p> <ul style="list-style-type: none"> • Pedestrian facilities • Landscaping • Routine maintenance, including resurfacing • Intersection improvements • Bridge replacement/rehab • Minor widening 	<p>Examples include:</p> <ul style="list-style-type: none"> • Actions that are not clearly Class II (CatEx) • Actions that are not clearly Class I (EIS) • New construction of highway interchange • Adding capacity
<p>Upon completing the EIS, FHWA signs a Record of Decision (ROD) that presents the basis for the determination, summarizes any mitigation measures to be incorporated in the project, and documents any Section 4(f) approval (see Section on 4(f) for further information). No EIS level project can proceed to final design without a signed Record of Decision (ROD).</p>	<p>CDOT and FHWA approval is required on all CatEx projects. In Colorado, FHWA has “programmatically” delegated approval of some CatExs to CDOT so that no FHWA signature is required. No CatEx project can go to ad without a signed CatEx.</p>	<p>In coordination with FHWA, CDOT determines whether a Finding of No Significant Impact (FONSI) is appropriate for a completed EA study or if further study is required in an EIS. No EA project can proceed to final design without a signed FONSI.</p>
<p>Schedule: An EIS is the longest environmental process. Both the Draft EIS and the Final EIS must go out for public review. These documents require a formal public hearing and legal sufficiency review from FHWA HQ in Washington DC. EISs can take years to prepare and complete.</p>	<p>Schedule: A CatEx is typically the shortest environmental process. A clearance can take just a few weeks or up to 1.5 years or more. The typical clearance is 4-6 months (See the example schedules for a simple and complex project). Those CatExs that require FHWA signature can take longer to clear. These non-programmatic CatExs are usually more complex projects and time is needed to coordinate with FHWA.</p>	<p>Schedule: An EA can take nine months to two years to complete. Only the Final EA goes out for public review. Legal sufficiency review is done at the local FHWA office in most cases. They do not require a formal public hearing unless requested by the public.</p>
<p>Table 3-1 NEPA Classes of Action</p>		

Additionally, any of these classes of actions could require a re-evaluation of the analysis with FHWA if: it has been three years or more since the document was approved; the project is moving on to the next phase of ROW, design or construction; or there has been a change in regulation, policy, the environment or the project. Sometimes, a quick re-evaluation can document that none of these conditions exist so the project can move forward without risk of surprises during project advertisement. Most re-evaluations move fairly quickly unless there has been a significant change in the project impacts (due to a change in environment or design) or regulation. The re-evaluation is completed during final design by the RPEM and must be signed before the project can advance to Advertisement. CDOT has a re-evaluation form (Form 1399) to expedite this process.

3.01.03 More on CatExs

CatExs are the most common type of NEPA projects for CDOT and so this section will focus on the process and schedule for that class of action. CatExs are actions that:

1. Do not induce significant impacts to planned growth or land use for the area.
2. Do not require the relocation of significant numbers of people.
3. Do not have a significant impact on any natural, cultural, recreational, historic or other resource.
4. Do not have significant impacts on travel patterns.
5. Do not involve substantial public controversy.

It is important to note that even if a project action is listed as a CatEx, it will not qualify if the criteria listed above is not met. Even if a project is not expected to have significant impacts, a large amount of public controversy can require an EA or EIS action as appropriate.

CatEx actions are generally categorized as either Programmatic or Non-Programmatic.

Programmatic actions are those that, based on past experience, generally do not have a significant impact on the environment. Based on this past experience FHWA signature is not required to clear these projects. A full list of Programmatic actions can be found online under the Categorical Exclusions Programmatic Agreement, 2011.

Non-programmatic CatExs are actions that meet the criteria for a CatEx in the CEQ regulations (CEQ, 40 CFR § 1508.4) if they are appropriately analyzed, documented, and approved by FHWA. Therefore, FHWA signature is required on the top part of the Form 128 to clear these projects (More information on Form 128 is included below.). Some Non-Programmatic actions are specifically listed in Part D of 23 CFR§771.117, but non-listed actions may also qualify as a CatEx if it is known that no significant

impacts will occur as a result of the action. Detailed information on all CatExs can be found in CDOT's NEPA Manual.

3.01.04 Schedule Implications

The length of time required to complete environmental clearances will depend on the necessary class of action, availability and type of funding, resources present and extent of impacts, unexpected changes in project scope/footprint, schedule conflicts with other projects (the CDOT priority of the project), and even the time of year. The resource sections identify tasks that must be done at a certain time in order to avoid schedule impacts.

3.01.05 Project Funding

The type of funding identified for all phases of a project will have a direct effect on how it is evaluated. If a combination of funding sources is being used, the most stringent policy should be followed.

1. Federal Funding:

Projects with Federal funding, or a potential for Federal funding, or any Federal nexus such as projects that involve the Interstate system or projects that will require a Federal permit, are required to go through the NEPA process as described above. Additionally, a Federal nexus triggers the need to complete a Section 4(f) analysis (see the Section 4(f) resource section for details on Section 4(f) Properties). NEPA and Section 4(f) can require some of the same steps, such as alternatives analysis and public involvement, which are sometimes done concurrently but may require additional time.

2. State or Local Funding:

CDOT's Environmental Stewardship Guide directs CDOT to consider environmental impacts for projects whether or not there is a Federal nexus; therefore, CDOT follows the intent and requirements of NEPA on all projects although there is some flexibility regarding how this is conducted if there is no Federal nexus. For example, Section 4(f) analysis does not need to be completed if there is no Federal nexus.

Although not legally necessary when no Federal nexus is present, a public involvement process could be advantageous, especially if the project is controversial. Additionally, Colorado recognizes what are known as "1041 regulations" which allow local agencies, if they have applied for and received the designation, to regulate land use and development activities within their jurisdiction. Thus, a meaningful public involvement process can be used as a tool

for building consensus for transportation projects.

3. Unknown Funding Source:

All of the above classes of action require the identification of funding sources in order to get the required environmental clearance needed for project advertisement. For larger projects, EAs or EISs, it is only necessary to show that the next phase of a project is funded; this could be final design, right of way (ROW), or an actual construction project. However, even when a project is phased, a reasonable plan for obtaining the rest of the funding is required to get a signature for the decision document (i.e., top part of the Form 128, the Finding of No Significant Impact for an EA, or the Record of Decision for an EIS). If a funding source cannot be identified, the project may be a good candidate for a Planning and Environmental Linkages (PEL) study. A PEL study does not require a funding source to be identified, but still allows for the project to proceed with alternatives analysis, environmental impact assessment, and/or agency coordination. Upon identification of a funding source, the information from the PEL study can then be used in the NEPA study, saving time and money. Additional information on PELs can be found in the Planning and Environmental Linkages (PEL) Handbook.

3.01.06 Internal Coordination

While every project is different and will present unique environmental challenges, there are basic steps that must be completed for all projects. It will be necessary to coordinate with CDOT Region or Division of Transportation Development environmental staff in order to meet certain NEPA milestones such as Scoping; however, it is equally important to the project schedule and budget to continue that coordination through the life of the project.

1. Early Notice of Impacted Area:

As early as possible, the Resident Engineer should prepare a map or aerial photograph with an outline showing the outside extent of possible ground disturbance, to be given to the RPEM. The RPEM will assign an environmental manager to the project that can begin work on the clearance process and inform the engineer of any issues that should be considered during design. The final extent of the project limits may not be known this early in the process so the study area should include locations that have the potential of being added, if additional funds are found. For example, if intelligent transportation systems (ITS) is needed in the project area and funding could occur in the near future, include that area on the map as "may be added if funded" so that the clearances can be pursued. It is easier to remove an area from the study than it is to add it later.

2. Early Notice of Impacted ROW Needs:

If the Resident Engineer knows that ROW may be required for the project, advance notice of parcel addresses and extent of the impacted area should be given to the RPEM. The environmental manager can then coordinate environmental resource work with the ROW right-of-entry permission process, including searching appropriate databases for historical resources, hazardous materials, or other environmental issues that may affect the conditions of purchasing the property.

3. Immediate Notice if Design Changes:

If there are changes to the project design (additions, deletions, or moving a feature) the Resident Engineer should inform the environmental manager as it may affect the clearances for the project. Some examples of changes that alter a clearance include: moving a noise barrier location or changing its height; changing the elevation of a road or bridge; a change in the roadway alignment; changing the area of disturbance; changing the location of landscaping sprinkler valves; and modifying a design from a retaining wall to a 3:1 slope. This is not an all-inclusive list and the Resident Engineer should inform the environmental manager of all changes.

NEPA regulations state that actions cannot be taken, such as the purchase of ROW, which would predetermine the outcome of the NEPA analysis. However, environmental staff can begin investigating as soon as they are given information about project limits. Only a map of the outer most potential project limits is needed for this but preliminary plans are helpful. If any environmental issues are identified within the project area, such as: the project is over one acre and in a municipal separate storm sewer system (MS4) permitted area; the project has prairie dogs living within the project area; or the project is in potential paleontologically-rich substrate, then more advanced plan designs are required before all environmental clearances can be obtained. Environmental staff needs to see the planned project impacts to determine such things as: location and design of permanent water quality features; the mitigation of prairie dogs; or location and depth of disturbance for paleontological monitoring during construction. Once these criteria are addressed within the project's plans and specifications, the required environmental clearance can be completed and ROW can proceed, if needed, so the project can be advertised.

3.01.07 Clearing a Categorical Exclusion

In addition to information on how to complete a CatEx, two example schedules are provided. One depicts the timeline for a "simple" CatEx. These are projects with little to no environmental resources present in the project area and do not require much agency

coordination. The other depicts a “complex” CatEx. These are projects that may have environmental resources in the project area requiring more intensive agency coordination and mitigation.



Simple Categorical Exclusion Example.pdf



Complex Categorical Exclusion Example.pdf

Since CatEx projects have no significant impacts on the environment, NEPA requirements are substantially less stringent than those for an EA or EIS. For example, public involvement and alternatives analysis are not explicitly required, and the level of documentation for FHWA approval is greatly reduced. Although not explicitly required for Programmatic or Non-Programmatic CatExs, the Resident Engineer should consider some sort of public involvement, particularly for those projects that include ROW acquisition, construction impacts that affect the public, road closures or detours, etc.

3.01.08 Form 128 CataEx Approval

The CatEx approval form, Form 128 is entered by Region environmental staff into SAP. The form is divided into five sections but is generally considered to be divided into a “top part” and “bottom part.” The top part (Parts A and B) of Form 128 provides a project description and list of environmental clearances to be completed. If new ROW will need to be acquired as part of the project, the ROW plan authorization and obligation of funds for ROW acquisition cannot begin until the top part is signed. It may be possible that early acquisition of ROW could be approved even before the top part is complete if it can be shown that it would not predetermine the NEPA decision and if no federal funds will be used for the project. The Region’s ROW Manager should be consulted regarding early acquisition.

The bottom part (Parts C, D, and E) tracks environmental permits, ensures environmental commitments are in the final plans and specifications, and is needed for project advertisement and obligation of funds for construction. Although this form is primarily used for CatEx approval, Signature on the bottom part is called the Environmental Project Certification signature and marks the completion of the CatEx process.

For detailed information on how to walk through the CatEx approval process please see the CDOT NEPA Manual. For information on how to complete the process for Programmatic CatEx projects, see Section 5.2.4, and for Non-Programmatic CatEx

projects, see Section 5.3.4. The approval process for Non-Programmatic CatEx projects is the same as that for regular Non-Programmatic projects.

3.01.09 ADDITIONAL REFERENCES:

1. CDOT NEPA Manual — CDOT
<http://www.coloradodot.info/programs/environmental/nepa-program/nepa-manual>
2. List of region environmental staff
<http://www.coloradodot.info/programs/environmental/contacts-region.html>
3. List of headquarters environmental staff
<http://www.coloradodot.info/programs/environmental/environmental-contacts.html>
4. Form 1399 Re-evaluation form
<http://www.coloradodot.info/library/forms/cdot1399.doc/>
<http://www.coloradodot.info/library/forms/cdot1399.doc/view>
5. Categorical Exclusions Programmatic Agreement, 2011
<http://www.coloradodot.info/programs/environmental/resources/agreements/CE%20Programmatic%20Agreement%202011.pdf/view>
6. Planning and Environmental Linkages (PEL) Handbook
<http://www.coloradodot.info/programs/environmental/planning-env-link-program/pel-handbook-december-2012>

Environmental Resource Information

The following sections provide resource-specific information on all environmental resources that need to be analyzed for each project. Information provided for each resource includes what the resource is, who/what regulates it, what is needed from the Resident Engineer and the environmental resource specialist to complete the clearances, and what potential red flags to schedule or budget the resource could represent. Your regional resource specialist, or headquarters specialist, will assist you with impact analysis, permitting, and mitigation for these resources.

3.02 4(f) PROPERTIES

3.02.01 What are Section 4(f) properties?

Section 4(f) properties are (1) publicly owned parks, recreational resources and wildlife/waterfowl refuges, and (2) historic properties regardless of ownership.

3.02.02 Why do we evaluate this resource?

49 U.S.C. 303 prevents the U.S. Department of Transportation from “using” any Section 4(f) properties unless the secretary of the U.S. DOT determines that no feasible and prudent alternative to the use exists, and that the project includes all possible planning to minimize harm to the property. Any project that receives federal funds from FHWA must therefore comply with Section 4(f) requirements.

3.02.03 Who regulates this resource?

Federal Highway Administration provides final approvals. However, the official with jurisdiction (OWJ) over the property must be consulted for approval in this process. For historic properties the OWJ is the State Historic Preservation Officer (SHPO). For publicly-owned parks, recreational resources and wildlife/waterfowl refuges it is generally the public entity with most direct control over the property.

3.02.04 What does the Environmental Resource Specialist need to do?

1. Identify all historic properties and/or all publicly owned properties within the project area. This includes those within or part of the transportation system.
2. Identify officials with jurisdiction for each property.

3. Determine if Section 4(f) is applicable to the property and if there is a use for the property.
4. Determine appropriate Section 4(f) process for Section 4(f) property.
5. Complete Section 4(f) evaluations including any necessary consultations and approvals.
6. Complete Section 4(f) site form for each property evaluated.
7. Submit Section 4(f) site form to CDOT Environmental Programs Branch (EPB) Section 4(f) specialists.
8. Document Section 4(f) evaluation process and approvals in project file.

3.02.05 What does the Resident Engineer need to do?

1. Develop project description and design elements
2. Work with resource specialist to explore potential alternatives that avoid use of any Section 4(f) properties and develop justifications if avoidance is not possible.
3. When avoidance of a Section 4(f) property can't be accomplished, work with the resource specialist to determine measures to minimize harm to resources where use is anticipated. This can include project scheduling, phasing, possible design variances, and compensation as appropriate.
4. Assure that all measures to minimize harm and avoidance commitments are included in project plans and requirements.

3.02.06 What is the general clearance schedule for this resource?

Completing Section 4(f) consultation and document approval may take anywhere from one month to 24 months, depending on the process used, due to the different federal review requirements. Below are general time frames for the different types of Section 4(f) evaluation methods:

For review which leads to avoidance: one month

de minimis: 3 to 6 months

Programmatic: 3 to 12 months

Full evaluation: 12 to 24 months

3.02.07 What are the red flags for this resource?

1. Public controversy on the project.
2. A determination of adverse effect on a historic property.

3. Access closures or inability to provide for public access to parks/recreational resources during construction.
4. High number of all types of property acquisitions (right-of-way purchases), large number of Section 4(f) properties where there is a use.
5. Changes to project scope that result in use of Section 4(f) property.
6. OWJ not supportive of project or actively adverse to the project.
7. Design changes.

3.03 6(f)

3.03.01 What is Section 6(f)?

Section 6(f) of the Land and Water Conservation Fund Act (LWCFA) prohibits property acquired or developed with LWCF grants to be converted to a non-recreational purpose. Importantly, Section 6(f) applies to all transportation projects involving possible conversions of the property whether or not federal funding is being utilized for the project. Normally, any federally funded transportation project requiring the conversion of recreational or park land covered by Section 6(f) will also involve Section 4(f).

3.03.02 Why do we evaluate this resource?

1. To preserve the intended use of public funds for land and water conservation
2. To comply with CDOT's environmental stewardship policy, which ensures that the statewide transportation system is constructed & maintained in an environmentally responsible, sustainable, and compliant manner
3. To comply with several legal mandates that pertain to the LWCFA, Section 6(f)(3).

3.03.03 Who regulates this resource?

Section 6(f) is administered by the Department of Interior National Park Service (NPS). Section 6(f) directs the NPS to ensure that recreational or park lands impacted by a transportation project are compensated with replacement lands of equal value, location, and usefulness. NPS delegates its authority to Colorado State Parks (CSP) to provide initial coordination with CDOT.

3.03.04 What does the Environmental Resource Specialist need to do?

1. If ROW acquisition of public land is anticipated, the specialist will investigate CSP's list of 6(f) grants and list of LWCFA resources.
2. Upon identification of impacts to 6(f) land, the Region's ROW group, in cooperation with the local government land owner, will identify replacement land of equal value, location, and usefulness before a transfer of property under Section 6(f) can occur. More flexibility exists in cases where the total conversion is less than five acres per project phase.
3. Once land has been identified as a comparable replacement, the following steps are required:
4. The Region and the local government must develop a written plan, which demonstrates that the replacement land is acceptable to the local government.

The plan must also include any special conditions, mutually agreed to and as deemed necessary, to bring about equal value, location and usefulness in the replacement land.

5. Upon agreement of a written plan by the Region and the local government, the specialist will submit the Section 6(f) Land Replacement Plan to the CSP for concurrence.
6. The specialist will coordinate with the CSP during the process of the draft and final Section 6(f) Evaluations.
7. Upon acceptance of the written plan, CSP will submit the plan to NPS for approval.
8. Once NPS approval has been obtained, CPS will send a concurrence letter to the RPEM and the local government
9. The resource specialist will then include information on the Section 6(f) property and the written plan in the Section 4(f) evaluation. The written plan and the CSP concurrence letter should be incorporated into the appendix of the Section 4(f) evaluation.

3.03.05 What does the Resident Engineer need to do?

1. Inform and involve right-of-way (ROW) as early as possible on any potential impacts to recreational or park lands.
2. Explore alternatives during the design process that minimize or avoid harm to the Section 6(f) resource.

3.03.06 What is the general clearance schedule for this resource?

Coordination, development and approval of a written plan with CSP, as described above, can take up to a year. Approval of the written plan must occur before the RPEM can issue Environmental Clearance on the top portion of the Form 128. The conversion of the Section 6(f) land to a transportation use and the acquisition of the replacement land both occur during the ROW acquisition phase. The Resident Engineer will need to work with the Region's ROW group to develop a schedule for the ROW clearance.

3.03.07 What are the red flags for this resource?

1. Anticipated ROW acquisition of public land including recreational, wildlife refuge, open space, or otherwise undeveloped.
2. Temporary closure of or loss of access to recreational properties that last longer than six months.

3.04 AIR QUALITY

3.04.01 What is air quality?

Air quality addresses the emissions of pollutants from transportation systems that can be harmful to human beings, other living organisms, or man-made materials. Emissions may also contribute to regional haze, alter certain characteristics and benefits provided by the atmosphere, and degrade visibility. In essence, to protect the health of humans and other organisms, to protect the structural integrity of man-made materials, and to preserve visibility of scenic vistas, it is important to prevent degradation of air quality.

There are a total of six criteria used to evaluate air quality pollutants on transportation projects as established by the National Ambient Air Quality Standards (NAAQS). Additionally, on EA/EIS level projects, Mobile Source Air Toxics (MSATS) are also evaluated.

In areas of nonattainment or (attainment/maintenance) for a criteria pollutant of concern, a project must acquire a conformity concurrence from Air Pollution Control Division (APCD) to prove that regional and project-level conformity analyses have adequately met air quality budgets and show that no violation of the NAAQS is expected as a result of the project implementation. Regulation defining transportation conformity (40CFR93) specifically describes the requirements of both region-level conformity and project-level (hotspot) conformity analyses.

If a project is located completely outside of the nonattainment or attainment/maintenance area boundary, or is determined to be exempt from conformity rules because it is not regionally significant, no conformity analyses are required. However, hotspot analyses may be required for NEPA purposes as recommended by FHWA.

Contractors are responsible for acquiring an Air Pollution Emissions Notice (APEN) from APCD during construction phases of a project if the project emissions will occur longer than six months in duration and/or the project footprint is greater than 25 acres with fugitive dust or other air pollutants being generated during construction operations or batch plant activities.

3.04.02 Why do we evaluate this resource?

The 1990 Clean Air Act Amendments were passed by the U.S. Congress to protect air quality and prevent the violation of NAAQS. Transportation Conformity, which applies

to areas of the state where the NAAQS have been violated in the past, requires that all federally funded transportation projects and projects of regional air quality significance be described and modeled for regional conformity. A fiscally constrained regional transportation plan must be prepared by the area MPO and must have funding included in the Transportation Improvement Program (TIP).

3.04.03 Who regulates this resource?

The U.S. Environmental Protection Agency (EPA) administers the Clean Air Act Amendments and authorization is delegated to the Colorado Department of Public Health and Environment- APCD.

3.04.04 What does the Environmental Resource Specialist need to do?

1. Scope the project and determine conformity applicability, regional significance and funding.
2. For large projects, coordinate air quality interagency consultation with EPA, APCD, FHWA and local agencies and MPOs as appropriate.
3. Prepare project-level CO hot spot analyses or provide guidance and quality assurance on consultant analyses and documentation.
4. Define mitigation measures
5. Review traffic reports (existing/future volumes) and identify congested signalized intersections.
6. Prepare and submit a conformity concurrence request letter to APCD, including graphics (after receipt of Air Quality Technical Report).

3.04.05 What does the Resident Engineer need to do?

1. Supply any traffic reports that show existing and future traffic volumes, turning movements, signal timing, and level of service analyses for signalized intersections within the project boundary.
2. Provide plan sheets showing intersection and project roadway configuration, striping, and turning lanes.
3. Confirm accuracy of project funding stream.
4. Go over the details of the project scope with the Region/EPB AQ Specialist.

3.04.06 What is the general clearance schedule for this resource?

If conformity is required:

- Project-level analyses and documentation: two to four weeks

- Preparation of conformity concurrence request letter and submittal to APCD: three days
- APCD application review and issuance of concurrence: two weeks, minimum

Total = six weeks

3.04.07 What are the red flags for this resource?

It is critical that a project located within a nonattainment or attainment/maintenance area for defined pollutants of concern be accurately described in the most recent RTP and funding be identified and programmed in the TIP prior to expected NEPA completion. A letter of conformity concurrence will not be issued by APCD and the NEPA project cannot be completed until the project sponsor has met these conditions.

3.05 FARMLAND

3.05.01 What is farmland?

Farmland is land used for agricultural crop production. Farmland may be classified as prime, unique, that of state importance, and that of local importance. Farmland is classified “prime” mainly based on soil characteristics. Soils that are known to produce a high yield of important crops are considered prime by the Natural Resources Conservation Service (NRCS). The term “unique” refers to the high value crops that a farm produces. Colorado areas that are known for certain crops fall into this category. For example, Palisade peaches or Rocky Ford melons may fall into this category.

3.05.02 Why do we evaluate this resource?

The Federal Farmland Protection Policy Act, 7 CFR Part 658, requires federal agencies to consider the adverse effects a project may have on the preservation of farmland. The Act protects “prime” and “unique” farmland. Farmlands of state and local importance also fall under protection of this Act.

3.05.03 Who regulates this resource?

The NRCS regulates this resource but coordination with local agricultural extension is also required to determine if a farmland qualifies for protection under the Act.

3.05.04 What does the Environmental Resource Specialist need to do?

Complete Form AD 1006 (See NEPA Manual Chapter 9, Appendix G), or Form NRCS-CPA-106 should be used if it is a corridor project.

3.05.05 What does the Resident Engineer need to do?

1. Work closely with the resource specialist to develop alternatives to avoid prime or unique farmland.
2. If avoidance is not possible, prepare an estimate of the number of farmland acres the project will impact.

3.05.06 What is the general clearance schedule for this resource?

- Determine if impacted farmlands are prime, unique, or of statewide/local importance: two weeks
- Develop avoidance and minimization alternatives: two weeks
- Prepare Form 1006 and send to the NRCS: one week
- NRCS has 45 days to respond to the conclusion on Form 1006: 45 days

Total = nine weeks

3.05.07 What are the red flags for this resource?

The NRCS Soil Survey for the area will give the resource specialist a good indication when Prime or Unique soils are present at the project site. Projects that impact farms that produce special high value crops are red flags (i.e. Olathe corn, Rocky Ford melons, Palisade peaches).

3.06 FLOODPLAINS

3.06.01 What are floodplains?

A floodplain is lowland adjacent to water bodies such as a river, creek, stream, or lake. Floodplains are designated by the size and frequency of floods large enough to cover them. Flood frequency is often described by the potential occurrence in a given year (percentage probability of flooding each year). For example, the 100-year flood has a one percent chance of occurring in any given year. Floodplains are mapped primarily for the purpose of establishing risk for flood insurance purposes.

3.06.02 Why do we evaluate this resource?

Executive Order 11988 Floodplain Management dictates how floodplains should be regulated for federal projects. Floodplains need to be regulated as construction within a floodplain can alter flooding patterns, causing damage to neighboring properties. Damage can be either physical damage as a result of flooding, or financial damage as a result of causing a property owner to have an increase in flood insurance rates.

3.06.03 Who regulates this resource?

The Federal Emergency Management Agency (FEMA) manages the regulation of floodplains, in cooperation with local counties and municipalities.

3.06.04 What does the Environmental Resource Specialist need to do?

1. Obtain current regulatory floodplain maps, hydrology and hydraulics information.
2. Evaluate whether the geometry of the construction will alter the floodplain, and if so, evaluate opportunity to minimize or eliminate encroachment. When encroachment can't be changed, perform hydraulic analysis of the channel to determine magnitude of impacts.
3. Work with residency to minimize impacts and ensure that floodway elevation increase is less than one foot. The floodway is the central portion of a flooded area and differs from the floodplain in that it is the portion of the floodplain with higher flow velocities that cause more damage than just inundation.
4. Judge whether a Conditional Letter of Map Revision/Letter of Map Revision (CLOMR/LOMR) submittal is necessary for the scope of impact.
5. If needed, prepare CLOMR submittal prior to advertisement.
6. If needed, prepare LOMR submittal after construction.

3.06.05 What does the Resident Engineer need to do?

1. Provide geometry of the roadway, structures and/or embankments that impinge into the floodplain.
2. For any floodplain impacts, provide channel cross-sections to allow for hydraulic analysis in accordance with the CDOT Drainage Manual.

3.06.06 What is the general clearance schedule for this resource?

Floodplain modification approval can take a variable amount of time, depending upon the complexity.

A simple project, with minimal encroachment into an existing floodplain, with no change to floodway elevation, and no FEMA submittal: two to four weeks for evaluation.

A complex CLOMR application can take up to a year. A CLOMR is a submittal of the plans and hydraulic analysis of the planned improvements. This submittal is done prior to construction to get conditional approval of the proposed change. A LOMR is the submittal of the as-built geometry and hydraulic analysis after construction is complete. and the LOMR finalizes the change in the regulatory floodplain.

3.06.07 What are the red flags for this resource?

Any detrimental change to a floodplain, horizontally or vertically, on property outside the right of way, will result in the necessity to purchase property rights (either a floodplain easement or purchase acquisition) to allow that change to occur. Any increase of a floodway elevation of one foot or greater is prohibited and will not be approved by FEMA.

3.07 HAZARDOUS MATERIALS

3.07.01 What are hazardous materials?

The term hazardous materials is an all-inclusive term for materials that are regulated as a solid waste, hazardous waste, and other wastes contaminated with hazardous materials, radioactive materials, petroleum fuels, toxic substances, and pollutants. CDOT strives to identify contaminated facilities early in the project development process to protect worker health and safety, to limit public exposure, and to comply with laws that require investigation and remediation (clean-up).

3.07.02 Why do we evaluate this resource?

Contamination above regulatory levels requires notification of and possible ongoing involvement by various federal, state, or local agencies, dependent on the type of contaminant.

3.07.03 Who regulates this resource?

Hazardous materials are regulated primarily by the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), although a myriad of other laws and regulations may apply depending on the contaminant, or contaminants present.

For example, when contamination originates from a leaking underground storage tank (LUST) the Colorado Department of Labor and Employment – Division of Oil and Public Safety (OPS) is usually involved. The Colorado Department of Public Health and Environment (CDPHE) is involved when other waste types are identified, such as releases of chlorinated solvents from dry cleaning or manufacturing facilities, the discovery of uncontrolled landfills, or the location of a project within a Superfund site boundary. Involvement and coordination with other federal agencies, such as the Environmental Protection Agency (EPA), Army Corps of Engineers (ACOE), the Nuclear Regulatory Commission (NRC), the US Geological Survey (USGS); and/or local regulatory agencies (County or City Health Departments) may also be required.

3.07.04 What does the Environmental Resource Specialist need to do?

1. For all projects, prepare an Initial Site Assessment (ISA) for smaller, less complex projects with no ROW acquisitions, or contract a Phase I Investigation

for larger, more complex projects with ROW acquisition.. Resource specialist will determine the appropriate level of investigation for each project.

2. If structures (Bridges or buildings) are to be altered or demolished, consult CDOT Property Management on conducting asbestos/heavy metal paint inspections and sampling.
3. Results of the above may include avoidance of contaminated properties, follow-up site investigations (ex. collect soil and/or groundwater samples during geotechnical sampling), and/or remediation (excavation, disposal, treatment, etc.).
4. Prepare or request permitting, if required, for site remediation, structure alteration or demolition, and/or discharge/dewatering of shallow ground water.
5. The resource specialist will notify the Resident Engineer when project specifications and plans need to be modified to include: requiring a materials management plan for minor or suspected contamination (to be completed by the contractor awarded the project), Force Account contingency funding for possible Hazardous Waste management and/or disposal, and/or Modified CDOT 250 specifications to address known or suspected contamination.
6. Confirm that specifications/plans have been appropriately modified and that permits have been obtained, if necessary.

3.07.05 What does the Resident Engineer need to do?

1. Perform a joint site review with the environmental specialist, if requested.
2. Provide FIR plans with clear project footprint.
3. Inform the specialist of:
 - a. structure acquisition, modification, or demolition, bridge or storm water system (MS4) modifications,
 - b. temporary or permanent ROW acquisition, subsurface work such as excavations, drilling, caissons, or utilities,
 - c. Disturbance depths (feet)
 - d. Suspected groundwater or dewatering?
4. Prepare information needed for environmental permits as requested by the resource specialist.
5. Edit FOR plans and specs with modifications requested by the resource specialist.
6. Schedule the resource specialist to attend the pre-bid and/or pre-construction conference to present and discuss hazardous materials concerns.

3.07.06 What is the general clearance schedule for this resource?

- ISA: one to four weeks

- Phase 1 Investigation: two to six months
- Asbestos / paint inspection and sampling, if required: one to three months (can be done concurrent with ISA and Phase 1)
- Permitting, if required: one to three months
- Additional site investigation and/or clean-up, if required: -2 months to 2 years +
- Complete clearance: two weeks to three months (may occur concurrently with permitting and site investigation)

Total = two months to two years +

3.07.07 What are the red flags for this resource?

1. Project is through commercial/industrial corridors that may have contaminated sites or facilities.
2. Project has structure modifications or demolition.
3. Project has ROW acquisition.
4. Project requires large, deep, or extensive excavation / subsurface work.
5. Project requires dewatering
6. Ability to access property

3.08 HISTORIC PROPERTIES CLEARANCES (ARCHAEOLOGY, HISTORY, HISTORIC BRIDGE)

3.08.01 What are historic properties?

Historic properties are defined as any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (NRHP). This typically applies to properties that are 50 years or older but may also apply to properties that have achieved significance in less than 50 years.

3.08.02 Why do we evaluate this resource?

Section 106 of the National Historic Preservation Act of 1966 requires Federal agencies to take into account the effects of their undertakings on historic properties. The Section 106 regulations are published in the Code of Federal Regulations at 36 CFR Part 800, "Protecting Historic Properties," and provide guidance on requirements Federal agencies must meet to comply with the law. Section 106 is a procedural law that involves identifying historic properties, evaluating the effects to properties, and mitigating adverse effects in the context of a Federal undertaking.

3.08.03 Who regulates this resource?

The State Historic Preservation Officer (SHPO) regulates historic properties but discussion with consulting parties is also a critical part of the Section 106 process. CDOT requests concurrence from the SHPO on Section 106 findings. When there are adverse effects to properties, the Advisory Council on Historic Preservation (ACHP) must be notified and afforded an opportunity to participate in the process. Mitigation for adverse effects is outlined in a Memorandum of Agreement that is signed by CDOT, FHWA and SHPO, as well as ACHP if that agency participates in the process. Consulting parties must also be given an opportunity to be involved in the review and development of the MOA.

3.08.04 What does the Environmental Resource Specialist need to do?

Tasks in the clearance process vary depending on the scale of the project (CE, EIS, EA), the resource base in the project area, whether a consultant has been hired to complete tasks, and whether SHPO consultation is necessary. Steps 8, 9 and 10 are only necessary when there is an adverse effect. The general steps include:

1. File search on Office of Archaeology and Historic Preservation (ACHP) Compass database
2. Field survey of project area of potential effects
3. Prepare survey report and site forms
4. Prepare site eligibility determinations
5. Prepare effects determinations, as appropriate
6. Submit survey report and determinations of eligibility and effects to SHPO and consulting parties for review
7. Respond to SHPO/consulting parties comments or inquiries (if necessary)
8. Submit adverse effect finding to ACHP
9. Prepare Memorandum of Agreement (MOA) for properties that are adversely affected and circulate for signatures from FHWA, SHPO, CDOT and when appropriate, ACHP and concurring parties
10. Complete mitigation for adverse effects

3.08.05 What does the Resident Engineer need to do?

1. Provide detailed and updated project description and scope.
2. Provide right-of-way and easement information, project plan sheets, conceptual designs, and graphics to assist resource specialist in evaluating effects to historic properties.
3. Work with resource specialist on solutions to avoid or minimize effects to historic properties.

3.08.06 What is the general clearance schedule for this resource?

Clearance time frames vary depending on the project scope and resource types, and whether consultation with the SHPO and consulting parties is necessary. For minor projects, specialists typically need a minimum of eight weeks to clear a project. For more complex corridor projects, the Section 106 process can take up to one year and sometimes longer depending on the type and number of resources, the associated project impacts, and the nature of the consultation. The following estimates represent general time frames associated with internal clearance processes (not involving SHPO consultation) and projects that require SHPO consultation and result in specific findings as defined under Section 106:

Projects that meet the requirements of Screened Undertakings as defined by the Section 106 Programmatic Agreement: one to five days (can be less depending on the nature of the project)

No Historic Properties Affected or No Adverse Effect: 100 calendar days (inclusive of specialist's research and coordination as well as SHPO review time).

Adverse Effect: 285 to 320 calendar days (inclusive of specialist's research and coordination as well as SHPO review time).

3.08.07 What are the red flags for this resource?

There are a variety of issues that could cause delays in the Section 106 clearance process, including:

1. Tight project schedules,
2. Changes in project scope and limits,
3. Inadequate project information, and
4. SHPO and/or consulting party disagreement over findings.

It is particularly important to provide the specialist adequate time and project information if SHPO consultation is required. SHPO requires 30 days to review projects. If consultation has begun and project scope changes (due to inaccurate or new information) then the consultation period will have to start over again.

3.09 MIGRATORY BIRDS

3.09.01 What are Migratory Birds?

Migratory Birds are bird species included on the United States Fish and Wildlife Services (USFWS) List of Migratory Birds and are protected by the provisions of the Migratory Bird Treaty Act (MBTA). Migratory Birds generally refer to bird species that are native to the United States which migrate over international boundaries. Over 1000 species are included on the list, including many common species. In Colorado, all species except the house sparrow, feral pigeon, common starling, and non-migratory game birds like pheasants, gray partridge, and sage grouse, are protected. The USFWS maintains the List of Migratory Birds, both adding and removing species on a regular basis, and is also responsible for enforcement of the MBTA.

The MBTA makes it unlawful to pursue, hunt, take, capture, kill, possess, sell, purchase, barter, import, export, or transport any migratory bird, or any part, nest, or egg of any such bird, unless authorized under a permit issued by the Secretary of the Interior. "Take" is defined in regulations as: "pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect." If a person is found in possession of a protected species or its parts or products (including eggs and nests), or if you remove an active nest, you are automatically in criminal violation of the law. Nests are determined to be active when an egg is laid. The USFWS generally does not provide permits for migratory bird takes associated with construction activity. Construction managers are required to take measures to avoid causing takes of migratory birds. CDOT implements increased restrictions on project activities (through the 240 Project Special Provision) during periods when migratory bird nesting activity is most likely, between April 1 and August 31 of any given year. Migratory bird takes can potentially occur during clearing and grubbing of vegetation or during construction activities on bridges or culverts (i.e. overlays, bridge demolition).

3.09.02 Why do we evaluate this resource?

The Migratory Bird Treaty Act (MBTA) is the primary legislation in the U.S. to conserve migratory birds. Migratory birds provide a variety of beneficial functions including bird-watching, hunting, and photography. These activities contribute nearly \$40 billion annually to local economies throughout the United States. Penalties for a taking a migratory bird or migratory bird nests are criminal and expensive.

3.09.03 Who regulates this resource?

The U.S. Fish and Wildlife Service has the legal responsibility to maintain healthy migratory bird populations and enforce the provisions of the MBTA. The Service is authorized by more than 25 primary conventions, treaties, and laws to ensure the conservation of migratory birds.

3.09.04 What does the Environmental Resource Specialist need to do?

1. Determine if migratory bird or migratory bird nests are likely to occur on a project site.
2. Determine if construction activities are likely to occur during periods of the year when migratory birds are nesting.
3. The Resource Specialist can sometimes remove inactive nests or install nest exclusion devices to ensure that migratory birds do not begin using structures as a nest site.
4. Provide and revise the Section 240 Project Special Provision for the Protection of Migratory Birds.
5. Assist contractors and consultants on implementing nest surveys as appropriate and maintaining nest free work sites without causing takes.

3.09.05 What does the Resident Engineer need to do?

Design

1. Incorporate Section 240-Specification in project specification packages.
2. Budget for nest prevention, removal and monitoring activities.
3. Incorporate Resource Specialist notes/specs.

Construction

1. Contact Resource Specialist to address migratory birds.
2. Manage project construction to assure all aspects of MBTA notes, the Section 240 Project Special Provision, and plan sheets are followed by the Contractor.

3.09.06 What is the general clearance schedule for this resource?

Unless stated elsewhere, migratory bird nest prevention, removal, monitoring is only required during the migratory bird nesting season (April 1-August 31).

Clearances are obtained during the environmental review process. Migratory bird clearances are conditional on the timing and location of the individual project and

specifics are addressed through the inclusion of the Section 240 Specification and appropriate general notes as recommended by the Resource Specialist.

3.09.07 What are the red flags for this resource?

1. The presence of migratory birds has the potential to delay projects since active nests must be monitored until they can be determined to be inactive and then removed. Under some situations, construction work may also have to be stopped if nests are found active during construction, and may only resume when the nests are determined to be inactive.
2. Projects that involve clearing and grubbing of vegetation or construction activity on bridge or culverts have the potential to cause a migratory bird take. Some bridge structures are too large for any known, practical implementation of nest removal or nest exclusion activities or have extensive nesting habitat in places difficult to monitor. Other projects could impact grassland or woodland migratory bird species depending on the extent of clearing and grubbing. Sometimes these problems require phasing a project to avoid activity during the April 1-August 31 breeding season.
3. Projects that start after April 1 and before August 31 require survey and monitoring for bird nesting activity using a credentialed wildlife biologist on a biweekly basis until construction begins in the impacted area. The project can avoid bi-weekly monitoring if nest-building prevention methods are implemented such as netting, or if the areas can be cleared (or trees cut down) prior to April 1. Hiring a wildlife biologist results in additional costs to a project.
4. Projects that are not advertised until after April 1, but are given a notice to proceed before August 31, could find active migratory birds already on-site before the contractor has an opportunity to prevent the establishment of active nests.

3.10 NOISE ANALYSIS

3.10.01 What is noise analysis?

Noise is defined as unwanted or excessive sound. Noise analysis and mitigation considerations are necessary when a federal project causes noise levels to increase by either adding roadway capacity, changing the vertical profile, adding an auxiliary lane, making interchange modifications, or moving the roadway pavement horizontally closer to sensitive receptors to cause an impact of either ten decibels or more over existing background noise or noise levels over the Noise Abatement Criteria (NAC). The NAC for Colorado generally pertains to outside activities and land uses, and are categorized as:

- A: areas of serenity <56decibels;
- B: residential <66 decibels;
- C: parks, trails, campgrounds, churches, schools, auditoriums <66 decibels;
- D: special sound sensitive indoor NAC C uses;
- E: Commercial and developed property <71 decibels; and
- F: industrial, warehouse, agricultural non-noise sensitive uses, no threshold.

3.10.02 Why do we evaluate this resource?

As defined in 23 CFR772, Federal Highway Administration (FHWA) requires that noise analysis is conducted for federal projects and noise abatement is considered for those projects that exceed the Noise Abatement Criteria. Traffic noise compliance is detailed for Colorado NEPA and highway projects under CDOT Noise Analysis and Abatement Guidelines (2011).

3.10.03 Who regulates this resource?

Noise analysis and mitigation is regulated by FHWA. Also, many local municipalities have noise ordinances that must be addressed during the noise clearance process.

3.10.04 What does the Environmental Resource Specialist need to do?

1. Determine if noise analysis is required
2. Conduct/review TNM model for project noise levels.
3. Conduct field noise measurements.
4. Conduct TNM mitigation modeling to define physical noise abatement measures.
5. Complete Noise Abatement Determination Form

6. 1209 for each impacted receptor considering feasibility/reasonableness for mitigation.
7. If noise abatement is warranted, survey impacted property owners for mitigation approval (new federal requirement).
8. Provide engineering with noise barrier dimension details and siting for final design.

3.10.05 What does the Resident Engineer need to do?

1. Provide existing and final design plan sheets including terrain, elevations, planned roadway elements, adjacent buildings.
2. Provide existing and design year traffic volumes, and vehicle fleet mixes.
3. Provide guidance on noise barrier material selection, clear zone requirements, and final barrier siting, utilities, other critical items affecting location.
4. Coordinate, in cooperation with specialist, public outreach for noise mitigation if necessary (owner approvals, noise barrier appearance, etc.).

3.10.06 What is the general clearance schedule for this resource?

- Noise level and mitigation analyses: minimum two weeks
- Public outreach: two weeks

Total = four weeks minimum

3.10.07 What are the red flags for this resource?

1. Public disagreement with project, high existing noise levels, and/or receptors located uphill of the roadway will make mitigation efforts more challenging.
2. Assure that mitigation analyses are documented by analyst signed, Form 1209 for each impacted receptor site regardless of final mitigation recommendation.

3.11 NOXIOUS WEEDS

3.11.01 What are noxious weeds?

Noxious weeds are alien aquatic and terrestrial plant species that have been designated by rule as being noxious and meet one or more of the following criteria; (a) Aggressively invades or is detrimental to economic crops or native plant communities; (b) Is poisonous to livestock; (c) Is a carrier of detrimental insects, diseases, or parasites; (d) The direct or indirect effect of the presence of this plant is detrimental to the environmentally sound management of natural or agricultural ecosystems.

3.11.02 Why do we evaluate this resource?

The Federal Noxious Weed Act and the Colorado Noxious Weed Act mandate control and/or eradication of designated noxious weeds.

3.11.03 Who regulates this resource?

The Colorado Department of Agriculture governs Colorado's noxious weed program.

3.11.04 What does the Environmental Resource Specialist need to do?

1. For EA or EIS projects, the consultant or contractor will be required to submit a noxious weed management plan
2. Look for noxious weed infestations at scoping and inform Resident Engineer of the need for an Herbicide Treatment pay item

3.11.05 What does the Resident Engineer need to do?

1. Work with Resource Specialist and Landscape Architect to calculate area, species, bid item hours.
2. Include treatment area on Storm Water Management Plan plan sheets, if necessary.

3.11.06 What is the general clearance schedule for this resource?

There are no formal clearances for this resource.

3.11.07 What are the red flags for this resource?

Wildlife issues may restrict timing and location of herbicide application.

3.12 PALEONTOLOGY

3.12.01 What is paleontology?

Paleontology is the study of plant and animal life of past geologic time, including its evolutionary history, and its paleoecological interrelationships. This area of study does not include prehistoric human remains and their associated cultural artifacts (e. g., stone tools, pottery), which are the domain of archaeology.

3.12.02 Why do we evaluate this resource?

The Historical, Prehistorical, and Archaeological Resources Act [Colorado Revised Statute 24-80-401 et al.] (State Antiquities Act) protects all fossils on state-owned lands and lands controlled by any subdivision of state government. Title to fossils on state-owned lands is reserved to the state. Permits are required to collect, damage, or destroy fossils covered under the State Antiquities Act. While the requirement to locate and assess the scientific importance of fossils on state-owned lands is not stated explicitly in the law, it is implicit in the requirement to avoid any damage to, destruction or removal of the resource without a permit.

3.12.03 Who regulates this resource?

The Office of the State Archaeologist, Colorado (OSAC) administers the State Antiquities Act.

3.12.04 What does the Environmental Resource Specialist need to do?

1. Identify potentially fossiliferous deposits and previously recorded fossil localities within the project limits
2. If required, conduct on-the-ground reconnaissance for previously unrecorded fossil localities within the project limits.
3. Determine the scientific significance of any recorded fossil localities within the project limits.
4. Using FIR/FOR level plans, determine the location and scope of impacts to any scientifically significant fossil localities within the project limits.
5. Using FIR/FOR level plans, determine the probable location and scope of impacts to presently buried, scientifically important fossils.
6. Develop a plan for preconstruction and/or during construction mitigation of construction impacts to scientifically important fossils.

3.12.05 What does the Resident Engineer need to do?

Design

1. Incorporate all general notes and special revisions to subsection 107.23 (Archaeological and Paleontological Discoveries) identified by the resource specialist that provide direction to the contractor to construct the project in compliance with the State Antiquities Act.

Construction

1. Manage project construction to assure that all general notes and special revisions to subsection 107.23 are followed by the contractor.

3.12.06 What is the general clearance schedule for this resource?

It will take between seven and nine weeks to clear this resource.

3.12.07 What are the red flags for this resource?

1. Project is located at least partially on lands administered by Federal agencies, which have additional resource specialist report and interagency coordination requirements.
2. Project has ROW acquisition, requiring rights-of-entry acquisition in order to permit performance of on-the-ground reconnaissance (if necessary).
3. Clearance request is issued during winter/spring months when snow cover may prevent performance of on-the-ground reconnaissance (if necessary).
4. Project requires large, deep, or extensive excavation/subsurface work.

3.13 SENATE BILL 40 (SB 40)

3.13.01 What is SB 40?

The SB 40 guidelines outline various best management practices designed to minimize impacts to State waterways during and after construction or maintenance activities. The guidelines are applicable to any projects on or adjacent to streams that fall under the jurisdiction of SB 40. The extent of SB 40 jurisdiction includes the stream bed proper, its immediate banks, and associated riparian areas that contribute to stream food chain support.

3.13.02 Why do we evaluate this resource?

SB 40 (33-5-1014-107, Colorado Revised Statutes as amended) requires any agency of the State of Colorado to obtain wildlife certification from the Colorado Division of Parks Wildlife (CPW) when the agency plans construction in “any stream, its banks, or tributaries”. Although SB 40 emphasizes the protection of fishing waters, it also includes provisions to protect and preserve all fish and wildlife resources associated with streams in Colorado.

3.13.03 Who regulates this resource?

CDOT’s requirements under SB 40 are defined in a Memorandum of Agreement (MOA) between the Colorado Departments of Natural Resources (DNR) and CDOT. The CPW is the office within DNR that reviews plans and provides certification for actions that fall under the jurisdiction of SB 40. Programmatic and non-Programmatic Certifications are dependent on the types of projects and potential to impact State waterways. General and Special Conditions are addressed within the MOA for incorporation into project plans and specifications. Project specific conditions may be provided by CPW for non-Programmatic projects requiring formal Certification.

3.13.04 What does the Environmental Resource Specialist need to do?

1. Review FIR/FOR level plans to identify project impacts to streams that fall under SB 40 jurisdiction.
2. Develop measures to mitigate potential impacts to water quality, fishery reproduction, wildlife resources, and wetlands.
3. Assure incorporation into project plans any General Notes to address timing restrictions and BMPs to reduce resource impacts, and Specifications that incorporate by reference all SB 40 General, Specific and Certification Conditions.

4. Submit project summary letter that addresses alternatives considered, mitigation measures, reclamation/revegetation plan along with applicable plan sheets and cross sections, Section 404 permit application, and SB 40 application (non-Programmatic only).

3.13.05 What does the Resident Engineer need to do?

Design

1. Incorporate all General Notes, Specifications, and any required plan sheets identified by the Resource Specialist that provide direction to Contractor to construct the project in compliance with SB 40 conditions.

Construction

1. Manage project construction to assure all aspects of SB 40 notes, specifications, and plan sheets are followed by the Contractor.

3.13.06 What is the general clearance schedule for this resource?

SB 40 Certification can be initiated with FIR or FOR level plans provided that activities that impact SB 40 resources are defined and finalized. Once the plan sheets that show the General Notes, Specifications, and Impact Specific Sheets are developed, the associated letter and application forms can be prepared. If a project requires a Section 404 permit applicable correspondence with the USACE should be attached.

- Application preparation: five days
- CPW response: 30 days

Total = 35 days (from receipt of necessary design information)

3.13.07 What are the red flags for this resource?

1. The SB 40 Application must be submitted to the CDOW at least 90 days prior to construction according to State Statute (at least 45 days before advertisement and an additional 45 between advertisement and start of construction).
2. Seasonal restrictions to avoid trout spawning, avian and/or threatened and engendered species may conflict with engineering schedules that identify maximum work days or completion dates.

3.14 SOCIAL RESOURCES

3.14.01 What are Social Resources?

Social resources generally refer to the built human environment and can include land use, visual, socioeconomics, and environmental justice (EJ). Land use is defined as the way land is developed and used for various activities (e.g., residential, commercial, industrial, parks, etc.). Visual resources include features that define the character of an area. These can be natural features, vistas, or viewsheds, but also urban characteristics such as architecture, skylines, or other characteristics that create a visual definition. Socioeconomics include a variety of factors that may affect an area's economy including employment and tax base, access to businesses, housing stock, property value, public services, infrastructure and utilities. EJ is the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws and policies.

3.14.02 Why do we evaluate this resource?

Land use - Zoning, future land use and growth management areas, conservation easements, urban infrastructure service boundaries, annexation plans, and past, existing, and future development trends can affect transportation needs.

Visual - Visual resources and aesthetics are important because of their uniqueness and the strong emotion they inspire in human viewers. Such special places often provide a sense of community to the inhabitants of an area and may attract tourism and drive its economy.

Socioeconomics – Transportation projects can have an effect on the ability to access employment, grocery stores, and other essential services. If a project needs additional right-of-way it could affect the availability of housing and employment.

EJ is guided by Title VI of the Civil Rights Act of 1964, as amended and Executive Order 12898 on Environmental Justice.

3.14.03 Who regulates this resource?

Land use is regulated by the local agency (city, town, or county). Visual resources and socioeconomics are regulated by FHWA and CDOT. EJ is regulated by the Environmental Protection Agency.

3.14.04 What does the Environmental Resource Specialist need to do?

The resource specialist will evaluate impacts and determine if mitigations are necessary.

Since social resources tend to be more qualitative, dynamic, and intangible, public involvement and coordination with local communities may be required to gather adequate information to address these resource areas.

3.14.05 What does the Resident Engineer need to do?

The engineer should incorporate any recommended into the design and specifications.

3.14.06 What is the general clearance schedule for this resource?

There are no formal clearances required for these resources.

3.14.07 What are the red flags for this resource?

1. The project primarily impacts low-income and/or minority communities.
2. The project will acquire minority owned businesses or businesses that serve a specific demographic.
3. The project will drastically change the land use pattern or visual character of the community.
4. The project will remove a community service (i.e. free medical clinic, library, post office, etc.)

3.15 STORMWATER MANAGEMENT PLANS (SWMP)

3.15.01 What are Stormwater Management Plans?

A Stormwater Management Plan (SWMP) is written guidance included in the plan set that outlines recommended and required best management practices (BMPs) the project will utilize to protect Waters of the State by minimizing pollutants in runoff coming from the project site. The SWMP must be implemented at the start of a construction project (i.e., before ground is broken).

A SWMP consists of seven parts plus their subcomponents, including a site map that shows the location of best management practices to be used on site.

Regulation 61 of the Colorado Water Quality Control Act, regulated by the Colorado Department of Health and Environment (CDPHE), requires a Stormwater Construction Permit (SCP) be obtained for all projects that disturb one or more acres of land. This SCP requires the development of a SWMP for the project.

CDOT also requires a SWMP for projects less than one acre of disturbance to aid in water resource protection.

Local Agencies may also have SWMP requirements for the project, regardless of the acreage disturbed.

3.15.02 What does the Environmental Resource Specialist need to do/

1. Provide the SWMP template to the project designer
2. Design the SWMP and site map with expected phasing (if consultant is not used, coordinate with the Engineer on who will do the drafting)
3. Review the SWMP and site map for accuracy, then relay the needed changes to the Engineer (in each development phase)
4. Provide final approval of the SWMP and a water quality clearance to the environmental project manager for the 128 Form.

3.15.03 What does the Resident Engineer need to do?

1. Ensure the resource specialist is part of the project design team and is invited to all Scoping, FIR and FOR meetings.
2. Receive SWMP template from the CDOT WQ website or from the resource specialist

3. Enter project specific data, such as the project description, into the SWMP Template
4. Add the SWMP to the plan set
5. Make revisions requested by the resource specialist throughout project development

3.15.04 What is the general clearance schedule for this resource?

- Design SWMP and site map: approximately 10 hours (Under one acre), 40 hours (Over one acre)
- Review SWMP and site map – then type and send notes (in each stage of development - scoping, FIR, FOR, Final): approximately eight hours each stage (Under one Acre), 20 hours each stage (Over one acre)

Total time it takes to complete the clearance for this resource (including meetings and final approvals) = approximately 60 hours (Under one acre), 150 hours (Over one acre).

3.15.05 What are the red flags for this resource?

1. Changes to the scope of work or the addition of project components throughout design can cause delays and re-work of the project SWMP.
2. Allocation of adequate time for resource specialist to review the SWMP at design milestones.
3. Specifically for projects over one acre, the SWMP should be included in project design plans as early as possible (preferable at FIR) to allow for adequate time to meet the various SCP permit requirements.

3.16 THREATENED AND ENDANGERED SPECIES

3.16.01 What are threatened and endangered species?

An endangered species is an animal or plant species in danger of extinction throughout all or a significant portion of its range. A threatened species is an animal or plant species likely to become endangered within the foreseeable future throughout all or a significant portion of its range. A proposed species is an animal or plant species proposed in the Federal Register for listing under Section 4 of the ESA. A candidate species is an animal or plant species defined by the USFWS as “plants and animals for which the Fish and Wildlife Service has sufficient information on their biological status and threats to propose them as endangered or threatened under the ESA, but for which development or a proposed listing regulation is precluded by other higher priority listing activities. Conservation of these species is important because they are by definition species that may warrant future protection under the ESA.” Critical habitat, based on the physical or biological features essential to the conservation of the species, may be included with the listing of a wildlife or fish species; such as the Colorado River Basin for razorback sucker, Colorado pikeminnow, humpback chub, and bonytail chub.

3.16.02 Why do we evaluate this resource?

The Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 et seq.), provides for the protection and conservation of threatened and endangered plants, animals and their habitat. The ESA requires federal agencies to ensure that actions they authorize or fund will not jeopardize the continued existence of any listed species, or result in the destruction of designated critical habitat for listed species.

3.16.03 Who regulates this resource?

Each CDOT project is evaluated for impacts to wildlife, including species listed as threatened and endangered by the United States Fish and Wildlife Service (USFWS), and various other species listed by other resource agencies. Impacts from projects are assessed through the development of Biological Evaluations or Biological Assessments. These documents help determine the effects a project will have on listed species and/or critical habitat, and also determines if consultation with the USFWS is necessary.

3.16.04 What does the Environmental Resource Specialist need to do?

1. Conduct site inventory
2. Conduct literature review

3. Prepare Biological Evaluation/Biological Assessment
4. Submit Biological Evaluation/Biological Assessment with “effects” determination to USFWS, as necessary.

3.16.05 What does the Resident Engineer need to do?

1. Work with Resource Specialist to determine impacts, and assist in the avoidance and minimization of impacts. Develop mitigation measures as necessary.
2. Provide plan sheets to include in the Biological
3. Evaluation/Biological Assessment.

3.16.06 What is the general clearance schedule for this resource?

- On-site and literature review: one week to several months (dependent on season)
- Prepare biological document: one week
- USFWS review and concurrence: four weeks

Total = six weeks to several months

3.16.07 What are the red flags for this resource?

1. Avoidance of impacts to listed species may require design modifications or timing restrictions.
2. Any project that will be “likely to adversely affect” a species or critical habitat will require further coordination with the USFWS. This additional coordination may lengthen the clearance process by 12 weeks.
3. Not all surveys can be conducted all year round. Some species can only be surveyed at specific times of year. Surveying for plants is especially problematic as they are only blooming for a short time.

3.17 WATER QUALITY

3.17.01 What is water quality?

Water quality analysis includes all the surface water and groundwater in or affected by the project area. Water quality analysis can vary if the project area is in a Municipal Separate Storm Sewer System (MS4) permit area. CDOT has seven different water quality programs associated with the MS4 permit: construction sites, new development and redevelopment, illicit discharge, industrial facilities, public education and involvement, pollution prevention and good housekeeping, and wet weather monitoring. Please see the your region or headquarters water quality specialists, NEPA Manual, or the specific program guidance for more information on these programs and the various permits associated with them. If a project is not in an MS4 permit area, it is not subject to those regulations but may require a construction permit if it will disturb over an acre.

3.17.02 Why do we evaluate this resource?

Clean Water Act (CWA) 401 and 402 - The CWA established the basic structure for regulating discharges of pollutants into navigable waters. It provides the statutory basis for the National Pollutant Discharge Elimination System (NPDES) permit program and the basic structure for regulating the discharge of pollutants into waters of the US.

Safe Drinking Water Act (SDWA)(40 CFR Parts 141–143) - The SDWA protects public health by regulating the nation's public drinking water supply and protecting drinking water and its sources. CDOT is a stakeholder in the Colorado Source Water Assessment and Protection (SWAP) program mandated by the SDWA.

Erosion and Sediment Control on Highway Construction Projects (25 CFR 650 Subpart B) - All highways funded in whole or in part by FHWA must be designed, constructed, and operated according to standards that will minimize erosion and sediment damage to the highway and adjacent properties and abate pollution of surface and groundwater resources.

Colorado Water Quality Control Act (Colorado Revised Statutes (CRS) Title 25, Article 8) - The Colorado Water Quality Control Act protects and maximizes the beneficial uses of state waters and regulates water quality.

3.17.03 Who regulates this resource

It is the responsibility of the Environmental Protection Agency and Colorado Department of Health and Environment (CDPHE), Water Quality Control Division (WQCD) to regulate water quality.

3.17.04 What does the Environmental Resource Specialist need to do?

1. Determine if project is in MS4 area and if so proceed with necessary permits and mitigation and engineer notes for project plans.
2. Determine if the project disturbs over an acre or is part of a larger common plan of development. If so, obtain construction stormwater permit and determine new development and redevelopment program requirements.
3. If new development and redevelopment applies then complete permanent water quality form.

3.17.05 What does the Resident Engineer need to do?

1. Consult the decision matrix to determine if water quality modeling is necessary and if so, which model is appropriate.
2. If the project is in an MS4 area, insert notes and specs to follow the programs requirements.
3. Determine if permanent Water Quality is required and if so incorporate early in design and complete the PWQ Form.

3.17.06 What is the general clearance schedule for this resource?

Between 10 days and two months to acquire permits and complete PWQ Form (after design is far enough along to make conclusions), dependent on PWQ report completion and required permits. There are multiple permits that may be required dependent on the project details. Please see your region or headquarters water quality specialist.

3.17.07 What are the red flags for this resource?

1. The receiving water body is on the 303(d) list.
2. Permanent Water Quality (PWQ) is required.

3.18 WETLANDS

3.18.01 What are wetlands?

Wetlands are defined as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted to thrive under anaerobic soil conditions. Wetlands generally include swamps, marshes, fens, and riparian areas. Projects that have potential to impact wetlands require a Wetland Delineation to identify their location within the landscape in order to avoid and minimize impacts to these sites during construction. Unavoidable impacts to wetlands require documentation in a Wetland Finding that considers alternatives, quantifies impacts, and identifies mitigation measures to compensate for wetland losses.

Unavoidable impacts will also require a permit from the U.S. Army Corps of Engineers (USACE). There are two types of permits. A Section 404 Nationwide Permit is generally the simplest permit under the Section 404 program. The USACE lists a total of 50 nationwide permits authorizing various activities nationwide. In order to obtain a nationwide permit, the activity must meet the requirements of one of these 50 permits. Section 404 Individual Permits are issued following a full public interest review of an individual permit application. A public notice is distributed to all known interested persons. After evaluating all comments and information received, final decision on the application is made. This is a much more complex and detailed process than obtaining a Section 404 Nationwide Permit.

3.18.02 Why do we evaluate this resource?

The Clean Water Act was passed by the U.S. Congress in 1977 to protect the physical, biological, and chemical quality of Waters of the U.S., including wetlands. Wetlands provide a variety of beneficial functions that improve water quality, reduce floodwater intensity, provide habitat for fish and wildlife, and foster recreational and educational activities to name a few. Under federal regulations, activities that impact wetlands specifically the discharge of dredge and fill material into wetlands is regulated under Section 404 of the Clean Water Act.

3.18.03 Who regulates this resource?

The USACE regulates impacts to wetlands.

3.18.04 What does the Environmental Resource Specialist need to do?

1. Conduct field Wetland Delineations and GPS wetland boundaries or flag wetland boundaries for Survey Unit.
2. Prepare Wetland Delineation for USACE submittal that identifies wetland types, boundaries, and areas.
3. Provide wetland polygons for designer to include in project plan sheets.
4. Develop and incorporate measures into project plans to address avoidance and protection of existing wetlands
5. Develop conceptual Mitigation Plan (i.e. wetland bank, on site, offsite, in lieu fee) to compensate for wetland losses.
6. Prepare Wetland Finding once impacts and mitigation opportunities are known
7. Secure FHWA or EPB Certification of Wetland Finding
8. Prepare appropriate permit application materials for the USACE permit.

3.18.05 What does the Resident Engineer need to do?

Design

1. Incorporate wetland delineation boundaries into plans.
2. Quantify wetland impacts based on consideration of measures to avoid and minimize impacts
3. Incorporate Resource Specialist notes/specs, and
4. prepare design of mitigation plan for wetland impacts
5. Provide plan sheets showing wetlands and project footprint to include in the permit application letter.
6. If mitigation will be on-site, as opposed to off-site mitigation or banking, provide plan sheets of the mitigation site.

Construction

1. Contact Resource Specialist to address wetlands during Preconstruction Conference and flag wetlands in the field.
2. Manage project construction to assure all aspects of wetland notes, specifications, and plan sheets are followed by the Contractor.

3.18.06 What is the general clearance schedule for this resource?

Wetland Delineations can only be performed during the active growing season (~April through September).

Wetland Findings preparation and approval (following the revisions to the FOR Plans to include impacts and mitigation measures) : Approximately three weeks.

Development of Wetland Mitigation opportunities (following the FIR depending on level of impact, availability of mitigation opportunities, and Designer assistance): one to three months

For Individual Permits

- Preparation of application package and submittal to USACE: three months
- USACE application review, public notice process, and issuance of permit: four to six months

Total = seven to nine months

For Nationwide Permits

- Preparation of Nationwide Permit application letter and submittal to USACE: two weeks
- USACE application review and issuance of permit: two weeks

Total = four weeks

3.18.07 What are the red flags for this resource?

1. Projects that are scoped in the winter and are advertised in the Spring do not allow for determination of wetland boundaries and restrict preparation of a Wetland Delineation. The USACE is allowed up to 45 days to provide approval of Wetland Delineations and will not approve outside the growing season.
2. Wetland Findings cannot be prepared until Project Plans have been developed to the level where impacts are finalized and appropriate mitigation measures developed. Section 404 Permits and Wetland Findings must contain identical information for approval by USACE and FHWA.
3. Write up projects (i.e. resurfacing, culvert repairs) generally do not include detailed surveys that show wetland boundaries that may be subject to impact. These type projects must address protection and avoidance of impacts through notes, specifications and requirements for the Resource Specialist to flag wetland boundaries and require Contractor protection of wetland areas.