



CHAPTER II PRELIMINARY DESIGN

SECTION 2-04

ENVIRONMENTAL DOCUMENT

2-04.1 INTRODUCTION. In response to increasing concern about the environment, Congress passed the National Environmental Policy Act (NEPA) in 1969. This act requires assessing environmental impacts on all major federal actions, including federal-aid highway projects, that significantly affect the human environment. The environmental document must consider the impacts that the action will have on sensitive resources, including floodplains, wetlands, endangered species, farmland, historic and archaeological sites, air and water quality, and wildlife habitat. Noise and hazardous waste issues must also be addressed. The Federal Highway Administration (FHWA) requires that other environmental protection and enhancement requirements -- such as those in 49 U.S.C. 303 (known as Section 4(f) of the Department of Transportation Act), which protects historic sites and publicly owned parks, recreation areas, and wildlife and waterfowl refuges, and 23 U.S.C. 109(h), which mandates consideration of social and economic impacts to the human environment -- be addressed in conjunction with the NEPA process. To satisfy the requirements of NEPA, MoDOT must evaluate the impacts that a transportation project will have on the human environment and document these impacts in one of three ways: an Environmental Impact Statement (EIS), an Environmental Assessment (EA), or a Categorical Exclusion (CE). These documents are further described in this chapter. **Although NEPA requirements serve as an "umbrella" to cover other environmental regulations, note that those other regulations need to be addressed before project construction can proceed. Clearance of the NEPA process does not mean that those other separate environmental regulations have been cleared. Confirm that with proper environmental and cultural staff in GHQ Design through contact with the environmental studies coordinator and the cultural resources coordinator.**

MoDOT is responsible for the preparation of the appropriate documentation which enables the expenditure of federal dollars for the improvements. GHQ Design has personnel in the areas of archaeology, architectural history, wetlands/water quality, threatened and endangered species/wildlife, social and economic concerns, hazardous waste, air quality, agriculture/land use, floodplains, parklands, and noise investigate the impacts that the project will have in their area of expertise. The extent of this analysis will depend on the scope of the project and the type of document being prepared. It can entail a records review and/or field investigations. In order to fully analyze project impacts, GHQ Design will need information and input from the district involved in the project. The district's responsibility will also vary depending on the size and scope of the project. The amount of information supplied by the district is developed through coordination with GHQ Design staff who will author the environmental documents.

GHQ Design should be notified if plans change or a project is advanced or dropped. A change may affect the environmental classification, document preparation, and also project development.

The following sections of this chapter detail the regulations governing each of the specialties, the process involved in investigating impacts, and the information required from the district to facilitate the investigation of impacts.

2-04.2 ENVIRONMENTAL CLASSIFICATION. To fulfill NEPA requirements related to federal funding or federal permitting, MoDOT must assess the effects of a project on the human environment to help in the selection of the least damaging practicable alternative. FHWA regulations for complying with NEPA are contained in 23CFR771 (*Environmental Impact and Related Procedures; Final Rule*). Guidance is provided by FHWA in their technical advisory, T 6640.8A (*Guidance for Preparing and Processing Environmental and Section 4(f) Documents*). The extent of the analysis for a particular project depends on the expected magnitude of the impacts from that project. The significance of an impact is determined based on the intensity and context of the impact. (For example, filling 1 acre of a 100 acre wetland may not be significant, while filling 1 acre of a 2 acre wetland may be significant. The intensity of these impacts is the same, but their context is different.) GHQ Design coordinates with FHWA to determine what environmental classification is appropriate for projects on an annual basis. This determination is based on the scope of the project and the possible impacts supplied by the district and GHQ Design. Generally, programming information has been used to determine the environmental classification.

The production of environmental documents is done by GHQ Design. Information regarding the design and effect of a project is provided by the districts and GHQ Design and compiled into documents that meet the requirements of

FHWA and other regulatory agencies. The environmental documents address comments made by other agencies and the public. Before a document leaves MoDOT, it is reviewed to ensure that it meets FHWA regulations in 23CFR771, the FHWA Technical Advisory *Guidance for Preparing and Processing Environmental and Section 4(f) Documents* (T 6640.8A) and other environmental regulations. The documents and procedures also must comply with MoDOT and MHTC requirements.

- 2-04.2 (1) ENVIRONMENTAL IMPACT STATEMENT.** An EIS is required when a project has clearly identified and significant social, economic, or environmental impacts. FHWA indicates that an EIS is required on 4-lane relocations as well as major bridges or projects which are controversial. An EIS describes a project's purpose and need, the alternates being considered, and discusses expected impacts in detail. It also indicates compliance with other regulations to the extent possible. Procedures to minimize harm and mitigation measures are detailed in the EIS.

The district should submit two copies of a Request for Environmental Services (RES) form (See [Figure 2-02.2](#)) prior to the prelocation meeting (see [Subsection 2-03.2](#)), at least three (3) years before detailed design is expected to begin. This form can be found in the Environmental/Cultural Resources category of the Design Forms on the computer system. A prelocation meeting is held for all projects classified as an EIS. MoDOT then prepares a preliminary Draft EIS (pDEIS), which is just a Draft EIS that has not yet gone through internal and also initial FHWA review. The district responsibility in the environmental document preparation is to prepare and submit a Location Study Report to GHQ Design as discussed in [Section 2-02](#). GHQ Design then incorporates the Location Study Report into the pDEIS using appropriate format. The pDEIS is circulated for review within MoDOT (see [Subsection 2-02.3 \(2\)](#)). This document is not distributed to anyone outside of MoDOT, except possibly cooperating agencies (identified by GHQ Design and FHWA) who need to use it to comply with NEPA when permitting MoDOT's action (e.g., U.S. Army Corps of Engineers (COE), U.S. Coast Guard (USCG), National Park Service (NPS)). To help assure that the pDEIS remains an internal document, each page has the words "Preliminary Draft" imprinted on it, and the first page of the document contains the following statement:

"This is a preliminary draft document which is undergoing internal review within the Missouri Department of Transportation (MoDOT). It is not intended for distribution outside of MoDOT. The Federal Highway Administration has determined that this preliminary document is an intergovernmental exchange that may be withheld under the Freedom of Information Act. Premature release of this material to any segment of the public could give some sectors an unfair advantage and would have a chilling effect on intergovernmental coordination and the success of the cooperating agency concept. For these reasons, we respectfully request that the public not be given access to this document."

Items of work which must be completed for a pDEIS include the following:

- A Location Study Report must be finalized in accordance with [Section 2-02](#). All alternates considered, including those discarded, must be depicted graphically as part of the report.
- A recommended alternate may be indicated, if one stands out.
- All proposed reasonable alternates must be evaluated equally. Reasonable alternates addressed in the EIS are those that may be constructed in the event that the recommended alternate is not selected.
- Cultural resources impact screening should be completed in accordance with the document entitled MoDOT Protocol for Cultural Resources Investigations Associated with Environmental Assessment or Environmental Impact Statement Corridor Studies.
- Records and reports on file at the MDNR Historic Preservation Program (MDNR-HPP) and the Archaeological Survey of Missouri (ASM) are reviewed by GHQ Design to identify all previously reported archaeological and historical sites. These sites are then field checked to verify their location and present condition.
- All buildings and bridges 50 years old or older must be identified in the document. Photographs of these structures must also have been submitted to Missouri Department of Natural Resources (MDNR) and a determination of eligibility to the National Register of Historic Places (NRHP) been received.
- Impacts to parklands, wildlife refuges, or other publicly-owned use areas which may qualify for Section 4(f) protection are indicated, along with a statement as to the status of agency coordination on those

- impacts. The DEIS must include a Draft Section 4(f) Evaluation for the public lands noted above or for private historic sites impacted, if applicable.
- A preliminary wetland evaluation is conducted to identify potential jurisdictional wetland areas and possible impacts to them.
 - The presence or absence of threatened or endangered plant and/or animal species is determined within the project limits.
 - Farmland impacts are determined using Form AD-1006 (site projects) or Form SCS-CPA-106 (corridor projects).
 - A noise analysis is performed which identifies noise sensitive receptors based on the Noise Abatement Criteria. It is then determined if receptors meet the criteria for the installation of a noise wall.
 - The number of displacements, the effect on pedestrian and bicycle traffic, the secondary and cumulative impacts, and other social and economic impacts of the project are determined.
 - A records search is conducted to determine the presence of possible hazardous waste sites.

Once the comments from the pDEIS have been addressed, it is called a Draft EIS (DEIS) and it is ready for review and approval by FHWA. Once the DEIS is approved by FHWA, public and agency comments must be requested. Through circulation of the approved DEIS to the Environmental Protection Agency (EPA), GHQ Design will request that a Notice of Availability be published in the *Federal Register*. That publication initiates a 45-day comment period. The district provides copies of the approved DEIS in the district office and other public repositories (e.g., libraries, city halls) for public viewing and copying during this period. The district also holds a location public hearing, as detailed in [Subsection 2-03.4](#), during this time period and prepares the transcript as detailed in [Subsection 2-03.10](#) for submittal to GHQ Design. [The transcript must be available prior to the preparation of the pFEIS for review by GHQ Design and the FHWA so that substantive comments can be addressed in the pFEIS.] GHQ Design mails the following agencies a copy of the approved DEIS for their review and comment:

- United States Environmental Protection Agency (EPA)
- United States Department of the Interior (DOI) (including the Fish and Wildlife Service (FWS), National Park Service (NPS) and others as appropriate [DOI distributes copies to their respective services])
- United States Department of Housing and Urban Development (HUD)
- United States Department of Agriculture (USDA)
- Advisory Council on Historic Preservation (ACHP)
- Federal Emergency Management Agency (FEMA)
- United States Department of Energy (DOE)
- United States Army Corps of Engineers (COE) [the appropriate COE district office]
- United States Coast Guard (USCG)
- Center for Disease Control (CDC)
- Missouri Department of Natural Resources (MDNR)
- Missouri Department of Conservation (MDC)
- Federal Railroad Administration, Office of Economic Analysis

Once the 45-day comment period has ended and all comments from the public and other agencies have been collected, a preliminary Final EIS (pFEIS) is prepared. The following items of work must be completed as part of the pFEIS:

- All substantive comments gathered on the DEIS during the 45-day comment period, including those from other agencies, the general public, and as a result of the location public hearing, must be satisfactorily addressed. To ensure this, the location public hearing transcript must have been previously submitted to GHQ Design (see [Subsection 2-03.10](#)) and reviewed also by FHWA.
- A recommended alternate must be declared.
- A Phase I archaeological survey must be completed for the recommended alternate. If any sites found are determined by MDNR to require further testing, Phase II archaeological testing must also be completed.
- Photographs of all buildings, bridges, and culverts impacted by the preferred alignment that were not previously reviewed by MDNR-HPP, regardless of age, must be submitted to MDNR for concurrence in a

determination of eligibility to the NRHP.

- A Memorandum of Agreement (MOA) with MDNR, FHWA, and the ACHP must be executed and included in the pFEIS for any NRHP-eligible archaeological sites or historical structures to be impacted adversely to indicate measures to minimize harm to the historic site.
- A Final Section 4(f) Evaluation, when required, must be included in the pFEIS for any impacted historic structures and for parklands, wildlife refuges, or other public lands affected.
- The area of wetlands in the project area and expected impacts are documented.
- The location of any necessary noise walls is proposed (This may change subject to subsequent detailed design and public involvement with the affected receptors).

With completion of these work items, a preliminary FEIS will be prepared which MoDOT will circulate within MoDOT and to FHWA and cooperating agencies. Once comments are received, MoDOT will revise the pFEIS and then send the FEIS to FHWA for approval. The approved FEIS is then circulated to others for review and comment. With circulation of the approved FEIS to the EPA, the FEIS Notice of Availability will be published by EPA in the *Federal Register* initiating a 30-day comment period. Substantive comments are addressed in a Record of Decision (ROD) prepared by MoDOT. The ROD also discusses the alternates that were considered for the project, identifies the selected alternate, and discusses why this alternate was selected. The ROD discusses the measures that have been adopted to minimize harm, such as mitigation plans, and details any monitoring and enforcement program, if applicable. After comments are satisfactorily addressed, the ROD is presented to FHWA for approval. Once the ROD is signed by FHWA, the Missouri Highway and Transportation Commission can approve the location of the project. Detailed design (preliminary plans) of the project can begin once the location has been approved. A flow chart of this process is shown on [Figure 2-04.1](#).

- 2-04.2 (2) ENVIRONMENTAL ASSESSMENT.** If there is uncertainty as to the significance of the impacts from a project, an EA is prepared. According to FHWA, an EA is generally expected on 2-lane relocation projects and often on add-a-lane projects on new right of way. Other types of projects may also require an EA. An EA describes a project's purpose and need, describes the alternates that are being considered, and discusses expected impacts. It should discuss all topics required by FHWA regulations and guidance but should discuss in detail only those areas where there is potential for a significant impact. If a significant impact is identified at any time during the preparation of an EA, an EIS may need to be prepared.

The district should submit two copies of a Request for Environmental Services (RES) form (See [Figure 2-02.2](#)) prior to the prelocation meeting at least two (2) years before detailed design is expected to begin. This form can be found in the Environmental/Cultural Resources category of the Design Forms on the computer system. A prelocation meeting is held for all projects classified as an EA as discussed in [Section 2-03](#). The steps involved in preparing a preliminary Draft EA (pDEA), Draft EA (DEA), preliminary Final EA (pFEA) and Final EA (FEA) are similar to those in the EIS process (see [Subsection 2-04.2 \(1\)](#)). Unless requested, the EA is not circulated to the public or other agencies for comments as the EIS is. A Notice of Availability is not published in the *Federal Register*. Public notice for the EA is made during advertisement of the location public hearing. The approved DEA is made available for public review at the public hearing and is available for review and copying at the district office. There is a minimum period of 30 days between approval of the DEA by FHWA and the FEA approval; however, this period must accommodate MoDOT public hearing requirements as well as completion of any environmental fieldwork and cultural resource Phase I surveys, Phase II testing (if necessary), and MOA execution (if necessary) prior to approval of the FEA. If, after review of the FEA, it is determined by FHWA that there are no significant impacts associated with the project, a Finding of No Significant Impact (FONSI) is prepared by GHQ Design. The FONSI includes the FEA, as modified to address all substantive comments to it and to describe added studies, and briefly presents why the action does not have a significant impact. Once the FONSI is signed, the Missouri Highway and Transportation Commission can approve the location of the project. Detailed design (preliminary plans) of the project can begin once the location has been approved. A flow chart of this process is shown on [Figure 2-04.1](#).

- 2-04.2 (3) CATEGORICAL EXCLUSION.** For actions that will not individually or cumulatively have significant social, economic, or environmental impacts, certain categories of projects are excluded from the need to prepare an EIS or EA. Initial environmental classification of projects by MoDOT and FHWA identify these categorical exclusions (CEs). Note that although a project is classified as a CE, that "environmental clearance" only applies for compliance with NEPA and it indicates only that an EIS or EA is not required for the project. Use of federal

funds on the project (or the need for a federal permit, such as a Clean Water Act permit) requires compliance with up to 30 other federal laws. Prior to project design and construction, pertinent regulations must be satisfied. Check with the environmental studies coordinator and the cultural resources coordinator regarding those clearances. The district should submit two copies of a Request for Environmental Services (RES) form (See [Figure 2-02.2](#)) to GHQ Design at least one year before detailed design is expected to begin so that these issues can be resolved. This form can be found in the Environmental/Cultural Resources category of the Design Forms on the computer system. A prelocation meeting is held for some projects classified as a CE as discussed in [Subsection 2-03.2](#). Detailed design (preliminary plans) of the project can begin once a project is confirmed to be a CE and an approved conceptual study is on file at the Support Center as detailed in [Section 2-01](#). A flow chart of this process is shown on [Figure 2-04.1](#).

For projects where FHWA is uncertain of the CE determination, a CE2 (open-ended Categorical Exclusion) form is prepared that describes the proposed action, any impacts that will result from the action, and any mitigation measures that will be used to compensate for expected impacts. The CE2 form can be found in the Environmental/Cultural Resources category of the Design Forms on the computer system. The district fills in known project specific information such as job number, route, county, project termini and length, project description, current and future ADT, right of way needs, and displacements, before forwarding the form and a location map to GHQ Design for completion. In order for a CE2 to be determined a CE instead of an EA or EIS, the CE2 document must demonstrate to FHWA that the project will not have significant impacts and is, therefore, in a category excluded from the requirement to prepare an EIS or EA. FHWA may approve the request, ask for more information, or indicate the action needs an EA or EIS.

Reclassification as an EIS or EA will require substantially more time for project development and ultimate location approval. Detailed design cannot proceed for EIS or EA projects until a location is approved, after approval of either a ROD or a FONSI by FHWA.

- 2-04.2 (4) RIGHT OF WAY ACQUISITION BEFORE NEPA CLEARANCE.** In order to comply with FHWA regulations, right of way cannot be acquired until a project's detailed design is completed on a project classified as a CE or on a project having an approved ROD or FONSI. However, FHWA regulations allow for early right of way acquisition, prior to the ROD or FONSI, in only two cases: (1) hardship acquisition [where a property owner can show on the basis of health, safety or financial reasons that remaining in the property poses an undue hardship] and (2) protective acquisition [where acquisition prevents imminent development of a parcel needed for a proposed transportation corridor or site, not allowing future transportation use].

In instances when a property must be purchased as a hardship/protective purchase action, a "Categorical Exclusion Determination for Hardship/Protective Purchase Actions" form must be submitted to FHWA. This form can be found in the Environmental/Cultural Resources category of the Design Forms on the computer system. This form is very similar to the CE2 form, but it includes additional information such as property location, type of property, property owner, and cumulative impacts of these and future acquisitions. As with a CE2, the district fills in the known project specific information and forwards the form, necessary maps showing the tract to be acquired, and either the landowner's hardship correspondence or else the imminent development concepts to GHQ Design for completion. The form is available electronically. FHWA will consider the circumstances for the specific tract desired for acquisition and may approve the specific acquisition action as a CE environmental classification. Such approval allows early acquisition, but it does not eliminate the need to complete either the EA/FONSI or the EIS/ROD prior to location approval and detailed design.

- 2-04.2 (5) POST-NEPA ENVIRONMENTAL REVIEW.** Once an EIS is approved with a ROD, an EA is approved as a FONSI, or a CE2 has been reclassified as a CE by FHWA, the requirements of NEPA have been met. However, a project may not be environmentally cleared at this point. Some issues may still need to be resolved, such as [Section 404](#) permitting by the Corps of Engineers. Districts need to maintain contact with GHQ Design to ensure that all environmental permits and clearances have been obtained.

Once a ROD or FONSI is approved, they have a shelf life of three (3) years. This is not a problem if project development (detailed design, right of way acquisition, etc.) proceeds in a timely fashion even beyond the three (3) years. However, if the project is shelved for a number of years without any major project development, an Environmental Reevaluation may be required by FHWA. The Environmental Reevaluation updates the project

scope and the environmental context of the proposed action. An Environmental Reevaluation resembles an EA in content, and it may be approved by FHWA as a FONSI, or FHWA may indicate that the EIS process must be restarted and completed.

2-04.3 HAZARDOUS AND SOLID WASTE IMPACT ASSESSMENT. Properties containing hazardous and nonhazardous solid wastes are frequently encountered in new right of way acquisitions. Some properties with extensive contamination and legal liabilities may warrant avoidance. For most sites, however, early identification and planning will allow selection of feasible alternatives with incidental costs. [Figure 2-04.2](#) lists land uses typically associated with hazardous waste sites.

In addressing hazardous and solid wastes, the goals are to: 1) avoid unacceptable cleanup cost and legal liability, and 2) comply with federal and state laws and regulations regarding cleanup.

GHQ Design will evaluate project corridors for waste sites, determine cleanup requirements, and monitor projects for compliance with applicable laws and regulations. Consultants are also available to provide these services. The most common type of hazardous waste site encountered is an underground storage tank (UST) for petroleum. MoDOT is equipped to investigate and estimate cleanup requirements for these sites and to oversee cleanup operations during construction.

Information and procedures for requesting asbestos inspection and removal are described in [Subsection 4-02.14](#).

2-04.3 (1) GHQ DESIGN RESPONSIBILITIES. GHQ Design may be involved with hazardous waste issues prior to and after the start of construction. During project scoping, including environmental/location studies, GHQ Design will evaluate proposed corridors for hazardous and solid waste sites regulated or listed under the following sources:

- Federal Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS)
- MDNR Confirmed Abandoned or Uncontrolled Hazardous Waste Disposal Sites in Missouri
- MDNR Missouri Hazardous Waste Generators List
- MDNR Missouri Hazardous Waste Treatment, Storage, and Disposal Facilities List
- MDNR Solid Waste Facilities List
- MDNR Registered Underground Petroleum Storage Tank List
- MDNR Leaking Underground Storage Tank List
- Other lists as appropriate

GHQ Design will coordinate the MoDOT investigation of any site, including a site inspection, if necessary. Coordination with EPA and MDNR will help to determine liability, regulatory requirements, and potential cleanup costs. GHQ Design will then recommend whether a site should be avoided, or provide recommendations for cleanup. GHQ Design is available to comment on consultant investigations and recommend approval or disapproval.

For underground petroleum storage tank removal conducted by a contractor, GHQ Design may conduct an investigation to determine the extent of contamination and estimated cleanup requirements and cost prior to right of way acquisition. During removal of the tanks, samples are obtained by appropriate MoDOT staff or consultants, given the circumstances, and the extent of soil removal necessary is determined. Upon completion of the tank removal, a closure report is submitted to MDNR by GHQ Design's Hazardous Waste Specialist.

2-04.3 (2) DISTRICT RESPONSIBILITIES. All Initial Site Assessments and requests for hazardous waste investigations are submitted to GHQ Design during the conceptual/location study stage. Site investigations provide the best information when done with right of way plans available; however, earlier investigations may be necessary in specific circumstances. The Initial Site Assessment Form can be found in the Environmental/Cultural Resources category of the Design Forms on the computer system. GHQ Design will define the scope of work and initiate the request to GHQ Project Operations when necessary. The district provides the following information:

- property information regarding legal ownership and photographs or other description (e.g., Initial Site Assessment), as necessary.
- right of way plans for properties with identified hazardous waste sites.
- other design information, as necessary, to assist in determining the impacts of roadway construction to the contaminated area.
- job special provisions pertaining to hazardous and solid waste cleanup for review.
- for hardship and protective purchases, an Initial Site Assessment is submitted for each parcel, or it is stated that the property is entirely residential.

2-04.4 NOISE IMPACT ASSESSMENT. The Federal Aid Highway Act of 1970 established the requirement (23 CFR Part 772) that noise control be a part of the planning and design of all federally aided highway projects. The requirement states that when the predicted noise level for sensitive receptors (e.g., the exteriors of houses, schools, or libraries) exceeds the federally mandated noise abatement criteria, noise abatement will be considered as part of the highway construction project, unless the receptor site does not meet approved noise abatement criteria. The responsibility for determining the noise effects from a project falls mainly on the district, with review by GHQ Design. Noise assessments are done for the NEPA phase of a project to determine likely noise abatement commitments. Later, during detailed design, noise assessments are completed again to confirm the conditions based on that detailed design and fulfill or modify the noise commitments proposed in the NEPA document. Noise assessments are done for all federally-funded projects whether they are CEs, EAs, or EISs.

2-04.4 (1) TYPES OF PROJECTS. To fulfill the requirements of the Federal Aid Highway Act, MoDOT implemented a noise abatement policy for both Type I and Type II projects. This policy, titled *Traffic Noise Policy* and dated September 1997, was prepared and issued by GHQ Design. A copy of this document is in each district. Contact GHQ Design for further information. This noise policy should be used in conjunction with material presented in this section when addressing noise issues on projects.

Type I projects are those which involve the construction of a highway on new location or the physical alteration of an existing highway that significantly changes either the horizontal or vertical alignment or increases the number of through traffic lanes or the roadway capacity. Type II projects occur only on existing highways where the development existed before the existing typical section of the highway was constructed or expanded or for which land use was established before May 14, 1976. This policy has been approved by FHWA.

2-04.4 (1) (a) TYPE I PROJECTS. Highway traffic noise impacts must be addressed on all Type I federal-aid highway improvements as part of the environmental process regardless of how they are environmentally classified. A noise impact occurs if the Noise Abatement Criteria (NAC) is exceeded. Generally, for residential noise sensitive receptors, MoDOT has established the NAC as a predicted L_{eq} of 66 dBA. The L_{eq} noise descriptor is defined as the constant noise level which would produce the same amount of total noise energy at a given location during a certain time interval as that which would be produced by the time-varying noise during that same interval. The term "dBA" refers to decibels (dB) on the "A" weighted scale. The "A" weighted scale is one which most nearly simulates how the human ear reacts to sound. Examples of noise sensitive receptors subject to the 66 dBA NAC are:

- Residences
- Churches
- Schools
- Libraries
- Hospitals
- Nursing homes
- Apartment buildings, condominiums, etc.

For commercial establishments, FHWA and MoDOT have established the NAC as a predicted L_{eq} of 72 dBA. Noise abatement is not normally provided for commercial establishments since they desire visibility and access from the adjacent roadways. The residential developments in the area will usually dictate whether noise abatement should be considered. When the predicted NAC is exceeded, noise abatement should be provided as part of the highway construction project unless any one of the following cannot be

satisfied:

- Noise wall must provide noise reduction of at least 5 dBA for all primary receptors. Primary receptors are those which are closest to the highway.
- Noise wall must provide attenuation for more than one receptor.
- Noise wall must be 5.5 m (18 ft.) or less in height above normal grade.
- Noise wall must not interfere with normal access to the property.
- Noise wall must not pose a traffic safety hazard.
- Noise wall must not exceed a cost of \$30,000 per benefited receptor. A benefited receptor is defined as a receptor which receives a noise reduction of 5 dBA or more.
- The majority of the affected residents (primary and benefited receptors) must concur that a noise wall is desired.

Appropriate local zoning authorities are informed of proposed improvements as early as possible after a project is added to the State Transportation Improvement Program (STIP). The predicted noise level contours for 66 dBA and 72 dBA are furnished by the district on an aerial mosaic to assist the zoning authorities in controlling local development through appropriate zoning regulations. The letter of transmittal includes the statement that federal aid will not be available to provide noise abatement for any future development which takes place within those contours after receipt of this information by the zoning authority and which is incompatible with the predicted noise levels. The letter also requests a reply from the zoning authority that they have received this information and understand it.

2-04.4 (1) (b) TYPE II PROJECTS. Federal funds are not provided for noise abatement on Type II projects, in accordance with 23 CFR part 772 (dated August 29, 1996). If a Type II project warrants noise abatement, state funds may be considered if all of the following criteria are met:

- Noise abatement will only be provided on an existing highway that was 1) built or expanded after the adjacent development which is to be protected had occurred or 2) for adjacent land use which was in existence prior to May 14, 1976.
- The noise abatement must meet all of the criteria of the Type I Noise Abatement Policy.
- Existing highest sound levels must exceed an L_{eq} of 66 dBA.
- The majority of the affected residents (primary and benefited receptors) must concur that a noise wall is desired.

Any required adjustment to the existing highway will be considered part of the cost of the noise abatement.

The local government entity must provide 75% of the cost. The Commission will provide the 25% matching funds. If the cost of the abatement exceeds \$30,000 per benefited receptor, the local government entity will pay 100% of the cost exceeding the \$30,000 per benefited receptor. A benefited receptor is defined as a receptor which receives a noise reduction of 5 dBA or more.

2-04.4 (2) NOISE ABATEMENT REVIEW TEAM. The department will consider the style, architectural features and aesthetics of noise walls to ensure the following:

- The walls will blend into and with the surrounding area.
- They are visually pleasing to the residents of the area being served.
- They are visually pleasing to the through traffic on the route and do not detract from the overall aesthetics of the highway.

For each project requiring walls for noise abatement, a design review team (consisting of representatives from the following functional units: Design, Maintenance, Project Operations and another member from a private architectural firm) will review the designs and make recommendations for appropriate noise walls. The final design will be made in consultation with the residents of the areas through public involvement with the affected residents conducted by the district office.

2-04.4 (3) DISTRICT RESPONSIBILITIES. In order to perform the noise analysis for all reasonable alternates being considered in CEs, EAs or EISs, the district inputs the design year, peak-hour traffic volumes, truck

percentages, and directional splits into the traffic noise prediction model (STAMINA 2.0). The 66 dBA and 72 dBA contour lines are then determined. Roadway or other plans are obtained to identify noise-sensitive land uses in the vicinity of a proposed project. The predicted noise levels are analyzed to determine receptors that will exceed the noise abatement criteria. If the prediction model indicates that noise mitigation is necessary, various methods to reduce future noise levels are analyzed. A noise barrier analysis may be performed using OPTIMA software to determine the optimum height and the cost of a barrier. Noise barrier proposals must be evaluated to determine that all criteria contained in the MoDOT noise abatement policy have been satisfied. A report detailing the noise analysis is prepared for inclusion in the appropriate final environmental document. Plans depicting the 66 dBA and 72 dBA contour lines and the sensitive noise receptors that are affected by the project are submitted along with the report.

2-04.4 (4) GHQ DESIGN RESPONSIBILITIES. GHQ Design will review all noise information submitted to ensure that all noise criteria have been satisfied and confirm that noise mitigation meets federal guidelines and is reasonable and feasible to construct. Any noise sensitive receptors for which no reasonable noise attenuation can be offered are identified. The STAMINA analysis and plans are then included in the final environmental document. After approval of the ROD, FONSI, or CE, detailed design can begin and noise abatement measures can be assessed (through OPTIMA) and designed, if required.

2-04.5 FARMLAND CONVERSION IMPACT RATING PROCEDURE. The Farmland Protection Policy Act (FPPA) mandates that federal agencies consider the impact of their activities on farmland. The U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) has published a rule for implementing this act. The act applies to all federal projects which take any right of way, including those classified as a CE and including urban projects with apparently no "farmland". To comply with this rule the following procedures are followed.

2-04.5 (1) DISTRICT RESPONSIBILITIES. The district completes Parts I and III of the appropriate form for the project and submits it to GHQ Design during the location study for CE2, EA, and EIS class projects. For CE projects, the form may be submitted when the preliminary plans are complete. Borrow sites need to be cleared for farmland conversion impacts also. Form AD-1006 (Farmland Conversion Impact Rating) is used for site projects such as bridges, and Form SCS-CPA-106 (Farmland Conversion Impact Rating for Corridor Type Projects) is generally used for projects with a length greater than 1 mile [1 km]. Form SCS-CPA-106A is a continuation of Form SCS-CPA-106 and should be used if more alternates are required or if there are other segments with alternates on the same project. These forms can be found in the Environmental/Cultural Resources category of the Design Forms on the computer system. Form AD-1006 and Form SCS-CPA-106 example sketches are shown on [Figures 2-04.3](#) and [2-04.4](#). The NRCS wants projects divided by county, so farmland area should be broken out by county and submitted on separate forms.

Three copies of United States Geological Survey (USGS) 7.5-minute quadrangle maps showing the project alternates (EA or EIS) or location (CE) and extent are attached to the form. Color should be used on all three copies to show the project location. A brief summary (1 or 2 sentences) or detailed plans that describe facts about the project, such as where new right of way or borrow is located and how much new right-of way is required is also included. Aerial photography showing the location of new right of way is especially useful.

Borrow areas are considered indirect conversions (Part III-B) even when they will be reclaimed afterward. It should be noted in Block 5 at the bottom of the form that the area will be reclaimed for agricultural production after construction is completed.

Urban lands may or may not be subject to the FPPA. This determination is based on mapped information that often is not available or is not up to date. Consequently, it is still necessary to submit the project to GHQ Design for review. The form should indicate if the land is zoned for urban/industrial uses.

2-04.5 (2) GHQ DESIGN RESPONSIBILITIES. GHQ Design will review the rating forms for completeness and prepare them for submission to the NRCS. The NRCS completes Sections II, IV, and V of the form using soil survey data. The Land Evaluation is a relative rating based on a soil productivity index that is set up by county. NRCS usually takes 4 to 6 weeks or longer to complete the form depending on their workload and the time of year. Upon completion, NRCS returns the form to GHQ Design. GHQ Design then completes Parts VI and VII of the rating form. If the total rating exceeds 160, alternate sites must be considered. After alternates have been

rated, the recommended alternate is recorded at the bottom of Part VII with justification for that selection. A copy of the completed form is attached to the DEA or DEIS. For projects processed as a CE, a copy of the completed form is held in GHQ Design files to document the coordination with the NRCS. A copy of the completed form is returned to NRCS for their reporting requirements, and also to the district.

2-04.6 PARKLAND IMPACT ASSESSMENT. The Department of Transportation Act of 1966 specifies that a transportation project requiring the use of publicly owned parks, recreation areas, historic sites (including those owned privately), wildlife and waterfowl refuges, and many other types of resources can be approved only if there is no feasible and prudent alternate to using that land and if the project is planned to minimize harm to the Section 4(f) property. These requirements are referred to as Section 4(f) requirements. [See [Subsection 2-04.8 \(3\) \(b\)](#) for details on Section 4(f) related to historic sites; those are coordinated with the cultural resources section of GHQ Design.]

Similar restrictions are required by the Land and Water Conservation Fund (LWCF) Act for public recreation facilities funded with LWCF money. The LWCF Act provides funds for the acquisition and development of public outdoor recreation facilities that could include community, county, and state parks, trails, fairgrounds, conservation areas, boat ramps, shooting ranges, etc. Facilities that are LWCF-assisted require mitigation that includes replacement land of at least equal value and recreation utility. These requirements are referred to as Section 6(f) requirements.

GHQ Design monitors all federally-funded roadway improvement projects for compliance with Section 4(f) and Section 6(f) requirements. Early coordination is important when projects impact or propose to impact any public resource or private historic site considered by FHWA as eligible for Section 4(f) protection. In order for the FHWA to make the eligibility determination, information must be provided by the district to GHQ Design so documentation can be prepared.

GHQ Design maintains a library of maps and property ownership information for all lands under the jurisdiction of the MDNR and the MDC, as well as a listing of all public recreation facilities funded with LWCF money. GHQ Design can provide information about Section 4(f) and Section 6(f) constraints for proposed projects at the district's request.

2-04.6 (1) DISTRICT RESPONSIBILITIES.

2-04.6 (1) (a) SECTION 4(F) PROPERTIES. The district sends the necessary background information to GHQ Design early in the project development process, before an EA or EIS is prepared and before detailed design begins on a CE project. Photographs should be submitted of all likely Section 4(f) properties considered for acquisition. For larger projects it may be necessary for GHQ Design personnel to visit the site. County ownership plats are submitted to determine whether the property is privately or publicly owned, along with deeds and lease agreements to determine if there are any restrictions or permanent dedications to recreation described in the deed. An estimate of the amount of right of way likely to be acquired is provided, including temporary construction easements and permanent easements. Also, a discussion of alternates that will avoid and/or minimize impacts to the affected area must be provided by the district, as well as any design or construction measures that would minimize harm to the impacted area. This would include, but is not limited to, narrowed medians, retaining walls, steeper side slopes, use of temporary construction easement instead of right of way, seeding and mulching, and tree replacement.

The early submittal of this information to GHQ Design facilitates compliance with both NEPA and Section 4(f). Typically the determination of the applicability of Section 4(f) is made prior to submission of the environmental documentation to the FHWA. Whenever possible, the districts should provide information as soon as possible and even before there are right of way plan sheets that clearly show where the impacts will occur. Show the amount of right of way, temporary construction easement, and permanent easement required. If plans are not available, the district should provides an estimate of the amount of right of way to be acquired.

2-04.6 (1) (b) SECTION 6(F) PROPERTIES. Early in project development, the district and GHQ Design should coordinate if Section 6(f) lands may be impacted. Alternates to avoid the Section 4(f) and Section 6(f) properties must be developed and assessed by FHWA and the NPS prior to detailed design. The same

information required for Section 4(f) properties is required for the determination of Section 6(f) properties. This information should be provided by the district as soon as possible and even before right of way plans are available. If right of way plans are not available, the district provides an estimate of the amount of right of way to be acquired. Note that while Section 4(f) is specific to the entire recreation facility, Section 6(f) is only applicable to areas designated on maps as being LWCF-assisted. This map review will generally be done within the MDNR files by GHQ Design personnel. The district does not need to correspond with the agency having jurisdiction over the facility, because the local jurisdiction may not know if there is any federal funding of their parklands.

2-04.6 (2) GHQ DESIGN RESPONSIBILITIES.

2-04.6 (2) (A) SECTION 4(F) PROPERTIES. GHQ Design prepares all coordination letters to ensure consistency. The district should inform consultants preparing work to coordinate with GHQ Design and to not correspond with agencies or the FHWA directly.

GHQ Design will send a letter to the owner having jurisdiction over the Section 4(f) land to be used requesting authority to use or purchase the land. Contact with the landowner may be limited until the acquisition of right of way; however, it is necessary to determine whether the Section 4(f) land owner is in agreement with the use of their land for highway purposes. In some cases, the owner may provide information regarding the property that was unknown to MoDOT. In addition, they may have an opinion as to how the land use is mitigated. There may also be federal involvement in the land that would dictate how mitigation would proceed.

GHQ Design also coordinates with FHWA. When the only use of parkland will be a temporary construction easement with minimal or no impacts or when the area is not considered eligible as a Section 4(f) resource, a letter of inapplicability will be sent to FHWA stating the reason for the inapplicability of Section 4(f). With FHWA's concurrence of inapplicability, project development can proceed. However, any later changes in the plans affecting the Section 4(f) property need to be coordinated with GHQ Design. When the use of parkland will be permanent and Section 4(f) is applicable, a Programmatic Section 4(f) may be used if the number of hectares (acres) being used meets certain requirements. A Programmatic Section 4(f) is a less detailed version of the Section 4(f) Evaluation which can be used in instances with lesser impacts. The criteria allow for 10% use if the site is less than 10 ac. [4 ha], 1 ac. [0.4 ha] if the site is 10 to 100 ac. [4 to 40 ha], and 1% use if the area is over 100 ac. [40 ha]. If the property is eligible as a Section 4(f) resource and impacts exceed the criteria for a Programmatic Section 4(f), a Section 4(f) Evaluation is prepared. GHQ Design staff will determine if a Programmatic Section 4(f) Evaluation is appropriate. The programmatic evaluation establishes a threshold of impacts for certain types of proposals. If these are not exceeded, FHWA certifies that the programmatic evaluation applies and a full Section 4(f) Evaluation is not necessary. This can save months in the project development process in many cases.

The Section 4(f) Evaluation assesses alternates to avoid impacts to Section 4(f) properties (including historic sites). The district must provide these alternates in order that impacts can be addressed for them. That is to be done in the context of compromised design standards, costs, and associated environmental and social impacts. Full detailed design of these avoidance alternates is not necessary; however, enough work must be done to indicate the impacts, costs, etc. of choosing such alternates that avoid Section 4(f) properties. If MoDOT makes the case that there is no feasible and prudent alternative to the alternate that affects the Section 4(f) property and indicates all proposed measures to minimize harm to that property, FHWA may approve use of that Section 4(f) property for the project.

A draft Section 4(f) Evaluation must be approved by FHWA as part of the approved DEA or DEIS prior to the location public hearing or prior to detailed design on CE projects. For an EA or EIS, this draft Section 4(f) Evaluation must be included in the DEA and DEIS. Circulation of the approved draft Section 4(f) Evaluation to the DOI for comment is required. This is automatic for an EIS project with circulation of the DEIS. A DEA with a Section 4(f) Evaluation needs to be sent to DOI for comment as well as separate Section 4(f) Evaluations prepared for CE projects. GHQ Design circulates the approved draft Section 4(f) Evaluation for CE or EA projects.

A final Section 4(f) Evaluation is included with the FEA or FEIS and addresses any substantive comments. For CE projects, a separate final Section 4(f) Evaluation is prepared. FHWA approval of the final Section 4(f) Evaluation is integrated with location approval which allows detailed design to begin. An approved final Section 4(f) Evaluation allows land to be acquired from that Section 4(f) property. If the project parameters affecting the Section 4(f) property change, the district should confirm the status with GHQ Design.

- 2-04.6 (2) (b) SECTION 6(F) PROPERTIES.** GHQ Design will verify that LWCF funds have been invested into the property by reviewing the listing of projects in Missouri that were funded with LWCF money for acquisition or development. If the parkland was developed with LWCF money, Section 6(f) boundaries can be determined through review of MDNR files because at the time that the federal money was expended, the project sponsor was required to provide a map designating the boundaries. It is also determined if there are any areas of the park that were not designated for protection.

GHQ Design coordinates the land use with the agency having jurisdiction over LWCF-assisted property. If mitigation is necessary and the jurisdiction with control over the property (including the NPS and MDNR) requires land replacement (federal regulations require replacement of land rather than compensation), GHQ Design will assist the district in determining the type of replacement land that will fulfill the mitigation. Both the replacement land and the impacted parkland must be appraised and independently reviewed. If the property was developed with federal LWCF funds, a Section 6(f) Conversion document must be prepared by MoDOT and approved by MDNR and the National Park Service. This document includes an environmental assessment of both the converted parcel and the replacement parcel, and appraisals, appraisal reviews, cultural resource reviews, current development maps for the converted parcel, and future development maps for the replacement parcel. This document is prepared by GHQ Design with the assistance of the district. The Section 6(f) Conversion document may be integrated with the Section 4(f) Evaluation and either the EA or EIS.

- 2-04.7 SOCIAL AND ECONOMIC IMPACT ASSESSMENT.** MoDOT must identify the impacts of transportation projects on the social and economic structure of the area where the project will be built. This involves documenting the social and economic structure of the area before the project begins, and then estimating the impacts that the project will impart. An estimation of the indirect impacts (those impacts distant in time or spatially separate) related to the projects must also be provided. The level of socioeconomic analysis needed depends on the degree of possible impacts. The analysis should include information submitted in connection with public meetings and hearings on the project or from other contacts with interested persons or groups. Refer to [Section 2-03](#) of this manual (Public Hearings and Meetings) for guidance concerning maximizing public involvement. It is important that minority, low income, and perceived disadvantaged populations are identified early in the scoping process to ensure that these populations have the opportunity to provide input for the project. A description of the extent of public involvement and a breakdown of the participants' demographic profiles will be included in the environmental document for the project.

- 2-04.7 (1) DISTRICT RESPONSIBILITIES.** Community, business, and citizen concerns should be documented. The number of and description of structures (residential and commercial) and number of people that will be displaced by the alternates proposed for the project is reported, along with a description of the availability of comparable housing stocks, vacant commercial properties, and undeveloped land to compensate for properties being displaced. The district also includes a description of the presence of minority or perceived disadvantaged populations living in the project area, and the location of problem areas in the project area (e.g., problem intersections, pedestrian and access needs, emergency vehicle access, etc.) or any social concerns of individuals or the population. These areas of concern can then be defined in terms of betterment for the community due to completion of the project. Any views of the local people relative to the project should be pointed out. Public participation efforts, especially with minority and disadvantaged groups, should be documented.

- 2-04.7 (2) GHQ DESIGN RESPONSIBILITIES.** GHQ Design will prepare the sections of the EA or EIS relating to social and economic studies with assistance from the district. GHQ Design assembles baseline information on the social and economic condition of the project area. Future growth and development is predicted using current data trends and economic models, when appropriate. This information is used to help examine the community and economic development needs for the project and to assess expected changes to the social and

economic structure. Parameters which are examined include demographic/growth trends; traffic safety and volume; business/commercial activity and expected growth; road use trends, such as commuting; social and economic dimensions of the community; and public opinion about the improvement. The benefits of the proposed project are weighed against the economic and social impacts due to the project. Indirect and cumulative impacts resulting from the project must also be assessed. Indirect impacts are foreseeable impacts that are distant in time or spatially separate from the project area. Cumulative impacts are impacts that result from the incremental impact of the project when added to past, present, or future actions and conditions.

2-04.7 (2) (a) ECONOMIC IMPACTS. The economic impacts to the area, state and region are assessed. An estimate of the economic benefits and adverse impacts will address the following issues:

- Current trends in economic development.
- Whether new areas will be opened up for development.
- Whether the project will result in easier access, and therefore increased business, for existing businesses.
- Whether the business climate will change. Whether existing business will relocate successfully.
- Whether new businesses will be drawn to the area.
- Whether there will be savings from increased driving efficiency and accident reduction.
- Whether a community will be bypassed or connected, or whether a business district within a community will become isolated due to the project.
- Whether an area that is dependent upon a single income generator, such as tourism, is currently in jeopardy because the transportation infrastructure is inadequate.
- Whether the impacts from the project reach only the local area, or whether they affect a wider area.
- Whether the community's tax base will be impacted when property ownership is transferred to MoDOT. Special attention should be given in circumstances where substantial amounts of the tax base will be removed, especially if it threatens the ability of the community to provide infrastructure and services.

2-04.7 (2) (b) SOCIAL IMPACTS. The financial, social, and community/neighborhood impacts are assessed. The number of residential displacements, commercial facility/business relocations, farms taken or rendered unusable, and the number of not-for-profit organization displacements must be considered in conjunction with the availability of comparable housing stocks, vacant commercial facilities and properties, and undeveloped land to compensate for properties being displaced. Minority or unique social groups which will be impacted must be analyzed under the directives of Executive Order 12898 on **Environmental Justice**. The purpose of Executive Order 12898 is to insure that minority and low income populations are not disproportionately adversely affected by federal actions and that they are actively involved in the public participation process. Public participation of minority/protected groups must be pursued and documented to insure compliance with the Executive Order on Environmental Justice. Some of the other factors considered are splitting neighborhoods or farmsteads; disrupting community cohesion; restricting access to emergency services, schools, nursing homes, pedestrian access, etc.; and safety concerns.

2-04.7 (2) (c) BICYCLE AND PEDESTRIAN IMPACTS. Current bicycle and pedestrian use in terms of frequency and function (e.g., recreation or commuting) is considered, and whether this mode of transportation will be substantially disrupted during construction. Often in low income and minority populations, walking or biking is the only way to travel. To ensure environmental justice, impacts need to be monitored to insure individuals are not disproportionately adversely impacted. Whether new bicycle and pedestrian facilities are needed or planned, and whether there is any special funding, or joint development, to promote this mode of travel must also be taken into consideration. See [Subsection 4-09.25](#) for bicycle/pedestrian facility guidelines.

2-04.8 CULTURAL RESOURCES IMPACT ASSESSMENT. A cultural resource is any prehistoric or historic archaeological artifact or site, or historic building, structure, bridge, or object. Cultural resource concerns on MoDOT projects are handled by various personnel in GHQ Design.

MoDOT must avoid or minimize impacts to cultural resources to comply with federal and state cultural resource laws. The main federal law that MoDOT must comply with is the National Historic Preservation Act of 1966 and

specifically Section 106 of that act, which requires all federal agencies, or any agency that accepts federal funds or requires federal permits, to consider the effects of their projects on prehistoric and historic properties. The COE Clean Water Act (CWA) Section 404 Permit and Section 4(f) of the Department of Transportation Act of 1966 also require compliance with Section 106.

Compliance with these laws is accomplished through three steps. First, threatened cultural resources are identified. Second, the significance of the resource is determined. A significant resource is one that: a) will answer specific research questions and topics or will contribute to our current state of knowledge, b) is associated with events that have made a significant contribution to our history, c) is associated with significant persons in our past, or d) has high artistic value, is the work of a master craftsman, or embodies distinctive characteristics of a type, period, or method of construction. Significant sites, buildings, structures, and objects are eligible for listing on the NRHP. Finally, once a resource is determined to be significant, MoDOT must attempt to avoid impacting that resource. This may require adjusting the alignment so that it misses the significant site. If avoidance is not possible, then impacts to the site must be minimized or mitigated. Minimizing impacts can be achieved through redesigning the project to lessen the impact on the resource. Mitigation in archaeology refers to lessening or eliminating the destructive effects of construction through scientific data recovery and analysis. For architectural sites, including bridges, there are many mitigation options depending on the resource (see [Subsection 2-04.8 \(3\)](#) for architectural resources).

If a building or bridge located near the recommended alternate has been determined eligible for listing on the NRHP, a determination of effect is made by MoDOT and concurrence is requested from MDNR-HPP. To make their determination of effect, MDNR-HPP requires some idea of the nature of the distance between the project limits and the resource. Determinations of effect may be "no effect", "no adverse effect", or "adverse effect". A "no effect" determination for a property requires no further consideration for that property. A "no adverse effect" will require concurrence from the ACHP. "No adverse effect" determinations may be conditional and require some level of documentation or mitigation. An "adverse effect" will require the preparation of an MOA and often a draft and then final Section 4(f) Evaluation. It should be remembered that subsequent modification of project alignments may require additional MDNR-HPP cultural resource review of those modifications and changes of their earlier determinations. It is important that each project have no more than one MOA addressing all cultural resources, thus an MOA can not be submitted until there is reasonable assurance that all NRHP-eligible archaeological sites, buildings, and bridges potentially impacted by the proposed project have been identified and the determination of effect has been concurred by MDNR-HPP. Although "no adverse effect" determinations do not require an MOA, they must be included in the project's MOA if that project also will have an "adverse effect" on another resource. It is very important that the impact a project may have on historic properties is identified or discussed at public hearings, meetings, etc. The ACHP requires documentation of public input or knowledge about these impacts to historic properties before they will sign an MOA.

It is imperative that GHQ Design is notified if cultural resources are encountered within job limits during construction or on highway property in general as noted in the MoDOT Standard Specifications for Highway Construction.

- 2-04.8 (1) CEMETERIES.** State laws govern MoDOT's impact on unmarked and marked human burials. A marked human burial is any historic burial that has physical evidence of its existence or has written or oral records of its presence. Not defined as a cultural resource by law, it is a legal concern. The courts are responsible for decisions regarding marked burials. Unmarked human burials are those burials, historic or prehistoric, that do not meet the criteria of a marked burial. MDNR is responsible for decisions regarding unmarked burials. Generally, the costs (in time and expense) and legal ramifications associated with reburial are so great that it is not prudent to impact marked or unmarked burials.

Because cemetery limits are not always clearly marked, it is advisable to contact GHQ Design whenever proposed project improvements are in proximity to a known cemetery. Historical research may determine that additional burials are located outside of the present cemetery limits. Also, archaeologists can either examine and clear an area prior to construction or monitor the initial ground disturbing activities of an area during construction to ensure that no burials are inadvertently disturbed.

- 2-04.8 (2) ARCHAEOLOGY.** Any MoDOT job that involves ground disturbance (e.g., grading, scraping, removal of

borrow or structures) on MoDOT right of way or easements requires archaeological screening. Jobs such as signing, signals, or resurfacing do not need to be screened for archaeological concerns.

- 2-04.8 (2) (a) DISTRICT RESPONSIBILITIES.** The district initiates archaeology work at the conceptual stage of a project by submitting two copies of a Request for Environmental Services (RES) form (See [Figure 2-02.2](#)) which can be found in the Environmental/Cultural Resources category of the Design Forms on the computer system. Additional RES's may be submitted at later stages of a job such as when detailed design is underway. It is helpful if the district notifies GHQ Design of other projects that are in the area so that trips can be combined. As early as possible, the district should submit the first draft of preliminary plans or aerial mosaics with realistic corridor boundaries and explanations. Information that is clear and accurate is critical to timely progression of the project. Final plans are submitted as they are developed. If borrow is needed, borrow site options and information is provided as soon as possible. Several possible areas are delineated, and their relative priority or utility is noted. The district must obtain landowner permission to survey the property. Potential concerns such as hostile landowners, properties being condemned, ill-tempered animals, or other known hazards are noted by the district to GHQ Design.

The district may be asked to provide personnel such as survey crews or staff to assist with archaeological work, or to coordinate machinery for mowing, diskings, and controlled earthmoving.

- 2-04.8 (2) (b) GHQ DESIGN RESPONSIBILITIES.** GHQ Design will determine when, where, and to what extent cultural resource (including archaeological) work is required. Cultural resource investigations may involve varying efforts.

Screening or scoping may consist of background research that is conducted during the early planning stages of a project (prior to a pDEA or pDEIS) to identify known cultural resources in a proposed job area for various alternates.

A Phase I survey is an intensive, systematic investigation of a specified area to identify all cultural resources present (prior to an pFEA or pFEIS but following the declaration of the recommended alternate after the location public hearing). Field work may take from one day to a month to conduct. If no archaeological sites are identified and the survey area is small, a Negative Memo is prepared and submitted to MDNR-HPP. If no significant archaeological sites are identified or the survey area is extensive, a Results of Archaeological Investigation Report is prepared and submitted to MDNR-HPP.

Phase II Testing involves limited archaeological excavation of a site to determine its significance and eligibility to the NRHP. Field work may take from several days to several weeks to conduct per site. If the site is not significant, a report is prepared with a recommendation for clearance of the site. If the site is significant, the site must be avoided or impacts to it must be mitigated. A Phase II report, an MOA addressing measures to mitigate the impacts to the historic sites, and a Scope of Work for that mitigation must be prepared. All documents are submitted to MDNR-HPP by GHQ Design. The Phase II report, MOA and Scope of Work must also be submitted to FHWA and the ACHP for concurrence.

All the above work must be completed on the recommended alternate before the FEA or FEIS is approved by FHWA and before any detailed design can take place.

Phase III Archaeological Mitigation is the full scale excavation of an archaeological site that previously was determined to be eligible to the NRHP and has had an MOA and Scope of Work prepared and accepted by the appropriate agencies. Field work may take from several weeks to several months to complete, with the analysis of the results and the preparation of the report taking at least as long. However, depending on the MOA, job construction may be allowed to proceed immediately following completion of the Phase III field work.

- 2-04.8 (3) ARCHITECTURAL RESOURCES.** Any project that will result in the displacement, destruction, or alteration of buildings, bridges and other structures, or objects requires architectural/structural screening. Include buildings outside of the alternate corridors or expected right of way (within 30 m) to consider indirect impacts. Conducting architectural investigations requires cooperation between the district and cultural

resources staff. In general, whenever a project has a CE or CE2 environmental classification, the District is responsible for providing photographic documentation. For other environmental documents, GHQ Design may use photographs from the District, but will normally be responsible for photographs. For EAs and EISs, screening of structures 50 years old or older within and adjacent to the reasonable corridors will be necessary prior to the pDEA or pDEIS to identify possible historic sites subject to Section 4(f). With the selection of a recommended alternate after the DEA or the DEIS and the subsequent location public hearing, more intensive work is done on the recommended alternate.

2-04.8 (3) (a) DISTRICT RESPONSIBILITIES. Architectural resource work is initiated by submitting two copies of a Request for Environmental Services form (RES) (See [Figure 2-02.2](#)) during location/conceptual studies and early in the environmental document preparation process. The RES form can be found in the Environmental/Cultural Resources category of the Design Forms on the computer system. For all projects, exhibits such as aerial mosaics that clearly show the existing and proposed right of way and all easements are provided, and any buildings or bridges to be removed are indicated with a label "(R)". Include well-exposed, clear 3" x 5" [75 x 125 mm] photographs of buildings, outbuildings, bridges and other structures that are keyed to plans (if available), aerial-photographic mosaics or 7.5 minute U.S.G.S. topographical maps, along with the negatives. Guidelines for photographs are as follows:

- General: Photographic prints should be taken with a 35 mm or larger format camera, and keyed to a map, as described above. The direction in which the photographer was facing should be noted, and multiple rolls of film should be differentiated when noting frame numbers. The subject of the photograph should be centered and complete within the frame.
- New buildings, including outbuildings: One clear photograph that includes two facades of the building, and taken so that the building nearly fills the photo-frame, should be adequate. Each building in a complex should have an individual photograph.
- Older buildings (50+ years): These require several views for proper evaluation, because buildings that look significant from one angle may show alterations from a different angle which can make them ineligible for the NRHP. Whenever possible, provide additional views taken from the corners and rear of the buildings. A general view of older buildings in complexes or groupings showing their relationships with other buildings is also useful.
- Barns (50+ years): Detailed views of the interior of barns are useful, particularly those showing layout, construction and joinery techniques. Specific photographs of unique or notable elements (such as mechanical systems) are also useful for dating and categorizing barns and outbuildings. A site plan for complexes with buildings more than 50 years old must accompany the photographs.
- Bridges (50+ years): These require several views for proper evaluation. Send views of approaches, superstructures, substructures, and, if possible, a readable close-up photograph of the name plate. Photographs of other unique or notable elements are also useful.

When significant architectural resources will be impacted, GHQ Design will request information from the district regarding alternate routes to avoid the resource, including associated costs and diagrams. This information is needed to comply with Section 4(f) requirements. Depending on the mitigation requirements for the project set out in the Memorandum of Agreement (MOA) that addresses the project, districts generally are expected to provide measurements of buildings, help prepare scaled drawings of buildings and site plans, and/or assist with building/bridge relocation.

2-04.8 (3) (b) GHQ DESIGN RESPONSIBILITIES. Once the initial RES form has been received by GHQ Design, a background check to identify potential historic constraints is conducted for NRHP-listed or eligible architectural resources using information from previous surveys, the National Register, old topographic and plat maps, and the statewide bridge inventory. Inventory forms, prepared in coordination with the district, are submitted to MDNR for buildings 50 years old or older to verify eligibility to the NRHP. Photographs, topographic and county maps, aerial mosaics, preliminary plans (if available), a cover letter with MoDOT's recommendation, and any additional information requested by MDNR is provided along with inventory forms. It takes about 30 days for MDNR review the submittal. Architectural resources are cleared and generally require no further consideration if MDNR determines that they are not eligible to the NRHP.

The effects of the project on NRHP properties is assessed by GHQ Design in conjunction with MDNR and

FHWA. Projects are considered to have no effect if 1) the architectural resource is far enough outside of the right of way; 2) the project is relocated/redesigned to avoid or minimize impact, or 3) the project affects only a small or insignificant portion of a large site, such as a farm complex. Projects are considered to have an adverse effect if there is a direct or nearly direct impact, and avoidance is neither a feasible nor prudent option. Effects on historic properties must be determined prior to preparation of the final environmental documents.

In order to mitigate for adverse effects, an MOA that explains how MoDOT will mitigate project impact to a property is prepared and submitted to FHWA. Mitigation could involve any or all of the following:

- A historical report
- Black and white archival photographs
- Historic American Buildings Survey (HABS) documentation for buildings or Historic American Engineering Record (HAER) documentation for bridges or other structures (to be stored at the Library of Congress)
- Scaled drawings
- Marketing and/or relocation
- Acquisition of similar property
- Additional survey work

Approval is requested from FHWA to process bridges with a Programmatic Section 4(f) Evaluation. A Programmatic Section 4(f) approval from FHWA means that a separate Section 4(f) Evaluation is not required because project conditions for the programmatic approval have been met. This can save months in project development. The criteria which must be met for FHWA to grant a programmatic Section 4(f) for a bridge include the following: 1) alternatives to impacting the bridge must have been evaluated; 2) the bridge must not be identified as a National Historic Landmark; 3) the project must be in compliance with Section 106 regulations including planning to minimize harm to the bridge; and 4) it has been determined that there are no feasible and prudent alternatives to the use of the bridge. In most cases, bridges will meet these requirements. Approval should be requested when the MOA is submitted to FHWA.

Should a Programmatic Section 4(f) Evaluation not be approved by FHWA or if a project has an adverse effect on a NRHP-eligible resource, a Draft Section 4(f) Evaluation for historic sites is prepared as required by the Department of Transportation Act of 1966 and subsequent FHWA regulations. The Draft Section 4(f) Evaluation describes the project, describes the architectural resource, indicates why the historic property is historically significant and eligible to the NRHP, presents alternatives that would avoid impacting the property and their related costs (as provided by the Districts), and indicates measures agreed upon to minimize harm to the property. Once approved by FHWA, the Draft Section 4(f) Evaluation is circulated to other Federal agencies (which may typically include the Department of the Interior, Advisory Council on Historic Preservation, United States Coast Guard (if applicable), and/or Army Corps of Engineers (if applicable)) for comment. For EAs and EISs, the Draft Section 4(f) Evaluation is part of those documents and would be circulated with them. For CEs, the Draft Section 4(f) Evaluation would be prepared and circulated separately.

For CE projects, especially, and also on EA and EIS projects, until an MOA is executed and the Final Section 4(f) Evaluation is approved by FHWA, the FHWA is not in a position to provide federal funds for the proposed location for any project. If detailed design has been completed but FHWA cannot approve the taking of land from the Section 4(f) property, MoDOT may have designed a project that either has to be funded without FHWA participation or else which will need a revised location/design. A ROD or FONSI approved by FHWA, which would include any MOA and/or Final Section 4(f) Evaluation, indicates FHWA can participate in the selected location for EAs and EISs, and it allows location approval by the Commission. The terms stipulated in the MOA are carried out prior to project construction, and since each project is unique the time lines will vary. When MDNR is satisfied that mitigation is complete, the project construction can proceed.

[For Section 4(f) issues related to publicly owned parks, recreation areas, wildlife and waterfowl refuges and other non-historic sites, see [Subsection 2-04.6](#) and coordinate with the Parkland Specialist in GHQ

Design.]

2-04.9 WETLAND IMPACT ASSESSMENT. GHQ Design will identify and resolve wetland issues that arise during the development of a project. The main task of the wetland specialist is wetland delineation for individual projects. Other tasks include wetland mitigation design, Section 404 permit application preparation, interagency coordination for Section 404 permits, review of consultant work, policy development, and involvement in statewide wetland issues that affect MoDOT.

Wetland issues should be resolved as early in the project development process as possible. Small projects with no wetlands can be cleared as early as the location or conceptual stage. Most projects are cleared at the preliminary plans stage or later, depending on the nature of the wetland impacts and the type of Section 404 permit required for the project. The district will design projects to include the following features to protect the water quality of the waters of the state.

- Temporary stream crossings will be designed so that no drops or dams are created that impede the passage of fish or other water specimens.
- Stream channel modifications will be minimized. Where modifications are necessary for highway design safety or protection of state resources, they will be designed using the Missouri Clean Water Commission's "[Channel Modification Guidelines](#)".
- The following materials will not be specified for streambank stabilization: earthen fill, gravel, fragmented asphalt, broken concrete with exposed rebar and liquid concrete (including grouted riprap).

The wetland section may be involved with a project from conceptual development through letting and beyond construction, depending on the extent of wetland impacts. The Letting Plans and Program Management environmental database (LP01 or RC50) is updated throughout the plan development process to show the current status of the wetlands review process.

The wetland review process begins when a RES form is submitted by the district. This form can be found in the Environmental/Cultural Resources category of the Design Forms on the computer system. Wetland evaluations are made at several stages in project development. The level of detail and accuracy of these evaluations increases as the project development/design process moves forward. Consequently, the level of detail required in information submitted by the district will also increase as a project is developed.

2-04.9 (1) PRELIMINARY WETLAND EVALUATION. A preliminary evaluation of wetland impacts is done early in the process, usually at the location/conceptual design phase. This level of review is appropriate for most CE projects, DEAs, and DEISs.

2-04.9 (1) (a) DISTRICT RESPONSIBILITIES. The district supplies county highway maps and USGS topographic survey maps with corridor limits and the location of all alternates marked. A general overview of the alternates considered (e.g., new or wider lanes, relocation, temporary bypasses, etc.) is included. Food Security Act wetland inventory maps (photographs with wetland areas drawn on) obtained from county NRCS offices are acquired by district staff. Other information that may be requested by GHQ Design includes the following: state plane coordinates; latitude and longitude; section, township and range; photos of the project area; photo logs; aerial photos; and elevations of 25-, 50- or 100-year flood events (based on Q-25, 50, or 100).

2-04.9 (1) (b) GHQ DESIGN RESPONSIBILITIES. The wetland specialist checks files, LP01, photographs, and maps to determine whether wetlands are likely to occur near the project. Maps most commonly used are National Wetland Inventory (NWI) maps, soils survey maps, USGS topographic survey maps, and Food Security Act wetland inventory maps. The size and value of potential wetlands are determined. A site visit may be necessary prior to alignment selection or preliminary plans development to assess the accuracy of wetland mapping. A memo is written to the district describing potential wetland areas and other COE regulated waters. If no wetland areas are apparent with the information available at the time of the memo, a statement will be made to that effect. If there are potential wetland areas that could be impacted by the proposed project, those areas are shown on a map enclosed with the memo. The district staff may be consulted to estimate impacts to identified wetland areas. A brief summary report is prepared to document

the preliminary wetland assessment. The report will identify potential jurisdictional wetland areas and state the basis for identification of those areas as wetlands. The report will also identify other areas that may be subject to COE regulation as waters of the United States. The COE determines what constitutes "waters of the U.S." subject to these regulations. Generally, streams, lakes, ponds, and wetlands are regulated by the COE. The report will briefly summarize the information reviewed, identify areas that should be investigated during future field investigations, and identify upland areas that require no field investigation. This is preliminary work, prior to detailed design for a CE project; for EA or EIS projects, the information is used in the formulation of reasonable alternates for development of a DEA or DEIS.

2-04.9 (2) ON-SITE EVALUATIONS. A more detailed, on-site evaluation of wetland impacts will usually be required for the recommended alternate for EA or EIS projects and once preliminary plans are available for CE projects. For EAs or EISs the detailed jurisdictional wetland determination occurs between the location public hearing and the completion of the pFEA or pFEIS. This work identifies wetlands within the recommended corridor through on-site evaluation. After a ROD or FONSI is approved by FHWA and the Commission approves the selected alternate, additional on-site evaluation may be necessary during detailed design for the preparation of a site-specific Section 404 permit application to be submitted to the COE. Work after the ROD or FONSI will provide precise wetland impact details in the context of MoDOT detailed design.

2-04.9 (2) (a) DISTRICT RESPONSIBILITIES. During the detailed design process (preliminary plans, right of way plans, or construction plans) for CEs or after a ROD or FONSI allows the Commission to approve a location for a selected alternate, the district should provide more specific information about the project (i.e., the limits of fill, ditches, location of temporary bypasses, possible borrow sites, and proposed limits of construction easements and permanent right of way). At this stage, GHQ Design may request a manuscript with elevation contours.

The district also supplies information needed for the Section 404 permit, as discussed in [Subsection 4-09.21 \(1\)](#).

Tree locations (or edges of forested areas), pond locations (edge of pool), levee locations, and stream drainage areas are shown on preliminary plans. This information is used to assess wetland impacts and prepare Section 404 permit applications.

The district may assist in preparation of a plan view to show wetland impacts for the Section 404 permit application. Because construction plans often explain things better than written special conditions, it is recommended that the district incorporate wetland boundaries into plans to assist contractors in locating and avoiding wetlands. GHQ Design can flag wetland boundaries for survey crews.

2-04.9 (2) (b) GHQ DESIGN RESPONSIBILITIES. Once preliminary plans are available for CE projects, or once a recommended alternate has been determined after a DEA or a DEIS has been approved (but before preparation of the pFEA or pFEIS), GHQ Design personnel visit the project site to document the presence or absence of wetlands. The plants, soils, and hydrology of potential wetland sites are evaluated to determine if a site gets suitably wet for long enough to meet the current federal wetland criteria. The district is consulted to determine total wetland impacts for the project.

A wetland delineation report suitable for submission to the COE is written. The report is organized in a format acceptable to the COE district with jurisdiction over the project area and includes both documentation of wetland delineation decisions (i.e., this is/is not a wetland) and the rationale used to make jurisdictional determinations (i.e., this is why this area is/is not a wetland). In addition to field data forms, the report includes maps, photographs, and a summary of findings that includes areas of various wetland types impacted as well as impacts to ponds, lakes and other waters of the U.S. On some projects, the wetland delineation report is submitted to the COE and NRCS to get their formal approval of the wetland report prior to the submission of a Section 404 permit application.

A memo to the district is prepared describing wetlands within the project impact zone, potential impacts, information relevant to Section 404 permit applications, and the likelihood that wetland mitigation will be required.

GHQ Design personnel are available to meet with district and other GHQ staff to decide what further steps are necessary to prepare for submission of the Section 404 permit.

If the selected alternate has greater wetland impacts than one of the other reasonable alternates considered, the district and GHQ Design will document the reasons for selecting the proposed alignment in accordance with the CWA Section 404 (b)(1) Guidelines for alternatives analysis. If a NEPA document is being prepared for the project, the Section 404 and NEPA alternatives analysis can be addressed in the NEPA document. In some cases, a Section 404 permit from the Corps of Engineers may be obtained prior to detailed design when a merged NEPA/404 process is used in the development of an EIS or EA. In these instances, an "umbrella" Section 404 permit from the COE is intended so that an alternate review will not be requested again by the COE once detailed design occurs on the selected alternate. As detailed design progresses, specific wetland impacts will be addressed with the COE to obtain ultimate Section 404 approval of the design prior to construction.

- 2-04.9 (3) WETLAND IMPACT ASSESSMENT - WETLAND MITIGATION.** If mitigation for wetland impacts is warranted, GHQ Design takes the lead with district office assistance in locating a suitable mitigation site and developing a mitigation plan. Mitigation developed by an interdisciplinary team has a better chance of successfully fulfilling permit requirements imposed by the COE. The kind of information to be evaluated includes the following: right of way concerns, potential willing sellers, potential for use of existing MoDOT right of way, maintenance concerns, detailed topography (0.5 m or 1.0 m contours, depending on the site conditions and in coordination with GHQ Design) of the site chosen for the mitigation, estimates of the drainage area for runoff moving into the mitigation site, estimates of runoff volumes onto the site, estimates of water storage in the new wetland area, and soils and geology information for the site (water table, clay content, depth of sand, gravel, bedrock). The district assists with the development of construction plans for the mitigation site and on other topics where appropriate (e.g., hydrology, tree planting specifications, equipment availability, seed availability).

The Clean Water Act Section 404 permitting process includes provisions for replacing wetlands where discharge of construction materials would cause the loss of waters of the U.S., which include wetlands. When replacement wetlands are required for permit authorization, GHQ Design will work with the districts through the pre-permit, post-permit, construction, and post-construction phases of wetland mitigation.

2-04.9 (3) (a) PRE-PERMIT PHASE.

- 2-04.9 (3) (a) 1. GHQ DESIGN RESPONSIBILITIES.** GHQ Design will identify potential wetland sites. Sites initially considered for wetland mitigation should have the following characteristics:

- Soils are generally hydric or have a substantial component of a hydric soil series. This determination should be based on the county hydric soils lists published by the NRCS.
- Area topography has a slope of less than 2 percent.
- Area hydrologic factors are capable of being manipulated to provide adequate water to the site during the growing season.
- The site is large enough to accommodate the mitigation size requirements and any needed buffer zones.
- The site has no hazardous waste sites, significant cultural resources, Section 4(f) or Section 6(f) concerns, or federally-listed threatened or endangered species.

If appropriate, alternative sites are submitted to the COE for review. The mitigation site is selected with input from the district. After selection of a mitigation site, GHQ Design personnel will assist the district in determining plant species and rates of planting for the replacement wetland and buffer, to be included in a planting plan. Options for the vegetation source are as follows:

- Seed source taken from the wetland to be filled.
- Seed source from the bank of seeds at the mitigation site.
- Commercially available seeds for drilling or broadcasting.

- Commercially available or field collected propagules for planting.

The narrative is then written for the mitigation plan.

- 2-04.9 (3) (a) 2. DISTRICT RESPONSIBILITIES.** The district reviews the alternative mitigation sites that make it through the initial screening for future construction conflicts, the expense of site development (excavation vs. berming), and the willingness of the landowner to sell the site. At this point, the mitigation site will be selected by GHQ Design with input from the district. Once a site is selected, the district conducts a survey of the site to define the existing conditions. The survey should include, as a minimum, 1 or 2 ft. [0.5 or 1.0 m] contours (depending on the site conditions and in coordination with GHQ Design), and landscape features such as houses, roads, streams, ponds, pasture, and woods. In most cases a soil profile should be developed, including the following: soil texture to 10 ft. [3.0 m] in depth, infiltration rate, permeability, and suitability for use in berms or as construction material (if applicable). The depth and fluctuations of the water table are determined for mitigation sites where the hydrology will be influenced by the water table. The drainage area and the 2-year, 24-hour storm runoff quantities in inches, are determined for those wetlands where the hydrology will be established with runoff from a watershed. Design of the mitigation area will depend on the water table and drainage area factors, along with the maximum pool size and water quality of runoff.

Plan and profile drawings, seeding and planting plans, and location maps needed to submit to the COE are prepared by the district. The mitigation plan narrative will be written by GHQ Design personnel. Plan views should include contours, site and wetland pool boundaries, ponds, outlets, fencing, stations, property lines, and berms. Profile views should include slopes (inside and outside slopes of berms), existing and finished ground line level, water level at full pool, and elevations of each of the above.

Before the mitigation plan goes to the COE, the mitigation plan is reviewed by GHQ Design and the district engineer. The complete plan will be submitted to the COE by GHQ Design.

2-04.9 (3) (b) POST-PERMIT PHASE.

- 2-04.9 (3) (b) 1. GHQ DESIGN RESPONSIBILITIES.** Once the project has been permitted by the COE, GHQ Design personnel will assist the district in developing special provisions for the implementation of the mitigation plan. Depending on the type of wetland mitigation, the plan will include provisions for the placement of wetland soils from the impact area, a vegetation plan, special working conditions, wetland protection on and off the construction site, and time constraints, based on the presence of federally-listed threatened or endangered species, planting season, and permit period expirations.

Once the project reaches the construction phase, GHQ Design is available for the pre-construction meeting, pre-bid meetings, or coordination for construction of the mitigation site, if the project warrants staff presence. Of particular concern are the excavation and seed bank soil excavation phases.

After construction is complete, GHQ Design will monitor the mitigation site at the time period stipulated by the COE in the approved mitigation plan. More frequent monitoring may be required at the beginning of the mitigation establishment phase to ensure that wetland characteristics are established. The district maintenance staff will be supplied with a copy of the maintenance practices, including mowing and spraying restrictions. A map of the mitigation area will be given to the district maintenance and right of way staffs for reference.

- 2-04.9 (3) (b) 2. DISTRICT RESPONSIBILITIES.** The district should notify GHQ Design if certain specialized personnel are needed for pre-construction or construction activities when these activities are scheduled. The district is to contact GHQ Design if actions are being proposed that will affect wetland mitigation sites (e.g., maintenance activities). GHQ Design is to be notified if any project changes occur affecting either wetlands impacted or the proposed mitigation site(s).

2-04.10 SENSITIVE BIOLOGICAL RESOURCES/THREATENED AND ENDANGERED SPECIES IMPACT ASSESSMENT. The primary regulations pertaining to the clearance of projects as they relate to threatened or

endangered (T&E) species are Section 7 of the Endangered Species Act (ESA) of 1973 (as amended), the National Environmental Policy Act of 1969 (as amended), and Section 2 of the Fish and Wildlife Coordination Act (FWCA) of 1958 (as amended) (16 U.S.C. 662).

FHWA and MoDOT are required in the development of projects to address issues brought forward by the public and by government agencies when our actions may affect T&E species or other sensitive biological resources. Coordination with resource and regulatory agencies is particularly important early in the development of a project. FHWA and MoDOT must provide evidence that all of their actions have included appropriate consideration and protection of T&E species or other sensitive biological resources. Since resource and regulatory agencies' priorities have shifted to the protection of a species' habitat rather than to the species alone, MoDOT and FHWA need to consider potential impacts to resources such as wetlands, streams, floodplains, prairies, and other "native" Missouri habitats.

Under the ESA, no action can be taken that will jeopardize the continued existence of federally-listed endangered or threatened species or result in the destruction or adverse modification of the critical habitat of such species. If an action is likely to jeopardize a T&E species or its habitat, the FHWA and MoDOT must confer with the FWS. In Missouri, there are species federally listed as endangered and species federally listed as threatened. Contact GHQ Design personnel for the latest list of federally listed endangered and threatened species.

The MDC develops and maintains a rare and endangered species checklist for Missouri. The approximately 830 plant and animal species listed by MDC are assigned a state status of endangered, rare, status undetermined, watch list, extirpated, or extinct under Rule 3CSR10-4.111 of the *Wildlife Code of Missouri* and certain state statutes. The checklist, updated annually, reflects the status of the resident populations of plants and animals in Missouri. There presently are no legal requirements to consider impacts to state-listed species, therefore FHWA and MoDOT are not required to confer with MDC. However, project development should proceed with efforts to avoid or minimize impacts to state-listed species.

Many federal-aid highway projects conducted by MoDOT require COE Section 404 permits. In these cases, early and continued coordination related to potential impacts to T&E and other sensitive biological resources is imperative to address those issues that may affect the processing of permit applications. Fish and wildlife issues that have not been satisfactorily resolved during the environmental study phase of the project's development will undoubtedly arise again when application is made for a Section 404 and/or USCG permit. At this stage, the COE or USCG could place unworkable constraints on construction activities or even jeopardize a project through permit denial.

The assessment of potential impacts to T&E species should occur throughout the development of each project as follows:

- 2-04.10 (1) SCREENING DURING CONCEPT STAGE.** This procedure involves a cursory identification of T&E species or sensitive habitats to determine if they occur within the limits of every MoDOT project or if they will be indirectly affected by a project. Recent publications, reports, and data bases related to these resources are used. The majority of projects can be exempted from T&E restrictions through in-house screening, although occasional queries into MDC's Natural Heritage database are necessary. The screening process occurs prior to the formulation of alternates for EA and EIS projects or prior to detailed design on CE projects.
- 2-04.10 (2) SCOPING DURING FORMULATION OF REASONABLE ALTERNATES.** This procedure is a more formalized one which involves submitting written requests (including a map illustrating the project location) to resource and regulatory agencies for their comments concerning potential impacts to T&E species or other sensitive biological resources. The scoping process fulfills the requirements of NEPA and FWCA as they relate to the selection of alternates which avoid or minimize impacts to T&E species or other sensitive biological resources. This process is used most often for larger scale projects which require the development of an EA or an EIS. However, it is occasionally used to document the absence of T&E species or sensitive biological resources for the submission of a CE2 to FHWA or for permitting authorizations as described below. In either case, scoping provides written evidence of coordination with resource and regulatory agencies which is to be included in the environmental documentation. Scoping occurs prior to the formulation of alternates for EA and EIS projects or prior to completion of the CE2 form for submittal to FHWA.

- 2-04.10 (3) LOCATION AND DESIGN.** T&E species and their habitats or other sensitive biological resources are environmental constraints which can influence the location and design of a proposed improvement. Usually, detailed information (written evidence) obtained through coordination with resource and regulatory agencies (i.e., scoping) or field evaluations are required to achieve this level of project development.
- 2-04.10 (4) PERMITTING.** All federal agencies responsible for issuing permits are required to meet the mandates of NEPA and the ESA. Usually, endangered species issues have been satisfactorily addressed by MoDOT during the screening, scoping, or location and design phases. However, MoDOT should again screen the federal T&E species list for newly-listed species or contact the FWS and MDC for their most recent information, especially if more than two years have passed since completion of the original environmental documentation.
- 2-04.10 (5) CONSTRUCTION.** Job special provisions, usually developed by GHQ Design through coordination with the district and resource and regulatory agencies, may be required to avoid or minimize impacts to known populations of T&E species, their habitats, or other sensitive biological resources. This level of clearance is reached through final approval from MoDOT administration and may include special funding authorization from the Missouri Highway and Transportation Commission for mitigation activities (e.g., T&E mussel relocation efforts).
- 2-04.10 (6) POST-CONSTRUCTION COMPLIANCE AND MONITORING.** Impacts to T&E species, their habitats, or other sensitive biological resources can also be avoided or minimized by post-construction activities (i.e., restoration of pre-construction ground contours, permanent erosion controls, establishment of native plantings, etc.). This phase most often relates to compliance with special provisions developed during earlier phases, which can include long-term monitoring requirements (e.g., T&E mussel relocation efforts).
- 2-04.10 (7) DISTRICT RESPONSIBILITIES.** The district submits a RES to GHQ Design along with a general location map, a USGS quadrangle map illustrating the location of the project, and preliminary plans, if available. This form can be found in the Environmental/Cultural Resources category of the Design Forms on the computer system. The submittal is made initially prior to the formulation of alternates for EA and EIS projects or prior to detailed design on CE projects.
- 2-04.10 (8) GHQ DESIGN RESPONSIBILITIES.** GHQ Design will contact the FWS or MDC to solicit comments related to a proposed project, particularly related to the presence or likelihood of occurrence of federally-listed or proposed T&E species, designated or proposed critical habitat, or other sensitive biological resources within the proposed project area.

Information from the FWS and MDC is usually submitted to MoDOT as a letter of response to a screening or scoping request which includes a list of "sensitive" (federal T&E and state-listed) species and other sensitive biological resources (e.g., MDC lands, natural areas, etc.). This information is derived from MDC's Natural Heritage database. Often, general recommendations or guidelines are included with the information received from the FWS and MDC (e.g., drainage design recommendations, restrictions of certain construction activities, suggested conservation measures, etc.). Information from FWS or MDC could also include substantiated data or recommendations developed from other resource or regulatory agencies (e.g., MDNR, COE, etc.). Written evidence of this coordination is included in the environmental documentation for the project.

If the FWS and MDC do not document the presence or likely presence of federally-listed T&E species, proposed species, or critical habitat, then the coordination effort is complete if sensitive species have not been identified within the project area by some other source. The project is cleared of any T&E species constraints and requirements of the ESA and the FWCA have been met for that phase in the project's development.

If the FWS or MDC determines that a federally-listed T&E species, critical habitat, or other sensitive biological resource is present or is likely to occur within the project limits, FHWA and MoDOT will either be asked to consult with the FWS as directed by Section 7 of the ESA, or the FWS will provide additional information or recommendations for surveys or other studies before additional coordination can continue. Although five components of consultation are identified within Section 7 of the ESA, only three are required by the Columbia Field Office, FWS: (1) a conference, or (2) a biological assessment, or (3) formal consultation. These processes do not have to proceed in this order, although conferences are almost always held before a biological

assessment is developed.

A conference is an informal meeting held early in a project's development. A biological assessment contains specific, detailed information concerning a federally-listed T&E species that may be present in the project area. A biological assessment can be used to issue a "no effect" opinion or to determine that formal consultation is required. The purpose of a formal consultation is to identify and resolve potential conflicts between a proposed project and T&E species or critical habitat. Projects rarely reach the formal consultation stage. Formal consultation is only required if, during early coordination, conferences, or biological assessments, the FWS determines that a proposed project "may affect" a federally-listed T&E species or critical habitat. The FHWA must submit a written request to the FWS for initiation of the formal consultation process. The FWS will review the biological assessment and deliver its opinion stating whether or not the project is likely to "jeopardize" the continued existence of a T&E species or result in the destruction or adverse modification of critical habitat. If a "no jeopardy" opinion is issued, the formal consultation process is complete. If the FWS states in their opinion that the action is likely to "jeopardize" the continued existence of federally-listed species or critical habitat, FHWA and MoDOT would have to consider the alternatives recommended by the FWS and condition the project approval accordingly or request an exemption from the requirements of the ESA. There have been only two cases nationwide where an exemption was requested (Tellico Dam and Gray Rocks Dam); neither were exempted.

Candidate species identified within the project area are addressed in the environmental documentation. Although candidate species have no legal status and are accorded no protection under the ESA, these species are receiving consideration by experts for possible listing as federal T&Es in the future. Close contact should be maintained by GHQ Design with the FWS or MDC on the disposition of the candidate species during the environmental processing of a project.

2-04.10 (9) MITIGATION OF IMPACTS. Mitigation commitments are usually identified either through the NEPA process or when conditions are placed on the issuance of a permit. When mitigation for a project impact is necessary, the district works with GHQ Design to complete a mitigation plan.

2-04.11 LOCAL PUBLIC AGENCY PROJECTS. Local public agency projects (i.e., BROs, STPs, Enhancements, CMAQs, and BRMs) which are initiated and funded by a city or county require environmental and cultural resource review if federal funds /federal permits are involved. MoDOT is responsible for assuring that the FHWA requirements for environmental/cultural clearance are completed. The environmental and cultural review is usually done by a consultant hired by the local public agency. The district usually acts as a liaison between the local public agency/consultant and GHQ Design and should provide a copy of the contract that the local public agency has with a consultant to complete the environmental and cultural work. The name of the consultant must be included. For cultural resource work, a copy of the consultant's letter to the MDNR-HPP requesting the assessment for the project is also submitted, along with a copy of MDNR-HPP's response to the consultant. Copies of all follow-up letters and correspondence between MDNR-HPP and the consultant are forwarded to GHQ Design.

ENVIRONMENTAL ACRONYMS

ACHP	Advisory Council on Historic Preservation
ASM	Archaeological Survey of Missouri
BRM	Bridge Replacement Municipal [primarily city]
BRO	Bridge Replacement Off-system [primarily county]
CDC	Center for Disease Control
CE	Categorical Exclusion
CE2	Open-Ended Categorical Exclusion
CERCLIS	Federal Comprehensive Environmental Response, Compensation, and Liability Information System
CFR	Code of Federal Regulations
CMAQ	Congestion Mitigation -- Air Quality
CSR	Code of State Regulations
COE	United States Army Corps of Engineers
CWA	Clean Water Act
dBA	decibels on the "A" weighted scale
DEA	Draft Environmental Assessment
DEIS	Draft Environmental Impact Statement
DOE	United States Department of Energy
DOI	United States Department of the Interior
DOT	Department of Transportation
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
FEA	Final Environmental Assessment
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
FWCA	Fish and Wildlife Coordination Act of 1958
FWS	Fish and Wildlife Service
HABS	Historic American Buildings Survey
HAER	Historic American Engineering Record
HUD	United States Department of Housing and Urban Development
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
L_{eq}	Constant average sound level which over a period of time contains the same amount of sound energy as the varying levels of the traffic noise
LP01	Computerized Right of Way and Construction Program
LWCF	Land and Water Conservation Fund
MDC	Missouri Department of Conservation
MDNR	Missouri Department of Natural Resources
MDNR-HPP	Missouri Department of Natural Resources - Historic Preservation Program
MIS	Major Investment Study
MOA	Memorandum of Agreement
MTIA	Major Transportation Investment Analysis (now called MIS)
NAC	noise abatement criteria
NEPA	National Environmental Policy Act of 1969
NOA	Notice of Availability of EISs
NOI	Notice of Intent to prepare an EIS
NPS	National Park Service
NRCS	Natural Resources Conservation Service (formerly the Soil Conservation Service (SCS))
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
pDEA	preliminary Draft Environmental Assessment

pDEIS	preliminary Draft Environmental Impact Statement
pFEA	preliminary Final Environmental Assessment
pFEIS	preliminary Final Environmental Impact Statement
RC50	Computerized Right of Way and Construction Program
RES	Request for Environmental Services
ROD	Record of Decision
Section 4(f)	refers to the DOT Act of 1966 and its section related to protection of public areas and historic sites
Section 6(f)	refers to lands acquired or improved under the LWCF Act
STIP	Statewide Transportation Improvement Program
STP	Surface Transportation Program
T&E	Threatened or Endangered Species
U.S.C.	United States Code
USCG	United States Coast Guard
USDA	United States Department of Agriculture
USGS	United States Geological Survey
UST	Underground Storage Tank