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# **ENVIRONMENTAL ASSESSMENT**

**for the**

**MISSOURI RIVER LEVEE SYSTEM  
UNIT L142  
JEFFERSON CITY, MISSOURI**

**April 2001**

**Prepared by the  
Kansas City District  
U.S. Army Corps of Engineers**



**ENVIRONMENTAL ASSESSMENT**  
**for the**  
**GENERAL REEVALUATION REPORT**  
**MISSOURI RIVER LEVEE SYSTEM**  
**UNIT L142**

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## **1. INTRODUCTION**

### **1.1 PROJECT AUTHORIZATION AND BACKGROUND**

The 1941 and 1944 Flood Control Acts authorize construction of the Missouri River Levee System (MRLS). Construction of the system of levees to reduce recurring flood damages to agricultural lands and small communities began in June 1948. MRLS Levee Unit L142 would be located in the left bank floodplain of the Missouri River at Jefferson City, Missouri. In December 1973, Unit L142 was classified "inactive" due to lack of economic justification based on a 1960's restudy. Following an initial assessment in 1991, our Washington Headquarters approved reclassification of Unit L142 to the active category in June 1991. We received the initial funding for the General Reevaluation Report (GRR) in November 1992. The GRR documents the feasibility of constructing an appropriately sized and aligned Federal levee within the area indicated for the construction of MRLS Unit L142 in the original agreement.

## **2. PURPOSE AND NEED FOR THE PROPOSED ACTION**

The purpose and need for the levee is to achieve a reduction in recurring flood damages to the Jefferson City Memorial Airport, the Jefferson City wastewater treatment facility, the Missouri Air National Guard facility, the Asea Brown Boveri (ABB) Power Transmission and Distribution Plant, and several smaller businesses located in the vicinity of the airport. Historical flooding within the study area is described in detail in Section 2.0, Subsection A of the GRR..



### **3. DESCRIPTION OF THE PROPOSED ACTION**

#### **3.1 GENERAL.**

The proposed action is to provide flood damage reduction in the area known as North Jefferson City. The preferred plan evaluated by this Environmental Assessment (EA) is a levee constructed on the alignment described in detail in Section 4.0 as Alternative 10a. Alternatives to the construction of this levee are also evaluated within this EA including four other levee alignments, a ring levee around the ABB plant, and No Action.

The preferred plan would protect the entire study area except for about 200 acres of farmland at the downstream end. All of the businesses and public enterprises on both sides of Highway 54 would be protected, including the ABB plant, the airport, the Army Aviation facility, the wastewater treatment plant, and the Missouri Farmers Association (MFA) plant. About 900 acres of cropland, mostly interspersed with the airport's right-of-way, would also be protected. The reliability of transportation on U.S. Highway 54 would also benefit from the plan.

#### **3.2 PLAN COMPONENTS.**

The preferred plan is shown on Plate 6. This plan includes 24,800 feet (4.7 miles) of levee, contains six drainage structures and five stoplog structures. The elevation of the levee at the Jefferson City gauge (river mile 143.9) is 568.6 feet NGVD which protects against a water surface elevation of 564.0 (gauge reading 43.9). The difference between the height of the levee at the gauge and level of protection provided is due to the hydraulic effects caused by the bridge constriction.

#### **3.3 STUDY AREA AND LAND USE.**

The study area is at the southern edge of Callaway County, Missouri from Turkey Creek (river mile 144.5) on the west to the approximate area of Niemann's Creek (river mile 140.5) on the east. The portion of the floodplain annexed by the City of Jefferson is known informally as North Jefferson City. The original limits of the City of Jefferson were confined to the opposite bank of the river. A January 10, 1998, aerial photograph of the approximate study area is shown on Figure 5 of the GRR.

The North Jefferson City area features cropland and industrial development including the Jefferson City Airport. The airport and the previous town of Cedar City were annexed by the City of Jefferson in 1989. Cedar City was a town of about 450 persons in 1980. After the Flood of 1993, nearly all of the residences and businesses were acquired and removed from the floodplain as a flood hazard mitigation measure. Cedar City accounted for most of the area west of Highway 54 within the preliminary alignment for the L142 levee.

### **3.4 HYDROLOGY AND HYDRAULICS.**

The Missouri River hydrology used for this study is based on the Definite Project Report (1946-1947) and *the Missouri River Agricultural Levee Restudy Program: Hydrology Report* (March 1962). This report documents the discharge frequency relationship for eight discharge hydrograph conditions for the Missouri River from Sioux City, Iowa, to the mouth near St. Louis, Missouri. The conditions ranged from no control by reservoirs and levees to full project development through the year 2000. Hydrologic details are in the GRR, Section 2, Section 4, and Appendix B.

The Missouri River geometry data files used to perform the hydraulic analysis for this study were developed for the Missouri River Restudy, completed in 1980, which computed the 50-percent through the 0.2-percent chance exceedance flood event water surface profiles and floodway for the Missouri River from the mouth to Rulo, Nebraska. Although the existing channel and overbank geometry was used for this analysis, it is recognized that changes to the Missouri River channel and foreshore areas have occurred. Details of Hydraulics for this report can be found in the main report Section 2, Section 4, and Appendix B.

### **3.5 LEVEE EMBANKMENT.**

The proposed levee height ranges from 15 to 23 feet. The embankment would be constructed with side slopes of 1 vertical on 3 horizontal. The embankment would also have seepage berms constructed on the landward side and stability berms on the riverward side. All low areas within the construction area riverward of the levee would be filled with impervious fill material. The main portion of the levee would be approximately 150 feet wide. The upstream tieback would follow an alignment to the west of the abandoned Cedar City railroad spur. The local Katy Trail would be raised to match the elevation of an existing levee providing protection from Turkey Creek. The Katy Trail raise would allow use of the existing levee along Turkey Creek as impervious borrow material. Once the levee is removed, water can flow into the borrow excavations providing the hydrology for the proposed wetland mitigation site. The opening of the U.S. Highway 54/Katy Trail overpass would be permanently blocked to prevent flood waters from passing through. The Katy Trail alignment has been altered to meet the Missouri Department of Natural Resources (MDNR) recommended 1 vertical on 12 horizontal longitudinal sloping of the ramps as they cross the levee. The downstream tieback would connect to high ground, would have a 3 on 1 slope, and would be approximately 100 feet wide.

### **3.6 STRUCTURES.**

Structures incorporated into the embankment would be stoplog gap structures and drainage structures. The levee would incorporate flapgate drain structures where necessary. Stoplog closure structures would be placed where the levee crosses highways and roads and at entrances to major facilities. The Katy Trail passes beneath the State Highway 54 overpass. This low area will be blocked with fill to

protect the highway overpass structure as well as the Katy Trail and the ABB Plant from future flooding. A 1:20-sloped trail/ramp will be constructed over the berm built within the underpass to satisfy protection requirements as well as maintain accessibility for trail users. Clearance would be sufficient to allow construction vehicles to pass over the ramped trail.

### **3.7 BORROW SITES.**

The design of the preferred plan considers using borrow locations adjacent to the proposed levee alignment to minimize haul distance, access existing local haul routes, and provide for a mitigation area adjacent to a local stream. Use of conventional scrapers, front end loaders, and backhoe excavation equipment along with truck hauling equipment was more economical compared to dredging materials from the Missouri River. Stockpiles of sandy material, the result of deposition from the 1993 and 1995 flood events, are present riverward of Mokane road. This fill material would be used for random fill. Borrow areas for impervious fill would be located at the west and northeast tiebacks of the levee system. Use of these borrow areas for wetland mitigation is possible as long as they do not adversely affect airport operations (see Missouri Department of Transportation letter dated September 29, 1998 in Appendix A). These borrow areas would contain an irregular shoreline and bottom profile having both shallow and deeper areas.

### **3.8 LEVEE TRAIL.**

The top of the levee would be graveled with limestone fines to make it suitable for maintenance and inspection vehicles and for recreational uses such as bicycling and walking. Gates across access points would be made handicap accessible with entry points 36 inches wide to accommodate wheelchairs. Parking would be available on the west side of Highway 54 on city park property. All areas where ramps up and down the levee are required such as at stoplog structures would be constructed with a 1:20 slope. This levee trail would complement the City's plan to eventually connect the City to the Katy Trail via a pedestrian walkway across the Missouri River Bridge. By placing a trail on the levee, a loop trail would be created making it a valuable addition to the existing Katy Trail system.

### **3.9 LEVEE VEGETATION.**

Levee slopes and berms and any disturbed areas including those associated with borrow construction would be revegetated. Where feasible, a mix of native grasses and wildflowers would be used, especially on the landward slopes to increase habitat values and aesthetics. The lower riverward slopes would be planted only to flood tolerant, sod forming grasses.

### **3.10 OPERATIONS AND MAINTENANCE.**

The levee embankments and berms would be planted with a suitable grass and wildflower mix that would provide slope stability as well as having aesthetic appeal

in an area that has been stripped of most habitat through agricultural practices and urban and industrial development. This grass cover would be managed through an approved rotational grassland management plan that would provide for yearly inspections. The Jefferson City Parks and Recreation Department would manage this grassland in accordance with a prescribed management plan documented in the project Operation and Maintenance Manual and would integrate a hiking/bicycling trail that would provide enjoyment for the recreating public. In a similar manner, the constructed wetland areas would also be managed through an approved management plan and managed by the City Parks and Recreation Department or a State agency, such as the MDNR which expressed an interest in the area, for its wetland and wildlife values. Replacement trees would be appropriately placed near the levee and/or near the wetlands, as necessary.

## **4. ALTERNATIVES CONSIDERED**

### **4.1 GENERAL**

A June 20, 1991, Initial Appraisal Report indicated a high potential for developing a feasible flood damage reduction plan. This plan approximated the assumed alignment of the levee unit authorized in 1944. That plan consisted of 6.4 miles of levee averaging 15.8 feet in height, and included a minimal amount of stoplog closures. This plan would have provided a 1-percent-chance exceedance (100-year) level of protection with 3 feet of freeboard.

From 1991 through July of 1993, the planning process advanced toward completing the GRR. In July 1993, the study area experienced approximately a 0.2-percent chance exceedance (500-year) flood event. The L142 study area was substantially damaged by the severe flooding. From July 1993 through October 1995, the study was suspended pending further evaluation. During this time period, the City of Jefferson coordinated with, State, and Federal agencies to mitigate the extensive flood damage in the study area. As a result, funds from the Federal Emergency Management Agency (FEMA) and Community Developmental Block Grants (CBDG) available through the State funded the City's acquisition of many residences and a few businesses in the study area.

In October 1995, we reactivated the study and acknowledged a new base condition for the study area. Changed conditions from the pre-1993 flood conditions included; (1) changed land use conditions, (2) fewer damageable properties in the study area, and (3) changed hydraulic conditions due to changes in the channel and overbank conditions. As a result, we reinitiated the GRR and formulated new alternatives. Alternative development was conducted in accordance with the "Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies (1983)." These guidelines are contained in the U.S. Army Corps of Engineers Engineering Regulation (ER) 1105-2-100, *"Policy and Planning Guidance for Conducting Civil Works Planning Studies"* April 2000. Alternatives developed fall into three general categories: Non-Federal Structural Alternatives, Non-Structural Alternatives, and Structural Alternatives.

### **4.2 NON-FEDERAL STRUCTURAL ALTERNATIVES**

These alternatives could be implemented by the local sponsor or private individuals without involvement from the Federal Government, and include; levee construction by private individuals or State or local government.

## **4.3 NON-STRUCTURAL ALTERNATIVES**

### **4.3.1 General.**

A plan composed of non-structural measures could be implemented in lieu of a Federal levee. The most common non-structural measures are: flood insurance, flood warning systems with temporary evacuation plans, flood proofing of damageable property, permanent evacuation and floodplain regulations. Non-structural flood proofing of individual structures would be the responsibility of the State of Missouri, local government and private entities unless the action were an essential feature of a more comprehensive flood damage reduction alternative.

### **4.3.2 No Federal Action.**

The Federal Government would not implement any flood damage reduction measures. The State and/or local government action could be to construct a structural alternative to a level of protection the City determined desirable and affordable. Implementation of this alternative would mean that the State, city, and private individuals would decide whether they would build a structural alternative or implement non-structural measures to protect specific facilities.

### **4.3.3 Flood Insurance.**

The Federal flood insurance program administered by the Federal Emergency Management Agency (FEMA) compensates some property owners for some flood losses and draws attention to the flood hazard.

### **4.3.4 Flood Warning System with Temporary Evacuation Plan.**

This alternative would provide study area businesses and residences with warning of a predicted flood. Additionally, those having the capability to relocate would have the opportunity.

### **4.3.5 Flood Proofing.**

Flood proofing existing structures consists of raising them to place the first floor elevation above the level of threatened flooding or by building flood walls or ring levees around individual structures or groups of structures. These measures would reduce flood damages and benefit only those properties treated.

### **4.3.6 Flood Proofing - Ring Levee at Asea Brown Boveri (ABB) Plant.**

The ring levee is a nonstructural alternative that would protect the ABB plant, a major beneficiary of flood protection. The ring levee would provide no protection to the airport, the wastewater treatment plant, the highway, the MFA plant, or any other properties besides ABB. This plan consists of 8,450 feet of levee, two stoplog closures, and one drainage structure. Plate 1 of the GRR shows this plan. Other

details of this alternative associated with costs are in Section 3, Subsection C of the GRR.

#### **4.3.7 Permanent Relocation/Evacuation/Floodplain Buy Out.**

The town of Cedar City located within the study area has been essentially permanently evacuated. Following the flood of 1993 the City of Jefferson administered acquired properties that could be justifiably purchased. Acquisition was offered primarily to residences and a few smaller businesses in the study area. Even with a substantial amount of the properties acquired and structures removed, the study area contains a considerable number of damageable properties subject to flooding more frequent than the 1.0-percent chance exceedance (100-year) event.

#### **4.3.8 Floodplain Regulations.**

Adopting a set of floodplain regulations using Federal, State and local codes, ordinances, and/or other regulations related to the use of land and construction within the floodplain limits would limit the amount of flood damage incurred on any future development.

### **4.4 NON-STRUCTURAL ALTERNATIVES CONSIDERED FOR FURTHER STUDY**

Two non-structural alternatives were chosen for further study. These include the "no Federal action" alternative and the "flood proofing - ring levee at the ABB Plant" alternative. The following non-structural alternatives were eliminated from further study based on the rationale provided:

#### **4.4.1 Flood Insurance.**

The study area, Jefferson City, Missouri, and Callaway County, Missouri, are currently participants in the National Flood Insurance Program.

#### **4.4.2 Flood Warning System with Temporary Evacuation Plan.**

This alternative would result in the floodplain area being used only by those activities or businesses that could be effectively relocated during times of flooding or would not be significantly damaged during a flood event. This is the present situation and is not a satisfactory solution for those individuals and businesses that are not mobile or suffer significant flood damages.

#### **4.4.3 Flood Proofing.**

A comprehensive flood proofing plan was not evaluated in detail for this project with the exception of a ring levee around the ABB plant. When considering some of the damageable properties, particularly the Jefferson City Airport and the wastewater treatment plant, a flood proofing plan would not constitute a comprehensive plan to satisfy the planning objectives.

#### **4.4.4 Permanent Relocation/Evacuation/Floodplain Buy Out.**

Relocation of an entire airport with towers and runways, a large, high-tech transformer plant, and a wastewater treatment plant with immobile equipment would be cost prohibitive. To implement this alternative, these facilities would have to be abandoned and replaced, not simply moved.

#### **4.4.5 Floodplain Regulations.**

This option is in place in the study area to reduce the potential for future flood damages but does not prevent damages to existing developments.

### **4.5 PRE 1993 FLOOD: STRUCTURAL ALTERNATIVES**

Prior to the flood of 1993, we had formulated several structural plans for the General Reevaluation Report. These plans are referred to as Alternatives 1 through 7. These plans ranged in length from 4.6 miles to 6.4 miles and included various levee alignments, uses of flood walls, drainage structures, ramps, and stoplog gap structures. Subsequent to the flood of 1993, Jefferson City, Missouri, coordinated a buy out program for a majority of the residential area. This mitigated many of the damageable properties that had been considered in the plan formulation process prior to the 1993 flood. This change in land use, in addition to changed hydraulic conditions resulting from the flood, warranted a complete reformulation of alternatives. Analysis of Alternatives 1 through 7 ceased, and we developed a new set of alternatives.

### **4.6 POST 1993 FLOOD: STRUCTURAL ALTERNATIVES**

The new alternatives considered the change in land use, fewer damageable properties, and hydraulic conditions due to changes in the channel and overbank conditions following the flood of 1993. Table EA-1 contains general project details of each alternative formulated. The following alternatives were considered for detailed study.

#### **4.6.1 Alternative 8 and 8a.**

Alternatives 8 and 8a provide flood damage reduction to the damageable properties downstream of Highway 54 for approximately 2.2 miles. The upstream alignment of Alternatives 8 and 8a remain as close as possible to the existing Highway 54 embankment. The concept of using this alignment is to use the existing highway embankment as random fill for the levee alternatives. Since development of this alternative, the Missouri department of Transportation (MODOT) expressed some significant safety concerns for levees in close proximity to highway traffic.

The mainstem levee would run parallel to the Missouri River on the landward side of Mokane Road. The landward side of Mokane Road was chosen for it is out of the Federal Emergency Management Agency (FEMA) regulated floodway. Additionally, the elevation landward of Mokane Road versus riverward ranges from

3-8 feet greater which would reduce the levee fill quantities thereby reducing overall project costs.

The downstream end of Alternative 8 ties into the bluff upstream of a small watershed entering the Missouri River floodplain. The concept of this upstream tieback is that the amount of drainage entering the interior of the levee would be minimized. Alternative 8a ties into the bluff approximately 4,800 feet downstream of alternative 8. The concept of this alignment was that it allows for a greater ponding area for interior drainage and allows sufficient space for the airport approach facilities. Alternatives 8 and 8a are shown on Plate 2 of the Main Report.

#### **4.6.2 Alternatives 9 and 9a.**

Alternatives 9 and 9a would provide flood damage reduction to the damageable properties downstream of Highway 54 for approximately 2.2 miles and to a few smaller businesses upstream of Highway 54. The concept for the upstream alignment was developed based on the facts that: 1) the levee would not cause a safety concern for Highway 54 expressed by MODOT, 2) the real estate costs would be less as the project moves away from Highway 54, and 3) there would be a few more benefits with a minimal change in the levee alignment. Like Alternative 8, the mainstem levee alignment parallels the Missouri River landward of Mokane Road. The downstream tiebacks for Alternatives 9 and 9a are similar to Alternatives 8 and 8a, respectively. Plate 3 of the Main Report contains this proposed levee alignment.

#### **4.6.3 Alternatives 10 and 10a.**

Alternatives 10 and 10a were considered to provide flood damage reduction to the damageable properties downstream of Highway 54 for approximately 2.2 miles, and to businesses ranging from 1000 to 2000 feet upstream of Highway 54. The concept for the upstream alignment, like Alternatives 9/9a, was developed based on the following facts: 1) the levee would not cause a safety concern for Highway 54, as expressed by MODOT, 2) the real estate costs would be less as the project moves away from Highway 54, and 3) there would be a few more benefits with a minimal change in alignment. The mainstem levee alignments also parallel the Missouri River landward of Mokane Road, and the downstream tiebacks for Alternatives 10 and 10a are similar to the other alternatives as discussed. Alternatives 10 and 10a are shown on Plate 4 of the Main Report.

#### **4.6.4 Alternative 10 With Missouri River Dredging.**

A Missouri river dredging alternative was developed based on concerns expressed from different parties about the feasibility of using dredged material from the Missouri River for levee fill. As a result of this concern a screening level cost estimate was developed for Alternative 10 to provide flood damage reduction for the 0.2 percent frequency event. The results of this analysis showed that the costs associated with dredging for fill material greatly exceeded the costs of acquiring land-based fill material.

#### 4.6.5 Alternative 11.

Alternative 11 is an alternative that was requested for analysis by the non-Federal sponsor. This alternative is similar to Alternatives 10/10a for the upstream alignment and for the mainstem alignment parallel to the Missouri River. The downstream alignment however, extends to the right bank tributary of Niemann's Creek. Plate 5 of the Main Report shows Alternative 11.

**Table EA-1  
Alternatives  
Considered**

| <b>Alternative Considered</b> | <b>Length (feet)</b> | <b>Length (miles)</b> | <b>Drainage Structures</b> | <b>Stoplog Gaps</b> |
|-------------------------------|----------------------|-----------------------|----------------------------|---------------------|
| Alternative 8                 | 24,400               | 4.62                  | 8                          | 3                   |
| 8a                            | 24,900               | 4.72                  | 8                          | 3                   |
| Alternative 9                 | 22,950               | 4.35                  | 5                          | 3                   |
| 9a                            | 23,450               | 4.45                  | 5                          | 3                   |
| Alternative 10                | 23,725               | 4.49                  | 5                          | 3                   |
| 10a                           | 24,225               | 4.59                  | 5                          | 3                   |
| Alternative 11                | 28,580               | 5.41                  | 6                          | 3                   |

#### 4.7 STRUCTURAL ALTERNATIVES CONSIDERED FOR FURTHER STUDY

Five structural levee alignments were chosen for the final analysis. These levee alignments are labeled Alternatives 9, 9a, 10, 10a, and 11. The alignments differ in how much property they protect immediately west of Highway 54 and in how far downstream they extend. Prior to detailed examination of the final array of alternatives, Alternatives 8 and 8a were dropped from consideration. Compared with Alternatives 9 and 9a, there are less benefits and larger costs, which suggest that Alternative 8/8a could not be the NED plan. The Missouri River dredge material option added to Alternative 10 was also dropped from final consideration. When comparing Alternative 10, estimated at the 0.2 percent exceedance event, the cost of the dredge material option provides the same benefits but is 30 percent more expensive, and is more environmentally damaging than obtaining land-based fill material.

#### 4.8 CONCLUSION OF THE INITIAL ALTERNATIVE SCREENING PROCESS

Seven alternatives were taken into detailed examination to determine the NED plan. The seven alternatives are 9, 9a, 10, 10a, 11, the ABB ring levee, and No Federal Action.

#### **4.9 DISCUSSION OF THE NATIONAL ECONOMIC DEVELOPMENT PLAN**

Benefits and costs of a project are evaluated based on their impacts on national wealth (not just on the wealth of the region directly affected by the project). After the benefits and costs are calculated, the net benefits, or the excess of benefits over costs, are identified for each plan. The plan with the highest net benefits (not necessarily the highest benefit-cost ratio) is considered the NED plan.

The risk analysis concluded that the NED plan is alignment 10a, which protects against a water surface elevation of 564.0 for the index point of river mile 142.8 (details shown in Tables 10 and 11 of Section 4.0 of the GRR). However, virtually all heights tested for all six alignments showed positive net benefits, suggesting strong economic feasibility for a project at L142.

Based on the discussions in Section 4.0 of the Main Report the NED Plan was determined to be Alternative 10a. The likely non-Federal Sponsor, Jefferson City, Missouri, has reviewed this plan and accepts it as the Sponsor Preferred Plan.

#### **4.10 IDENTIFICATION OF THE PREFERRED ALTERNATIVE**

During the development of a more detailed engineering analysis and requests from the likely non-Federal Sponsor, some minor changes were made to the NED plan identified in Section 4.8 above as Alternative 10a. The preferred plan is shown on Plate 6 of the Main Report. These changes include:

- (1) Addition of a stoplog gap at station 49+05 (Oilwell Road ),
- (2) Addition of a stoplog gap at station 65+20 (Cedar City Drive),
- (3) Addition of a stoplog gap at station 92+10 (actually 2 gaps for north and south bound lanes on Highway 54/63),
- (4) Removal of a stoplog gap at station 130+00 (access to Wastewater Treatment Plant, new access will come in from the back side),
- (5) Addition of a drainage structure at station 48+00,
- (6) Adjusting the levee for a better hydraulic transition and HMGP land use restrictions for the roadway alignments for stations 55+00 through 83+00 (Former Cedar City Area) and avoidance of possible petroleum contaminated soils,
- (7) Moving the levee closer to the Katy Trail from stations 12+00 through 17+00,
- (8) Moving the levee landward where it parallels Mokane Road to account for environmental concerns,
- (9) Detailed consideration of the utilities passing through the levee embankment,
- (10) Moving the downstream tieback eastward approximately 500 feet to avoid archeological sensitive areas,
- (11) Modification of drainage structure design requirements to account for a 48-inch minimum pipe diameter, and

(12) Real estate to account for minimum drainage facilities requirements through the preferred levee alignment.

(13) Detailed consideration of demolitions required to account for FEMA reductions along the revised proposed alignment

(14) Incorporation of public comments, where appropriate, following the distribution of the draft GRR and subsequent public meeting.

Any cost savings and or increases that would have been added to the entire array of alternatives as a result of the aforementioned changes would have had no impact on the preferred plan selection. These modifications would not have changed the rankings, optimized level of protection, or National Economic Development (NED) Plan selection in the evaluation of alternatives. Therefore, the preferred plan (NED Plan) is Alternative 10a with the changes described above. Table EA-2 contains pertinent data for the levee alternatives based on the changes made to Alternative 10a (NED Plan).

**Table EA-2**  
**Levee Components for Alternatives Studied**

*(Showing modifications to Alternative 10a labeled as the NED plan)*

| <b>Alternative Considered</b> | <b>Length (feet)</b> | <b>Length (miles)</b> | <b>Drainage Structures</b> | <b>Stoplog Gaps</b> |
|-------------------------------|----------------------|-----------------------|----------------------------|---------------------|
| Alternative 8                 | 24,400               | 4.62                  | 8                          | 3                   |
| Alternative 8a                | 24,900               | 4.72                  | 8                          | 3                   |
| Alternative 9                 | 22,950               | 4.35                  | 5                          | 3                   |
| Alternative 9a                | 23,450               | 4.45                  | 5                          | 3                   |
| Alternative 10                | 23,725               | 4.49                  | 5                          | 3                   |
| Alternative 10a               | 24,225               | 4.59                  | 5                          | 3                   |
| <b>NED PLAN</b>               | 24,800               | 4.7                   | 6                          | 5                   |
| Alternative 11                | 28,580               | 5.41                  | 6                          | 3                   |
| ABB Ring Levee                | 8,450                | 1.60                  | 1                          | 2                   |

Item (8), above, states a change was made to move the levee landward where it parallels Mokane Road for environmental considerations. These environmental considerations included avoiding two large specimen trees, one pecan, and one cottonwood. These trees were considered to be at least 100 years old and provide valuable wildlife habitat. They both meet habitat criteria for use by Federally listed bald eagles and Indiana bats and were therefore avoided to reduce possible negative effects to threatened and endangered species. This modification will also avoid an area that had potential for HTRW concerns in the form of leaking underground storage tanks. Also the alignment was adjusted as mentioned in Item #10 to avoid constructing on or near an identified cultural resource sight that could potentially qualify as eligible for listing on the National Register. Therefore, with these minor modifications, Alternative 10a is the Environmentally Preferred alternative as well as the NED Plan.

The discussion of Environmental Consequences in Section 6.0 of this Environmental Assessment takes into consideration the changes mentioned above when discussing effects of the *Preferred Alternative (10a)*, which is identified as the *NED Plan* in the table above. The Preferred Alternative is defined for the purposes of this EA as Alternative 10a modified with the above mentioned changes.



## **5. AFFECTED ENVIRONMENT**

It is necessary to describe the environment that may be affected by the implementation of any of the alternatives discussed in Section 4 prior to assessing specific consequences resulting from their implementation. This section is divided into three subsections: natural resources, socioeconomic resources, and cultural resources.

### **5.1 NATURAL RESOURCES**

Natural resources evaluated in this EA for the eight alternatives include air quality and noise, geology and soils, prime and unique farmland, hazardous/toxic/radioactive wastes, surface and ground water, wetlands, vegetation, fish and wildlife, and an important subset of fish and wildlife, threatened and endangered species.

#### **5.1.1 Air Quality and Noise**

Air quality in this predominantly rural environment is generally considered good. Traffic flow along Highway 54/63 may occasionally produce noticeable emissions. Aircraft and heavy equipment associated with airport and other commercial activities located in the area may also emit noticeable odors.

Air traffic would contribute some increase in noise levels in an area that is otherwise predominantly agricultural. Additional noise may be generated by operation of heavy equipment in the project area such as farm equipment. Also noise associated with traffic from Highway 54/63 is present.

#### **5.1.2 Geology and Soils**

The regional geology in the project area lies between the Dissected Till Plains and the northern edge of the Ozark Plateaus. The strata are of the Ordovician System, Canadian Series. Formations and relative thickness of the units in the region moving up-strata are the Gasconade (290 feet), Roubidoux (90 feet), and Jefferson City/Cotter (345 feet). At the flanks of the Ozark Dome, the strata have a general east-west strike and a dip of 1-degree to the north.

The study area is located within the alluvial valley of the Missouri River. The site is relatively flat with the ground elevation varying between 535 and 570 feet, NGVD. The proposed levee system would be filled with alluvial deposits consisting of gravel, sand, silts and clays. Two broad strata are present: (1) a substratum of highly permeable sand and gravel, varying in thickness between 75 and 80 feet; and (2) a fine-grained top stratum of silty clay, which is less permeable, ranging in thickness between 5 and 15 feet. The bottom of the blanket would be approximately at elevation 530.0 feet, NGVD.

A large sand and gravel operation presently operates adjacent to the Missouri River and Highway 54 at the southwest end of the project area. The floods of 1993 and 1995 also deposited sand on many acres of agricultural land within the project area. Some of this deposited sand has been removed or tilled into existing soils to allow the land to be farmed again. However much of the land riverward of Mokane road contains large amounts of deposition and is not presently farmed. In addition, a stone/gravel quarry operates at the edge of the bluffs in the vicinity of where the proposed levee downstream tieoff meets these bluffs.

Soils present that are not prime farmlands are of the Hodge soil series. Hodge soils are composed of loose loamy fine sands of low natural fertility. Hodge soils form in sandy alluvium as a result of flooding. The riverside lands to the south of Mokane Road were covered with an extensive amount of sand during the 1993 flood.

### **5.1.3 Prime and Unique Farmland**

There are no unique farmlands located within the project area. All but 59 of the 180 acres of land required for the project would be classified as prime farmlands based on estimates from the Natural Resource Conservation Service (NRCS). Lands not qualifying as prime lands are those that have been developed, built up, ruined by sand deposition from flooding, or poorly drained.

Prime farmland soil types in the project area are of the Grable and Leta soil series. The Waldron and Booker soil series also qualify because these two soil types have been adequately drained in the project area. Grable is a very fine sandy loam with a loamy substratum and Leta is a silty clay loam with a sandy substratum. Waldron is a silty clay with a loamy substratum (prime farmland only where drained) and Booker is a silty clay (prime farmland where drained).

Detailed Geology and Soil information is located in Appendix B - Engineering and Design Analysis, Section 4 - Geotechnical.

### **5.1.4 Hazardous, Toxic, and Radioactive Waste Considerations**

We performed an initial hazardous, toxic, and radioactive waste (HTRW) assessment for the project in accordance with Engineer Regulation (ER) 1165-2-132. The assessment considered the potential for encountering contamination during project construction. The assessment consisted of reviewing existing regulatory documentation from the Environmental Protection Agency (EPA) and the Missouri Department of Natural Resources (MDNR), and historical aerial photographs. Additionally, interviews with local officials and site reconnaissance provide information regarding current and former land use activities

Information collected during the assessment indicates that there are no active CERCLA site is within a 2 miles from the project area. In the RCRA database, three hazardous waste generators were identified within the project area. ABB Power T&D Company is listed as a large quantity generator while Lauf Equipment Company and

the Army Aviation Support facility are listed as small quantity generators. Even though these hazardous waste generators represent potential sources of contamination, the RCRA listings do not imply non-compliance. A review of the public record and field reconnaissance did not yield any indication of contamination associated with these facilities.

Information obtained from MDNR indicates that no site on the State Hazardous Waste Registry is within 2 miles of the project area, and the project area is free of active landfills. Information from the Underground Storage Tank Program indicated that several leaking underground storage tanks (LUST) were in the project area before 1995. At present, all the LUST site identified in the assessment have been formally closed out following MDNR procedures, and testing conducted by MDNR has shown that any remaining petroleum contamination is below regulatory action levels.

### **5.1.5 Surface and Ground Water**

In general, water quality in the project area is good. Surface water in the project area consists of the Missouri River, minor tributary streams and wetlands that have been formed by historic channel shifting and scour areas resulting from 1993 floods. The ground water in the project area is dependent upon both surface uses and the Missouri River.

### **5.1.6 Wetlands**

In October of 1994 a preliminary jurisdictional wetland determination was conducted for the study area. There were 7 probable wetland areas which were identified in this delineation that could be directly impacted by the proposed levee alignments being considered at that time. During the course of that delineation, 3 additional areas were also identified by the Field Investigator as meeting wetland criteria under the 1987 Manual and were added to the list of wetlands. Between the 10 sites there was a total of 24.6 acres of wetlands which could be directly impacted by the proposed levee alignments.

On July 1, 1998, Personnel from KCD and NRCS conducted a final jurisdictional wetland delineation for the entire study area. A wetland hydrology review of Memorandum of Agreement (MOA)-defined agricultural lands in the project area using USDA aerial crop slides was conducted. All slides were summer slides (June, July or August) taken in 1980, 1981, 1984, and 1986 through 1997. Slide coverage was not complete for most areas. Monthly rainfall data collected at Jefferson City Water Treatment Plant was used to determine if a particular slide was a wet, normal or dry year, by assessing for each of the 3 prior months, if measured precipitation was more than or less than the "normal" range of the average monthly precipitation. Approximate hydrology boundaries were drawn on photocopies of an aerial photograph for refinement following onsite review. This aerial photograph was then electronically scanned and transferred to a GIS dataset. A map of the delineated wetlands is located at the end of Section 5.0. Table EA-3 contains a description and associated acreage for Jurisdictional Wetlands within the entire study area.

**Table EA-3  
Total Wetland Acreage for the Entire Study Area**

| Site Number | Description/Remarks   | Acres         |
|-------------|---|---------------|
| 1.          | Farmed wetland/old KATY Trail borrow area                     | 1.6*          |
| 2.          | KATY Trail borrow ditch (17.5 feet wide)                      | 4.2           |
| 3.          | Wooded upland (80%)/wetland (20%) complex 2.8x0.2=            | 0.6*          |
| 4.          | Pit with fringe wetlands (DA permit 96-00912)                 | 0.17          |
| 5.          | Farmed wetlands (2 areas)                                     | 0.8*          |
| 6.          | Emergent wetland adjacent to wooded slope                     | 6.8           |
| 7.          | MODOT mitigation DA permit 2SB OXR 1 673                      | 0.4*          |
| 8.          | Emergent wetlands (3 areas)                                   | 2.8*          |
| 9.          | Emergent and farmed wetlands (7 areas)                        | 20.0*         |
| 10.         | Farmed wetland  | 0.8*          |
| 11.         | Farmed wetland  | 2.0*          |
| 12.         | Flood scour holes (3) with fringe wetlands                    | 1.6*          |
| 13.         | Emergent and farmed wetlands (6 areas)                        | 7.6*          |
| 14.         | Wooded wetland  | 15.2*         |
| 15.         | Wooded and farmed wetlands                                    | 4.8*          |
| 16.         | Wooded and farmed wetlands with open water                    | 12.8*         |
| 17.         | Farmed wetlands (5 areas)                                     | 13.2*         |
| 18.         | Old pit with fringe wetlands                                  | 0.1*          |
| 19.         | Old borrow ditch between Highway 94 and KATY trail (12' wide) | N/A           |
| 20.         | Emergent and farmed wetlands (5 areas)                        | 9.2*          |
| 21.         | Emergent and farmed wetlands (5 areas)                        | 8.4*          |
|             | <b>TOTAL ACREAGE</b>  | <b>113.07</b> |

**\*Indicates acreage estimate by “dot counting” method.**

Ephemeral/farmed wetlands, which exist during the spring and early summer and then tend to dry up during mid to late summer, are the predominant wetland type present in the project area. Average depth of these wetlands is approximately 6 to 18 inches. Soft rushes and sedges are the main vegetation growing in these shallow wetlands. It appears that the entire project area has been hydrologically altered either by the construction of levees and/or drainage ditches or the placing of tiles.

Wetland types listed on the National Wetland Inventory (NWI) maps for the area include, temporarily flooded palustrine emergent wetlands (PEMA), seasonal flooded palustrine emergent wetlands (PEMC), excavated unconsolidated bottom intermittently exposed palustrine wetlands (PUBGx), seasonally flooded broad-leaved deciduous scrub-shrub wetlands (PSS1C), and lower perennial unconsolidated bottom permanently flooded riverine wetlands (R2UBH). Both the PEMA and the PEMC wetlands are herbaceous marshes that during dry years are farmed. The PUBGx wetlands are located next to a rock quarry in the area next to the bluffs at the northern end of the project limits. These wetlands were probably excavated as part of the quarry operation. The PSS1C wetlands are associated with a drainage ditch/disturbed creek channel and probably act as a transition area between forested wetlands and former herbaceous wetlands. The R2UBH listed “wetland” is the main channel of the Missouri River.

None of the wetlands landward of the proposed levee are “high quality” wetlands. These wetlands are dry during the majority of the year, although pools may temporarily form in low spots after rains.

During the spring, migrating waterfowl such as blue wing teal can be seen using the deeper wetland areas south of Mokane Road, which are usually associated with remnant meander scars or scour holes created during flood events. Sandpipers and other shorebirds wade and feed in the shallow wetlands. Some redwing blackbirds do nest in the area. Brown thrashers, eastern kingbirds, grackles, cowbirds, doves, goldfinches, and warblers, can also be observed in the trees and shrubbery growing in the drainage ditches. Chorus frogs and American toads are commonly heard calling throughout the area in the spring. These wetlands are capable of providing breeding grounds for amphibians. They may also provide habitat during portions of the year for reptiles such as the common snapping turtle, painted turtle, eastern hognose snake, northern water snake and midland brown snake.

### **5.1.7 Terrestrial Vegetation**

Vegetation within the project area is predominantly agricultural cropland. Crops in the area consist of corn, soybeans, wheat, and as observed, several acres of pumpkins and watermelons. Wetland vegetation exists along the Missouri River, various streams, drainage ditches, and in the old meander scar wetlands scattered across the historic floodplain. Some of the herbaceous plants observed in the area included red clover, curly dock, buckhorn plantain, woods violets, dandelions, downy brome and other common grasses.

Most forest cover once found in the area has been cleared for agricultural use. Any remaining remnants are found in linear strips along interior drainages and adjacent to the Missouri River. The remnant floodplain forest riverward of the levee consists of large cottonwood trees with an understory of silver maple, elm, mulberry, locust, Virginia creeper, poison ivy, riverbank grape, and dogwood. Trees in the drainage immediately to the east of the wastewater treatment facility included some sycamores. Occasional large lone cottonwood and pecan trees are found scattered throughout the project area. It is possible these large pecan/cottonwood trees are potential endangered Indiana bat habitat, as well as roosting and perching sites for bald eagles and other raptors.

### **5.1.8 Fish and Wildlife**

Wildlife found in the project area would be representative of animals found in an intensively cultivated agricultural community. These animals use various habitats within the project area. The adjacent bluffs, the edges of the cropped fields, and the drainages and wetlands adjacent to the Missouri River would be the main habitat types found in this area. Intensive farming methods limit the habitat available for wildlife on cropped lands for the majority of the year. Some wildlife could use the cropped fields during the summer and early fall months when vegetation is present. The wildlife that utilize this habitat would more than likely be migrating from their

preferred habitat located in the bluffs, or adjacent to larger streams and the Missouri River.

Common mammals found within and adjacent to the project area would be white-tailed deer, quail, opossum, raccoon, ground hog and various rodents. Amphibians and reptiles found in the area would generally include common species of frogs, turtles and snakes. Waterfowl, and shorebirds would use the wetlands in and near the project area. Resident and migratory birds, and songbirds could use the remnant woody, or grassy habitats in the area.

The primary fishery that exists in the project area is that of the Missouri River. Some small fish may be able to survive in the deeper scour hole areas, however, these areas are filling in and will eventually become shallow wetlands or completely terrestrial.

A wildlife habitat appraisal model was used to evaluate the habitat values within the project area. The model used was the Missouri Department of Conservation's Wildlife Habitat Appraisal Guide (WHAG), which is a modified Habitat Evaluation Procedures (HEP) model. The scoring sheets and model results are located in Appendix F, which also contains the Fish and Wildlife Coordination Act Report (CAR). Six WHAG analyses were conducted using existing conditions, future without project conditions, and future with project conditions. Each of these conditions was run using two different wetland matrices, cropland-wetland and nonforested wetland. Of all the evaluation species, only the king rail scored a Habitat Suitability Index (HSI) value of greater than 0.1 under existing conditions. This can be interpreted to mean that the established WHAG species models showed effectively no habitat value exists for any of the evaluation species currently in the project area.

### **5.1.9 Threatened and Endangered Species**

The current status of sensitive species (those currently listed for protection at the Federal or State level or that may become listed in the future) that may be found at L142 was obtained from lists provided by the USFWS. The possible presence of these species at L142 was determined through consideration of habitat and ranges. Federally Threatened or Endangered species that may exist within or adjacent to the project area include the bald eagle (*Haliaeetus leucocephalus*), Indiana bat (*Myotis sodalis*) and pallid sturgeon (*Scaphirhynchus albus*). The status of these species and the likelihood of finding them at L142 are provided in Table EA-4.

**Table EA-4  
Sensitive Species**

| Species                                     | Federal Status* | Possibility at L142                          |
|---|-----------------|--|
| Bald Eagle <i>Haliaeetus leucocephalus</i>  | T               | Winter resident, possible nesting            |
| Indiana bat <i>Myotis sodalis</i>           | E               | Winter hibernacula, summer breeding/resident |
| Pallid sturgeon <i>Scaphirhynchus albus</i> | E               | Possible                                     |

\* *T = Threatened*      *E = Endangered*

The bald eagle is primarily a seasonal migrant that passes through the project area. However, bald eagles have become more common nesters in Missouri, largely because of increased management efforts. A pair has nested approximately two miles upstream of the proposed project in past years. This nest was not active during the flood of 1993 and the pair did not return in 1994. Due to the highly disturbed nature of the project area, especially associated with the airport, there is very little habitat present in the area that is suitable for use by bald eagles.

The Indiana bat is a resident in the area of the proposed project. The Indiana bat is common along small stream corridors. Caves or openings in the area are located in the adjacent bluffs which would not be affected by the project. Literature indicates that large trees (16 inches D.B.H or larger, dead or alive) with loose bark are particularly important for use as maternity/roost sites during the spring and summer months.

The Missouri River within the area of L142 is within the historic range of the pallid sturgeon. The range of the pallid sturgeon is primarily the Missouri River and the Mississippi River downstream of its confluence with the Missouri River. Pallid sturgeon require large, turbid, free-flowing, braided-channel riverine habitat with sandy and rocky substrates. Modifications to this species historic habitat ranges have blocked movements, destroyed or altered its spawning areas, reduced its food sources or its ability to obtain food, altered water temperatures, and changed the hydrograph of the large riverine habitat it requires to successfully complete its life cycle.

## **5.2 SOCIOECONOMIC RESOURCES**

### **5.2.1 General.**

The 1999 population of Jefferson City was 35,406, compared to 35,481 in 1990, 33,619 in 1980 and 32,407 in 1970. State government is the major employer in the city. The third largest employer and second-largest private-sector employer is the ABB plant located within the study area, with about 900 employees. About 1,200 people work at the 24 businesses and public enterprises in the study area. Appendix C of the GRR contains a detailed socioeconomic analysis.

### **5.2.2 Land Use**

The upstream portions of the study area on both sides of U.S. Highway 54 are industrial zones. The dominant enterprises in this part of the area are the Jefferson City Airport and an adjacent Missouri Air Guard aviation facility, a major transformer manufacturing plant, a water pollution treatment plant, and an agribusiness plant. About 16 public or private enterprises and 47 residences are located in the study area. Land usage in the downstream portion of the study area is primarily agricultural; about 1,100 acres of typical Missouri River bottomland is used to farm soybeans, corn, and other crops.

### **5.2.3 Recreation**

The Missouri-Kansas-Texas (MKT) Railroad, better known as the Katy, has been converted to a bicycling and hiking trail called the Katy Trail. It runs adjacent to the bluffs at the north edge of the project area. Jefferson City has purchased an abandoned railroad spur that runs from the Katy Trail into the abandoned town of Cedar City. The City has surfaced this spur for use as a hiking and bicycling trail and has incorporated it into the Katy Trail system. The City has also constructed a park with a picnic shelter and large parking lot at the end of this spur. The Jefferson City trailhead for the Katy Trail has been proposed to be moved to this park location. The city also has future plans to incorporate a "trail/walkway" onto the Missouri River Bridge.

### **5.2.4 Transportation**

Access is provided by U.S. Highway 54/63, which connects the area to downtown Jefferson City to the south and to Columbia and Interstate Highway 70 about 30 miles to the north. East-west access is provided by Missouri Highway 94 as well as U.S. Highway 50, which is intersected in downtown Jefferson City and is the chief east-west route. No railroads are active in the area; the abandoned M-K-T line at the north edge of the area is now used as the local portion of a major recreational bicycle path called the Katy Trail which traverses much of the State's midsection. The City's airport, serving primarily industrial and state government uses, is in the study area.

### **5.2.5 Wastewater Treatment**

The Jefferson City Water Pollution Control Plant is located within the project area. This facility handles 7.5 million gallons of water per day for all of Jefferson City as well as the small town of Holt's Summit and the rural western portions of Cole County. The plant's limits are currently reaching maximum capacity. The City plans to either double the capacity of the existing plant or build a new plant with twice the present capacity over the next few years. The exact date the expanded or new plant will be operational is unknown as of this writing, but the best information suggests it should be in operation by the base year of 2006.

The sewage treatment plant is severely impacted during flood events. It was closed for four months during the 1993 flood and for 24 days during the 1995 event. During the 1993 closing, about one billion gallons of unprocessed sewage entered the Missouri River. Another 200 million gallons of unprocessed sewage entered the river

in 1995. These incidents resulted in Jefferson City being considered the state's worst violator of hazardous-spill regulations by the Missouri Department of Natural Resources in both 1993 and 1995.

### **5.3 CULTURAL RESOURCES**

A Phase I cultural resources survey of the project area was directed by Corps Archeologist, Dr. Robert Ziegler, during April and May, 1996. The survey consisted of a: (1) literature search of the cultural resources reports in the library of the Department of Natural Resources/Historic Preservation Program (DNR/HPP) in Jefferson City, Missouri; (2) file search of the records at the Archaeological Survey of Missouri (ASM) in Columbia, Missouri; (3) review of historic Missouri River maps housed in the KCD office; and (4) field survey of the project area.

The literature and records search indicates that there is a total of nine recorded cultural resources and two steamboat wreck sites within or near project boundaries but none is listed on the National Register of Historic Places (NHRP). No additional sites were recorded during the field survey.

Three sites (23CY43, 23CY44, and 23CY45) are Indian burial mounds constructed on the bluffs to the north and beyond the boundaries of the proposed project. The cultural affiliation of these mounds is unknown. Another three sites (23CY236, 23CY597, 23CY600) are prehistoric habitation sites and one (23CY602) is a historic scatter. These sites are located on the floodplains and terraces of the Missouri River and nearby Turkey Creek.

Two sites are historic cemeteries. The Harthill Cemetery (23CY42) is situated on a blufftop to the north and beyond the boundaries of the proposed project and is clearly demarcated by a chain-link fence. The cemetery contains 19th and 20th century graves with several of the 19th century graves excavated into a low mound near the face of the blufftop that appears to be an earlier Indian burial mound. The Shiloh Methodist Church Cemetery (23CY593) is located in a mowed field across the street from the Missouri Department of Conservation's hangar building at the Jefferson City Airport. The original Shiloh Church, built in 1851, was dismantled and moved to Cedar City in 1876, and, after the Great Flood of 1993, was moved again to Holt's Summit, 5 miles north of Cedar City on Highway 54. During the Great Flood of 1993, scouring at the old cemetery exposed the remains of 18 individuals. These remains were removed for study and reburied in another cemetery. It is not known whether any more human remains still exist at the old Shiloh Cemetery.

Two 19th century steamboats, the Sadie Fisher and the Morning Star, sank in the Missouri River in an area south of Mokane Road that is now accreted land. It is unknown if anything significant remains.



## 6. ENVIRONMENTAL CONSEQUENCES

This section evaluates the potential consequences of implementing any of the alternatives described in Section 4.0. The organization of Section 6.1 through 6.3 parallels the affected environment discussion presented in Section 5.1 through 5.3. All other levee alternative alignments are considered under one heading rather than breaking them out individually for analysis, as effects on resources were considered to be similar for all the alignments. As discussed at the end of Section 4.0 the Preferred Alternative is the modified Alternative 10a. Table EA-6, at the end of this section, is a matrix that compares and summarizes impacts on resources versus the various alternatives evaluated.

### 6.1 NATURAL RESOURCES

#### 6.1.1 Air and Noise Quality.

*Preferred Alternative:* No significant changes to air quality or noise should occur with the implementation of this alternative. Increased air emissions may occur during the construction phase of the project. Some increased noise from heavy machinery may occur during construction, although it would be similar to other types of machinery currently operating in the area. Both of these increases would be temporary and minor.

*All Other Levee Alignment Alternatives:* Air quality and noise effects for these alternatives would be similar to the Preferred Alternative described above.

*ABB Ring Levee Alternative:* Air quality and noise would not be changed from current conditions if this alternative were implemented.

*No Action Alternative:* No significant changes to air quality or noise quality should occur with the implementation of this alternative.

#### 6.1.2 Geology and Soils.

*Preferred Alternative:* Once the levee was constructed, agricultural lands interior of the levee would benefit from protection provided by the levee. Therefore these lands would have increased benefits post-construction. Agricultural lands riverward of Mokane road that are proposed for use as impervious borrow will also benefit from this activity. Currently, this land is idle and does not meet the Prime farmland criteria due to the extensive deposition from the floods of 1993 and 1995. Sand material deposited in this area during the flood events would be removed. This land could then be farmed again and may re-qualify as Prime farmland. Agricultural lands used for impervious borrow material will have the top 3 to 4 feet of soil removed. These areas will be graded and seeded after construction is complete to reduce soil erosion. We anticipate that most of these lands would be planted to row crops upon completion of the project. Some low lying areas would exist to replace

farmed wetlands impacted by construction activities and the levee itself. These low areas should hold water during wet periods and may be unfarmable.

***All Other Levee Alignment Alternatives:*** Effects to soils and geology from the other levee alignment alternatives considered in this study would be similar to the preferred alternative described above. Some of these levee alignments are shorter than the preferred alternative so impacts from borrow activities and the levee footprint would be somewhat less. Alternative 11 is longer than the preferred alternative and would have slightly more impacts to soils and geology than the preferred alternative.

***ABB Ring Levee Alternative:*** Because the ring levee would require substantially less fill material, and would also have a much smaller footprint, this alternative would have less adverse effects on soils and geology than the preferred alternative. However, farmland protected by the preferred alternative would not receive the benefits of levee protection with this alternative.

***No Action Alternative:*** This alternative would not require soils for borrow material therefore it would have no effects on soils or geology. However this alternative would not remove deposition currently present riverward of Mokane road. Therefore, this land would continue to not qualify as prime farmland. This alternative also does not provide protection for lands in the area from future flood events.

### **6.1.3 Prime and Unique Farmland**

***Preferred Alternative:*** There are no unique farmlands in the project area. Construction of the NED Plan would remove a total of approximately 180 acres of land as a result of levee construction. Of those acres, 121 are considered prime farmlands according to the NRCS evaluation and would be converted. Approximately 295 acres would be required to supply impervious levee fill material and would receive temporary impacts associated with borrow activities, but would not be permanently converted from farmland to non-farmland. Of this 295 acres, 152 acres are considered prime farmland by the NRCS. Included in the borrow acreage is 42 acres that would be removed permanently from agricultural production and converted to wetlands and grasslands. These wetlands and grasslands would be mitigation areas kept in perpetuity for this purpose. Should a different alternative be considered, the NRCS would be contacted and adjustments made to the total acreage of prime farmlands. The NRCS's comments and coordination for compliance with the Farmland Protection Policy Act (FPPA) on prime and unique farmlands in the area are included in Appendix A to the GRR. The levee, if constructed, would provide protection to approximately 900 acres of cropland. These lands, most of which are considered prime farmland, would gain much greater protection from future flood events than that provided by the private levees currently in place.

***Other Levee Alignment Alternatives:*** Effects to prime farmlands from these levee alignments would be similar to the effects of the preferred alternative described above. Acreages would change slightly for Alternative 11 as it has a longer levee

alignment and would require more borrow material. However, Alternative 11 also provides the benefits of flood damage reduction to the greatest farmland acreage.

***ABB Ring Levee Alternative:*** Effects to prime farmlands from constructing a ring levee around the ABB plant would be limited to those associated with borrow activities for construction of the levee. The land immediately adjacent to the plant, where the levee footprint would be, is not farmed.

A secondary impact to prime farmlands from this alternative would be the loss of protection from future flood events. With this alternative, no prime farmlands would be protected. Also, deposition from past flood events would not be removed from the area south of Mokane road. Therefore it is likely that this area would remain unfarmable as it would be cost prohibitive for individual landowners to remove this amount of deposition, as evidenced by the fact that this area currently remains idle.

***No Action Alternative:*** No impacts to prime farmlands would occur if the no action alternative were implemented. However, no protection from future flood events would be realized either. Also there would be no removal of flood deposition materials from lands south of Mokane Road that were classified as prime farmlands prior to the flood events.

#### **6.1.4 Hazardous, Toxic and Radioactive Waste Considerations**

***Preferred Alternative:*** Based on the initial HTRW assessment conducted for the area, contamination does not appear to present a major risk to the L142 project. However, since the assessment did identify several Leaking Underground Storage Tank (LUST) sites, a limited site investigation may be warranted to confirm the presence or absence of petroleum contaminated soil.

***Other Levee Alignment Alternatives:*** Effects from these alternatives would be similar to the preferred alternative.

***ABB Ring Levee Alternative:*** Risks for encountering HTRW sites with this alternative are similar to those of the preferred alternative. Less borrow material would be required for this project, and, therefore, chances for encountering HTRW sites are reduced.

***No Action Alternative:*** No effects for HTRW contamination should occur as a result of implementing the no action alternative.

#### **6.1.5 Surface Water**

***Preferred Alternative:*** Surface waters other than wetlands that exist in the project area would be little affected by the proposed action. Little surface water exists in this area due to the proximity of the airport. Surface water attracts waterfowl and other birds regarded as a safety hazard by airport regulators. The levee alignment is located outside the FEMA regulated floodway. For the 10-percent and

2-percent-chance exceedance flood events, the impact of this levee alternative is negligible. For the 1-percent-chance exceedance flood event, the water surface elevations through the project reach increases less than 0.2 feet. For the 0.2-percent-chance exceedance flood event the water surface elevations through the project reach increase between 0.2 and 0.6 feet for alternatives 8 through 10a. Upstream impacts from this alternative for the 10-percent- and 2-percent-chance exceedance flood events are negligible. At the downstream end of the project, channel and overbank velocities are not increased until the 0.2-percent-chance exceedance flood event. For more detailed information on Missouri River flood profile impacts refer to Section 2.02.c.12. Project Impact in Appendix B.

No borrow activities associated with dredged material from the Missouri River will be utilized with this alternative. Turkey Creek in the northeast corner of the project area will benefit from this alternative. The levee that currently runs parallel to Turkey Creek will be removed and utilized as borrow material. The creek will then gain back some of its floodplain and will be allowed to overflow in the proposed wetland mitigation area.

***Other Levee Alignment Alternatives:*** These levee alignment alternatives would have similar effects on surface waters in the project area as the preferred alternative described above. Impacts to surface water elevations of the Missouri River during flood events is slightly higher for Alternative 11 than those associated with the preferred alternative (Refer to Sect. 2.02.c.12, Project Impact in App. B).

***ABB Ring Levee Alternative:*** No negative effects to surface waters in the project area from this alternative would be anticipated. However, no positive effects associated with Turkey Creek would be expected as the levee would not be utilized for borrow material. Also, the wetland mitigation area proposed for the preferred alternative would not be constructed in this area. Therefore Turkey Creek would not gain any floodplain with this alternative.

***No Action Alternative:*** No Effects would be associated with surface waters in the project area from the no action alternative. No benefits to surface waters would be derived either.

#### **6.1.6 Wetlands**

***Preferred Alternative:*** Ephemeral or farmed wetlands, which exist during the spring and early summer, are the predominant wetland type present in the project area. Impacts to these wetlands from the proposed project have been limited to the extent practical. Average depths of these wetlands are approximately 6 to 18 inches. Soft rushes and sedges are the main vegetation growing in these shallow wetlands. Anticipated impacts to these areas from the proposed action would be mainly limited to those wetlands lying immediately south of Mokane Road which would be filled as part of the levee construction, and a meander scar that would be intersected by the downstream tieback levee.

Some farmed wetlands are located within identified borrow sites, these sites will be used as borrow rather than avoided. This decision was made as it is assumed that if borrow is obtained adjacent to these wetlands, the existing grade will be lowered causing the wetlands to be at a higher elevation than the surrounding land. This would more than likely alter the hydrology associated with these wetlands and they will not function properly. By borrowing from these sites along with the adjacent lands, provisions can be made to create depressions that would then function similar to the existing farmed wetlands.

The proposed levee and borrow areas would directly impact approximately 16.5 acres of emergent wetlands and 23.5 acres of farmed wetlands. Indirect impacts, associated with borrow and construction activities involve approximately 10 acres, of those, all but 0.6 acres are farmed wetlands. Table EA-5 shows anticipated effects to wetlands from this alternative.

The FWS in the Final CAR, estimated approximately 38.6 acres of total direct impacts to wetlands, of those 19.8 acres were to emergent wetlands. They estimated another 24.5 acres total of indirect impacts to wetlands. Most of the discrepancy between our estimates and FWS estimates for indirect impacts is due to acreages included by the FWS for a series of wetlands (#18, 20 & 21) located interior to the proposed levee. We did not include these sites as indirect impacts because hydrology for these wetlands is provided by surface runoff. The levee will not affect surface runoff in the area of these wetlands; therefore, these sites should not be affected by the proposed project. FWS also included one wetland (#8) located exterior to the levee as directly impacted by the proposed project. We did not include this site in direct impacts because it is located outside the project limits and should not be affected by the proposed action.

**Table EA-5  
Anticipated Wetland Impacts from the Preferred Alternative**

| <b>Site Number</b>                        | <b>Type of Impact</b>                     | <b>Wetland Type</b>                             | <b>Acreage Impacted</b>           |
|---|---|---|-----------------------------------|
| 1   | Direct                                    | Farmed, old borrow site                         | 1.6                               |
| 2   | Direct*<br>(beneficial)                   | Katy Trail borrow ditch                         | **                                |
| 4   | Direct                                    | Pit with fringe wetlands,<br>Non-Jurisdictional | N/A                               |
| 6   | Direct (Partial)                          | Emergent  | 4.6 out of 6.8 total              |
| 7   | Direct                                    | MODOT mitigation site                           | 0.4                               |
| 9   | Direct                                    | Emergent and Farmed<br>(assumed 50% of each)    | 20.0 total (10,10)                |
| 12  | Direct                                    | Flood scour holes w/fringe wetlands             | 1.6                               |
| 17  | Direct                                    | Farmed  | 5.0 affected out of<br>13.2 total |
| <b>Total Direct Impacts</b>               |   |   | 39.6                              |
| <b>Total Direct Impacts to Emergent</b>   |   |   | 16.6                              |
| <b>Total Direct Impacts to Farmed</b>     |   |   | 23.0                              |
|   |   |   |                                   |
| 3   | Indirect (only<br>during<br>construction) | Wooded upland (80%)/emergent<br>wetland (20%)   | 0.6                               |
| 10  | Indirect (only<br>during<br>construction) | Farmed  | 0.8                               |
| 17  | Indirect<br>(Partial)                     | Farmed  | 8.2 out of 13.2<br>total          |
| <b>Total Indirect Impacts</b>             |   |   | 9.6                               |
| <b>Total Indirect Impacts to Emergent</b> |   |   | 0.6                               |
| <b>Total Indirect Impacts to Farmed</b>   |   |   | 9.0                               |

\* = site currently exists in proposed mitigation area and will become part of larger wetland complex

\*\* = acreage included as part of mitigation site as wetland will be enhanced by this action

## **6.2 PROPOSED WETLAND MITIGATION**

An impervious borrow site identified in the northeast corner of the proposed project would be utilized as a wetland mitigation area upon completion of borrow activities. The area would cover about 42 acres of which 33 acres would be in-kind mitigation for 16.6 acres of direct losses to emergent wetlands at a mitigation ratio of approximately 2:1 for emergent wetland losses. The 9-acre remainder at this site would be planted to native grasses, trees, and shrubs to promote a scrub/shrub habitat. The scrub/shrub habitat would be at the perimeter of the 33-acre emergent wetland and should act as a transitional zone and buffer to the wetland. The additional 9 acres would be out-of-kind mitigation for the farmed wetland affected by the selected plan.

Although approximately 32 acres of farmed wetlands would be impacted (23 direct, 9 indirect), the quality of habitat would be improved through the mitigation. The scrub/shrub habitat near an emergent wetland and a riparian corridor would be preserved in perpetuity and should provide much greater habitat diversity than the present small pockets of farmed wetlands subject to encroachment.

In addition to the 9 acres of out-of-kind mitigation for farmed wetlands, the impervious borrow areas on the eastern edge of the project (where the current farmed wetlands are) would be sloped and graded to encourage redevelopment of these wetlands after the borrow activities cease. Soil boring for these borrow areas show impervious soil types such a clay to a depth of 10 feet or greater. Borrow activities would not extend deeper than 4 feet. Therefore, the depressions would hold water and should support aquatic plant growth similar to current conditions. These acres are not included in the mitigation plan because the future ownership and potential for farming are uncertain. Any wetlands that do develop in these areas would be considered additional benefits without any corresponding increase in project cost.

The FWS commented in the draft CAR that, while the modified habitat evaluation procedure, WHAG, had been applied to the project, it was not useful in assessing the impacts of this proposed action or the associated mitigation needs. The FWS comment goes on to state, "Given the limited size and scope of this project, we have chosen not to undertake a fine-tuning of the HSI models, or construction of models for additional evaluation species, to more accurately represent the habitat values of the wetlands in the project area." Instead, final recommendations for acceptable habitat loss and wetland mitigation were derived from a multi-agency coordination effort. The recommendations made were based on best professional judgment of meeting participants, field reconnaissance, literature searches, past precedent on similar projects, and restrictions imposed by FAA/MODOT concerning regulations associated with the airport. The proposed wetland mitigation area is the result of this multi- agency coordination effort.

To maximize hydrologic conditions and mimic natural wetlands, we would provide an irregular shape and contour the bottom of this borrow area. Depths will range from 18 inches to 3 feet or more with gently sloping sides. Hydrology for the proposed wetland area will be from surface runoff as well as from Turkey Creek overflows, most likely in the spring. Currently, a small private levee adjacent to Turkey Creek provides protection to crop fields in the area of the proposed mitigation site. This levee would be removed and used as borrow material for the proposed L142 levee.

Wetland vegetation should establish in the proposed borrow area naturally from seed sources washed in from Turkey Creek, dormant seeds in the existing soils, and from a couple of small wetlands in this area. Some manual seeding of the area with native hydric plants is proposed upon completing construction of the wetlands. A native grass mix which includes forbs will also be planted around the perimeter of the proposed wetland mitigation site. This grass will act as a buffer to the wetlands

from runoff from Highway 54/63. The native grass buffer will also provide additional wildlife habitat values in the form of a food source, nesting habitat, and shelter. Native bottomland tree species will also be planted on the perimeter of the proposed mitigation site which will also provide additional wildlife benefits and form a scrub/shrub habitat. The wetlands, native grasses and forbs, and tree species will all add aesthetic values to the area, especially in association with users of the Katy Trail.

Shallow areas from random borrow sites would allow for the natural regrowth of farmed wetlands and should replace those removed by levee construction or borrow activities. Approximately 32 acres of farmed wetlands would be impacted by this alternative. Borrow areas for random fill total 199 acres, another 96 acres has been identified for impervious borrow on the western edge of the project area. The random borrow areas are located south of Mokane road outside of the proposed levee. These areas will be periodically flooded by the Missouri River and should provide good wetland habitat during wet periods. During dry periods these areas will likely be farmed. It is proposed to contour the borrow sites to varying depths to have some low areas which will hold water on a periodic basis. There should be no net loss of farmed wetlands as a result of this action. Rather, an increase in overall wetland acreage from current conditions is more likely.

The Final CAR (Appendix F) from the FWS recommended that direct impacts to emergent type wetlands should be mitigated at a minimum 1.5 to 1.0 ratio. The CAR suggests that because 19.8 acres of emergent wetlands would be directly impacted by the proposed project, it would be necessary to restore approximately 29.7 acres to a similar wetland type. The FWS then states, "We believe the proposed 33 acre mitigation site will accomplish the required mitigation." The FWS also suggests that 18.8 acres of farmed wetlands should be mitigated at a ratio of 1.0 to 1.0. During conversations with the FWS, we proposed adopting the plan to mitigate farmed wetlands through borrow activities as described above. In the CAR, the FWS indicated that this was an acceptable method, but added a preference that the farmed wetland mitigation sites be located as close to the Katy Trail as possible. We will do this where possible.

Because the habitat model (WHAG) used to evaluate the area showed little habitat value exists, habitat units could not be obtained from the model. An incremental cost analysis could not be performed in accordance with Planning Guidance to aid in identifying the most appropriate mitigation plant for the project. Because mitigable resources are present in the form of jurisdictional wetlands, a mitigation plan was developed using methods as described in the preceding paragraphs.

Costs associated with all proposed mitigation activities are minor because most of the costs for these sites are associated with the borrow activities. Total costs associated with the wetland mitigation site are approximately \$46,000. These costs would include additional costs associated with minor contouring of the slopes, ditch work, and vegetation planting (native grasses, trees and shrubs). We expect wetland

mitigation area operation and maintenance (O&M) costs to be minimal or none. Any O&M costs associated with the mitigation site would be the responsibility of the non-Federal project sponsor. O&M for this site would mainly consist of grassland management such as periodic controlled burns. The MDNR, MDC, MODOT and the Jefferson City Parks and Recreation Department personnel present at the coordination meeting indicated they would be available to assist in conducting a controlled burn. The airport officials indicated no objection to a controlled burn contingent on appropriate prior notice and coordination.

***Other Levee Alignment Alternatives:*** Effects to wetlands associated with the other levee alignment alternatives would be similar to those described for the proposed action.

***ABB Ring Levee Alternative:*** Direct effects to wetlands associated with constructing a ring levee would be less than the preferred alternative. Only one jurisdictional wetland is located near enough that the footprint of the ABB plant levee would probably impact it. Borrow area locations for this alternative are not identified, however, significantly less borrow material would be required. Therefore, impacts to farmed wetlands from borrow activities would be less than the preferred alternative. Although negative effects to existing wetlands would be reduced with this alternative, the existing wetlands have been described by the FWS as “marginal” in habitat value. The positive effects associated with mitigation creating one larger wetland area that is maintained in perpetuity and protected from future encroachment would not be realized.

***No Action Alternative:*** There would be no effects to existing wetlands with this alternative. There would also be no added benefits from a protected mitigated wetland area as discussed above.

### **6.2.1 Vegetation**

***Preferred Alternative:*** Trees would be avoided whenever possible during levee construction by making minor adjustments to the levee alignment. This alternative alignment was adjusted to avoid two very large trees, one a pecan, and the other a cottonwood. Both of these trees provide perching and roosting habitat for raptors including the federally threatened bald eagle. The pecan tree also provides a food source for many birds and mammals. These trees also have aesthetic qualities which will be used in conjunction with the proposed levee trail. Any trees that cannot be avoided would be replaced in areas that would not interfere with airport operations. Trees may be placed adjacent to the levee in suitable locations as rest stops for hikers and bicyclers as the trail is developed. Trees will also be planted adjacent to the mitigation site. Some recommended tree and shrub species to be included in planting plans are cottonwood, pecan, American basswood, mulberry, boxelder, hackberry, walnut, oaks, hickory, maples, crabapple, hawthorn, cedar, scotch pine, gray dogwood, native plum, wild cherry, elderberry, coralberry, and hazelnut.

Other vegetative impacts would be associated with borrow activities. These activities would be short-term. All borrow sites would be revegetated upon completion of borrow activities. At the impervious borrow area proposed for the wetland mitigation site, native grasses and native, mast-producing, bottomland hardwood trees would be planted around the perimeter of the area. Plants preferring more hydric conditions will be supplemented with natural regeneration in the wetland area itself. The exterior slopes of the levee will be planted with grasses that can withstand inundation and periodic mowing for annual inspection and maintenance. Examples of grasses typically planted on levees are rye, brome, fescue and switchgrass. The interior levee slopes will most likely be planted with some native grasses and forbs that provide more wildlife and aesthetic values.

There would be temporary impacts to row crop vegetation planted in identified areas during borrow activities. These areas will be planted to a grass cover to prevent erosion post-construction and would be available for row crop use as well. Also some agricultural land will be taken out of production to accommodate the levee footprint and associated structures. Wetland/grassland plants would replace row crops at the proposed mitigation site. Some row crops may be planted again on areas south of Mokane Road once sand deposition has been removed as a result of borrow activities.

***Other Levee Alignment Alternatives:*** These alternatives would have very similar impacts to vegetation as the preferred alternative discussed above. However, some alignments may not allow for adjustments to be made to avoid individual trees of value. Alternative 11 would require additional borrow so there would be a slight increase in temporary impacts to vegetation associated with borrow activities as compared to the preferred alternative.

***ABB Ring Levee:*** This alternative would have less negative effects to vegetation as compared to the preferred alternative. Some effects to vegetation from this alternative would include those associated with construction activities. No large specimen trees are located within the area that would contain the ring levee.

***No Action Alternative:*** There would be no effects to vegetation with the no action alternative.

## **6.2.2 Fish and Wildlife**

***Preferred alternative:*** The proposed alignment primarily impacts cropland in addition to the limited wetlands which are proposed to be replaced. The wetlands constitute the majority of habitat type of value to area wildlife. It is anticipated that wildlife habitat may improve in the project area as a result of the proposed action. The existing wetlands are marginal in habitat value as evidenced by the modified HEP analysis and as indicated by the FWS in the CAR. With the proposed mitigation site, the wetlands would be concentrated in one larger tract of land, rather than small sites scattered throughout the area. Many of the wetlands in the project area are on private lands and are subject to be farmed whenever they are dry. The proposed

mitigation site will be owned by Jefferson City and more than likely will be maintained by the Missouri DNR, therefore it will not be farmed. We anticipate that this wetland will be designed to be especially valuable to reptiles and amphibians. Small shorebirds, mammals and aquatic macroinvertebrates should also utilize the wetland. The project would be beneficial to grassland species of birds and insects as the perimeter of the wetland would be planted with native grasses, trees, and where possible forbs. Disruption to fish and aquatic life would be minimal to non-existent because these species occur in the Missouri River which would not be affected by the selected plan.

***Other Levee Alignment Alternatives:*** Effects to fish and wildlife from these alignments would be similar to the preferred alternative as discussed above.

***ABB Ring Levee:*** The ring levee would have minimal effects on fish and wildlife because it would impact a small amount of wetlands. The area adjacent to the ABB plant where the ring levee would be constructed is mainly idle, warm season grassland that is often mowed and of little value to wildlife. The pond next to the ABB plant does provide wildlife habitat, but should not be affected by the ring levee construction. Although direct impacts associated with this alternative are less than those for the preferred alternative, the benefits that would be gained by construction of the proposed wetland mitigation site would be forgone because it would not likely be needed for this alternative.

***No Action Alternative:*** This alternative would have no effects to fish and wildlife. However, no benefits to fish and wildlife habitat in the area would be realized from construction of the proposed mitigation site.

### **6.2.3 Threatened and Endangered Species**

***Preferred Alternative:*** As required, we coordinated with the FWS for fulfilling requirements under Section 7 of the Endangered Species Act. In the CAR provided by the FWS, three federally listed species are found in the project area. These species were identified in Section 5.1.9 of this EA. Consideration for minimizing or avoiding negative effects to threatened and endangered species was part of alternatives development and initial project designs. Few large trees are located in the project area that would be utilized by bald eagles for perching, roosting or nesting. With the amount of human disturbance occurring in the project area such as those associated with the airport, the sand and gravel operation, and agricultural activities, more than likely bald eagles would not nest in the project area. Eagles may make brief stops in the area for roosting, perching or feeding due to the proximity to the Missouri River. These activities should not be affected by the proposed action. Minimal tree clearing would occur, especially to larger trees which are preferred by eagles. Therefore, this alternative is not likely to have an adverse affect on bald eagles.

Indiana bats could utilize the area for summer maternity/roost sites. However this activity would be limited to the availability of suitable trees currently in the

project area. Any large trees having niches suitable for Indiana Bats would be avoided and protected as project features. Any large trees that cannot be avoided would be removed in the late fall or winter when bats are not likely to be present or using the trees as maternity/roost sites. Therefore this alternative is not likely to have an adverse affect on Indiana bats.

The pallid sturgeon inhabits the Missouri River and would not be affected by the proposed project.

Coordination with State and Federal resource agencies has not revealed any objections or concerns over potential impacts to Indiana bats, bald eagles or pallid sturgeons. The proposed action will not impact any State or Federal rare, threatened, or endangered species or their critical habitat.

***Other Levee Alignment Alternatives:*** Effects to threatened and endangered species from these alternative alignments would be very similar to the preferred alignment discussed above.

***ABB Ring Levee:*** We anticipate no effects to Federally listed species from this alternative. This alternative would not require the removal of any large trees the removal of which could have an effect on bald eagles and Indiana bats. There would be no disturbance to the Missouri River and therefore, no effects to pallid sturgeon would be anticipated.

***No Action Alternative:*** No effects to threatened or endangered species would be expected from the no action alternative.

#### **6.2.4 Socioeconomics**

Appendix C includes greater details of the socioeconomic analysis.

#### **6.2.5 Land Use**

***Preferred Alternative:*** Land use in the project area would not change significantly from the current conditions. Some land currently used as cropland would be changed to the levee structure. The area where the proposed mitigation site would be located in the northwest corner of the project would be changed from agricultural lands to wetlands/grasslands. All lands currently associated with the airport operations would not change as a result of this alignment. All business currently located in the project area would not be rezoned to other uses if this alternative is implemented.

The main area of change would be the flood hazard mitigation lands acquired in the former Cedar City area. These lands are currently set aside as green space or open space available for floodplain storage. The levee footprint will involve a small parcel of this space. Green space will continue as a land use because Jefferson City will continue to maintain the park, picnic shelter, parking lot, and bike trail spur and

may potentially expand recreation opportunities in this area in the future. Plans constructing a boat ramp are currently underway which will provide access to the Missouri River.

Loss of floodplain storage in open space would occur with implementation of the selected plan. However, with the implementation of the Missouri River Mitigation program, floodplain habitat on the Missouri River is being restored. Continuation of the mitigation program should minimize effects associated with the loss of open space that would occur with this alternative.

***Other Levee Alignment Alternatives:*** Effects from these alternatives would be similar to those described in the preferred alternative.

***ABB Ring Levee:*** Implementation of this alternative would not protect the airport or other properties and business in the project area. If this alternative is implemented it is likely that the land uses in the area would change as continued flooding forced abandonment or relocation of the airport and other businesses. It is unknown what land uses would replace these current activities. Perhaps it would be agricultural use.

***No Action Alternative:*** Effects to land use from this alternative would probably be similar to the ABB ring levee alternative except the ABB plant would receive greater damage from future flood events. The ABB plant may move from this area if inundations continue.

## **6.2.6 Recreation**

***Preferred Alternative:*** The selected plan would have a beneficial affect on the Katy Trail and other associated recreational activities. The levee trail would be used in conjunction with the Katy Trail to make a loop that would begin and end at the Cedar City Park near the Missouri River Bridge. This loop trail would be an added benefit to users of the Katy Trail as it would allow them a safe route to observe the Missouri River at a closer distance than is currently possible without the loop trail. Surfacing the top of the levee with an appropriate aggregate surface would not add costs to the project. A secondary benefit of using the levee crown as a recreational trail would be that the users of the trail could provide consistent feedback to the non-Federal sponsor on the condition of the trail and levee.

The proposed mitigation site would also enhance features along the Katy Trail that users could enjoy. The mitigation area should provide trail users with bird/wildlife watching opportunities. An increase in aesthetics from wildflower and native grass plantings used in the grass buffer area should also occur. Interpretive stations for areas of interest associated with the levee project, such as the wetland mitigation site and the specimen trees, could enhance user experiences.

In the two areas where the levee crosses the Katy Trail, the trail will be kept to current standards for accessibility. The Katy Trail in the area of this proposed

alignment, as well as the city park area, will be protected from future flood events with this alternative. The Katy Trail may be closed temporarily in the project area during construction of the levee; however, every attempt will be made to keep it open as much as possible to reduce disruption of recreational activities.

***Other Levee Alignment Alternatives:*** Effects to recreation from these alignments are expected to be similar to the preferred alternative.

***ABB Ring Levee Alternative:*** The beneficial effects to recreation associated with the preferred alternative would not be realized with this alternative. This alternative would not provide for the extension to the Katy Trail. Therefore users would not be able to get a closer view of the Missouri River. They also would not get benefits associated with the wetland mitigation area. The city park area and the Katy Trail itself would receive no protection from future flood events with this alternative. During the 1993 and 1995 flood events the Katy Trail was closed in this area due to inundation.

***No Action Alternative:*** Effects to recreation from the no action alternative would be similar to the ABB ring levee alternative discussed above.

## **6.2.7 Transportation**

***Preferred Alternative:*** No negative effects to transportation are associated with this alternative. Highway 54/63 is the main traffic artery linking Jefferson City to Columbia and Interstate 70. More than 40,000 vehicles travel this route each day, and the road closing during the 1993 flood event resulted in a net detour for most vehicles of about 43 miles. Physical damage to the highway was also severe, approaching \$1 million. However, flooding does not begin to affect this highway until about the 0.5-percent-chance-event (the 1993 event was the only time it has ever been inundated). This alternative will have beneficial effects to Highway 54/63 as it will protect it from inundation and associated damages.

In the most recent closings, the airport was closed for 49 days during the flood of 1993, for 19 days during the smaller flood event later in 1993, and for 21 days in the 1995 event. Most of the airport's traffic during these closings is diverted to another regional airport near Columbia about 15 miles away. The Preferred Alternative would protect the airport from frequent inundation and would prevent closings as well.

***Other Levee Alignment Alternatives:*** Other levee alignment alternatives would have similar effects to transportation as the Preferred Alternative as they would protect the airport property and highway 54/63.

***ABB Ring Levee Alternative:*** The ring levee would only protect the ABB plant and would provide no protection to the airport or the highway. Therefore this alternative would have negative effects to transportation in the project area.

**No Action Alternative:** The no action alternative would have the same effects to transportation as the current conditions in the project area. The airport would continue to be inundated and closed on a frequent basis. Air traffic would be routed to the Columbia airport. Damages to aircraft that are not moved in time would still occur. Also the airport would probably not be able to expand its operations in the future to accommodate growing demands from government and residential interests in Jefferson City. Highway 54/63 would be susceptible to flooding and damages related to flooding.

### **6.2.8 Wastewater Treatment**

**Preferred Alternative:** Water pollution is a serious issue during Missouri River flooding in the project area due to the location of the City's sewage treatment plant. This plant was closed for four months during the 1993 flood and for 24 days during the 1995 flood event. During the 1993 closing, about one billion gallons of unprocessed raw sewage entered the Missouri River. Another 200 million gallons of unprocessed sewage entered the river in 1995. With implementation of the preferred alternative the sewage treatment plant would be protected from inundation. Therefore, the plant would not be closed down and would continue to treat sewage waste before it enters the Missouri River. This would result in improved water quality and overall quality aquatic environment associated with the Missouri River.

**Other Levee Alignment Alternatives:** These alternatives would have the same effects on wastewater treatment as the preferred alternative.

**ABB Ring Levee Alternative:** This alternative would provide no protection to the wastewater treatment plant. Therefore the plant would continue to be prone to inundation resulting in the plant shutting down and being unable to treat raw sewage, which would then be allowed to flow into the Missouri River untreated. This would have a negative affect on water quality in the Missouri River as well as negative effects to the overall aquatic environment.

**No Action Alternative:** This alternative would have the same negative effects on the wastewater treatment facilities as the ABB ring levee alternative discussed above. There would be no beneficial effects to wastewater treatment as a result of this alternative.

## **6.3 CULTURAL/HISTORIC RESOURCES**

**Preferred Alternative:** The levee alignment for alternative 10a was adjusted to avoid the one cultural resources site known to exist in the project area which is site 23CY236. Evidence of consultation with the Missouri SHPO is contained in Appendix A. The SHPO has no objections to the project as long as 23CY236 is not affected during project construction.

**Other Levee Alignment Alternatives:** Only one site (23CY236) would be affected by proposed project construction of any of these levee alignments. 23CY236

would be affected if either levee alignment 8a, or 9a, is chosen. This site was relocated during the field survey and consists of a moderate-to-high density surface scatter of artifacts on an old terrace remnant in the present-day Missouri River Floodplain. An old river channel is just to the north of the site. Artifacts including chert debris, ceramics, and finished chert tools were scattered over an area that measured approximately 60 m N-S by 100 in E-W. Ceramics are grit-tempered, with plain or cordmarked finishes. Chipped-stone tools included a small, unnotched triangular projectile point and a Snyders corner-notched projectile point. The ceramics and the small point suggest a Late Woodland cultural affiliation while the Snyders point suggests that there may also be a Middle Woodland component as well. Until this site can be tested for subsurface integrity, it should be considered potentially eligible for listing on the National Register of Historic Places.

If either alignment 8a, 9a, or 10a is chosen, two options are possible: (1) realign the levee in the immediate vicinity of 23CY236 to avoid impacts; or (2) conduct archeological testing at 23CY236 to determine if it is eligible for the National Register of Historic Places. Option 1, site avoidance, is the preferred option.

The other levee alignments included in this alternative analysis should have no effects on known cultural resource sites.

***ABB Ring Levee:*** Cultural resources should not be affected by the levee itself as none are known to be located in this area. Borrow sites for this alternative would need to be located to avoid known cultural resource sites in order to have no negative effects to cultural resources. There would be no beneficial effects to cultural resources as a result of this action.

***No Action Alternative:*** There would be no effects to cultural resources as a result of the no action alternative.

## **6.4 CUMULATIVE EFFECTS**

Cumulative effects to natural resources in the area will be minimal due to the highly disturbed nature of the project area. Intensive agriculture practices are currently used as well as there being a great deal of commercial/industrial development. Regulations associated with airport operations discourage and in some cases prohibit activities within a certain radius of the airport that would attract wildlife. These regulations are in place to reduce potential for bird strikes associated with aircraft operations. In fact some improvement in the type of wetlands present in the area may be realized from this project. Currently the existing wetlands in the area are farmed whenever hydraulic conditions allow. Some of these seasonal, farmed wetlands will be impacted by the levee footprint, which will be mitigated. It is proposed to mitigate these wetlands using borrow areas, some of these mitigated wetlands will not be allowed to be farmed which will provide a more stable environment for wildlife and plant species associated with the mitigated wetland habitat.

Effects to fish and wildlife associated with loss of floodplain habitat due to the construction of L142 are considered minimal because the Capitol View levee currently prevents the river from using the project area floodplain during annual or even less frequent rises. Therefore, benefits to wildlife and fish species associated with seasonal flooding are already lost in this area. When taken into consideration with other levee projects that have been constructed along the Missouri River, effects to the floodplain from the Preferred Alternative are incrementally very minor, as the preferred alignment is located back from the Missouri River approximately 1000 to 1500 feet. By aligning the Preferred Alternative landward of the Capital View levee, some floodplain habitat benefits for fish and wildlife may be restored under future conditions. The land located south of Mokane road received substantial damage after both the 1993 and 1995 flood events in the form of scour holes and sand deposition. These scour holes provided beneficial habitat especially to fish species. However, these scour holes fill in fairly quickly so benefits are temporary. With the construction of the L142 levee, the Capital View levee will most likely no longer be eligible for the PL84-99 program. With the anticipated acquisition of agricultural lands in the levee district by Jefferson City, the Capital View levee would then no longer be maintained and the land south of Mokane road would be unprotected. This area then would be available for use by fish and wildlife during future flood events as floodplain habitat.

Some cumulative effects to the floodplain are expected. The levee is located outside of the FEMA designated floodway. When taken in context with other Missouri River levees, hydraulic models indicate very minor increases in flood heights from the proposed project. If L142 is not constructed it is possible that the local sponsor or some other private entity would construct private levees in this area to protect property or raise the existing Capital View levee which is located very close to the banks of the Missouri River. These levees would more than likely have similar or even greater impacts to the floodplain than the L142 levee project. Also several small agricultural levees currently exist in the project area and are located within the FEMA designated floodway. These levees however, provide a reduced level of protection than the preferred L142 alignment.

Cumulative effects to agricultural lands will be both positive and negative. Currently the agricultural levee that protects this area is frequently breached or overtopped (about once every 5 years) and therefore provides very limited protection to agricultural lands in the area (refer to Section 2.0, subsection A of the GRR for details). The Preferred Alternative would provide much greater, more reliable protection and lands behind this levee should experience reduced impacts from flooding. However, some agricultural lands will be lost due to the actual levee footprint, and some would be lost due to borrow activities and the subsequent wetland mitigation site. Also, the Preferred Alternative alignment would not protect all agricultural lands in the area, and if, as expected, the Capital View levee ceases to be maintained, the lands outside the preferred alignment would sustain greater flood impacts than currently.

Beneficial socioeconomic impacts from the Preferred Alternative would increase over time. With no Federal action, adverse socioeconomic effects of flooding would increase with each subsequent flood event. Buildings would continue to degenerate due to frequent inundation. The airport may close, and the sewage treatment plant may need to be relocated. Businesses may relocate which could impact employment opportunities negatively. With implementation of the Preferred Alternative, development in the vicinity of the airport may increase due to reduced flood threat. This increased development may in turn reduce the amount of land in agricultural production. This potential future development may also increase employment opportunities and tax revenues.

## **6.5 COMMITMENT OF RESOURCES**

Conversion of agricultural land to the levee structure may be considered an irreversible commitment of resources. However, if the levee were removed the land could be converted back to agricultural uses. Consumption of fossil fuels, manpower expended, and commitment of construction materials is considered an irreversible and irretrievable commitment of resources.

**Table EA-6  
Matrix Comparison of Alternative Plans**

|  | <b>Preferred Alternative/<br/>N E D P l a n</b> |         |                    |         |                    |         |                    |         |
|--|---|---------|--------------------|---------|--------------------|---------|--------------------|---------|
|  | Beneficial                                      | Adverse | Beneficial         | Adverse | Beneficial         | Adverse | Beneficial         | Adverse |
| Natural Resource Effects                         |   |         |                    |         |                    |         |                    |         |
| 1. Air Quality and Noise                         | Air: 0<br>Noise: 0                              | S*      | Air: 0<br>Noise: 0 | S*      | Air: 0<br>Noise: 0 | 0       | Air: 0<br>Noise: 0 | 0       |
| 2. Geology and Soils                             | L**   | S*, L*  | L**                | S*, L*  | S*                 | S*, L*  | S*, L*             | S*, L*  |
| 3. Prime & Unique Farmland                       | S*, L**   | S*, L*  | S*, L**            | S*, L*  | 0                  | S*, L*  | 0                  | S*, L*  |
| 4. Haz./toxic/radioac. waste                     | 0   | 0       | 0                  | 0       | 0                  | 0       | 0                  | 0       |
| 5. Surface Water                                 | L*  | L*      | L*                 | L*      | 0                  | 0       | 0                  | 0       |
| 6. Wetlands                                      | L**   | S**, S* | L**                | S**, S* | 0                  | S*      | 0                  | 0       |
| 7. Vegetation                                    | L*  | S*      | L*                 | S*      | 0                  | S*      | 0                  | 0       |
| 8. Fish and Wildlife                             | S*, L**   | S*, L*  | S*, L**            | S*, L*  | 0                  | S*      | 0                  | 0       |
| 9. T & E Species                                 |   |         |                    |         |                    |         |                    |         |
| Bald eagle                                       | 0   | S*      | 0                  | S*      | 0                  | 0       | 0                  | 0       |
| Indiana Bat                                      | 0   | S*      | 0                  | S*      | 0                  | 0       | 0                  | 0       |
| Pallid Sturgeon                                  | 0   | 0       | 0                  | 0       | 0                  | 0       | 0                  | 0       |
| Socioeconomic Effects                            |   |         |                    |         |                    |         |                    |         |
| 1. Land Use                                      | 0   | L*, S*  | 0                  | L*, S*  | 0                  | L**     | 0                  | L**     |
| 2. Recreation                                    | L**   | S*      | L**                | S*      | 0                  | L*      | 0                  | L*      |
| 3. Transportation                                | L*  | 0       | L*                 | 0       | 0                  | L*      | 0                  | L*      |
| 4. Wastewater Treatment                          | L**   | 0       | L**                | 0       | 0                  | L**     | 0                  | L**     |
| Cultural/Historic Resources                      |   |         |                    |         |                    |         |                    |         |
|  | L*  | 0       | 0                  | L**     | 0                  | 0       | 0                  | 0       |
| Cumulative Effects                               |   |         |                    |         |                    |         |                    |         |
| 1. Natural Resources                             | L*  | S*      | L*                 | S*      | 0                  | 0       | 0                  | 0       |
| 2. Floodplain Resource<br>(habitat-related)      | L*  | L*      | L*                 | L*      | 0                  | 0       | 0                  | 0       |
| 3. Floodplain Resource<br>(hydrology/hydraulics) | 0   | L*      | 0                  | L*      | 0                  | 0       | 0                  | 0       |
| 4. Agricultural Lands                            | L**   | L*      | L*                 | L*      | 0                  | L*      | 0                  | L*      |
| 5. Socioeconomic Resources                       | L**   | 0       | L**                | 0       | L*                 | L**     | 0                  | L**     |

**Key:**

S = Short term

L = Long term

0 = None Identified

\* = Minor Effects

\*\* = Major Effects



## **7. SUMMARY OF COMPLIANCE WITH ENVIRONMENTAL QUALITY STATUTES**

Compliance with the Water Resource Council (WRC) Designated Environmental Quality Statutes that have not been specifically addressed earlier in this report is covered in Table EA-7.

### **7.1 ENDANGERED SPECIES.**

No threatened or endangered species would be affected by the proposed action.

### **7.2 CULTURAL RESOURCES.**

No impacts to archeological and historic sites should occur as a result of the preferred alternative.

### **7.3 FEDERAL WATER PROJECT RECREATION ACT.**

The project would have beneficial impacts on recreation opportunities.

### **7.4 FISH AND WILDLIFE COORDINATION ACT.**

No significant effects to fish and wildlife resources would occur as a result of the preferred alternative. The Draft Coordination Act Report prepared by the USFWS under the provisions of the Fish and Wildlife Coordination Act (16.U.S.C. 661 et seq.) is located at Appendix F.

### **7.5 EXECUTIVE ORDER 11988, FLOOD PLAIN MANAGEMENT.**

The proposed project would be in a partially developed area that contains critical infrastructure. Increased development could occur as a result of this project; however, evidence suggests otherwise. First, inclusion of undeveloped land parcels in the protected area is unavoidable and not extraneous to the project. Second, demand for land does not threaten to outpace the existing supply outside the floodplain in the region. Finally, marketing much of the undeveloped land in the protected area would be difficult or impossible. The project, as proposed, is therefore determined to be in full compliance with the goals and objectives of the Order.

### **7.6 WILD AND SCENIC RIVERS.**

No wild or scenic rivers or rivers proposed for study or currently under study for inclusion as a wild or scenic river are within the project area.

### **7.7 EXECUTIVE ORDER 11990, PROTECTION OF WETLANDS.**

Some wetlands impacts, both direct and indirect would occur as a result of the proposed action. However, these impacts will be mitigated, for emergent wetlands on at least a 1.5 to 1 mitigation ratio, and for farmed wetlands on at least a 1.0 to 1.0 mitigation ratio. Therefore no net loss of wetland acreage will occur.

### **7.8 CLEAN WATER ACT.**

Minor increases in turbidity may result in local drainages during construction activities. No direct runoff is expected to occur into the Missouri River, however the local drainages do eventually drain into the river. Spills of untreated sewage from the wastewater treatment plant resulting from past flood events should no longer occur with the levee in

place, therefore, water quality conditions would improve for this potential contamination source.

#### **7.9 CLEAN AIR ACT.**

This action would have no effect on air quality.

#### **7.10 FARMLAND PROTECTION POLICY ACT.**

Coordination with the NRCS for prime and unique farmlands has been accomplished. A farmland conversion rating form was completed and the results of that analysis are reproduced in appendix A. Approximately 121 acres of prime farmlands would be converted with the construction of the levee system. However, approximately 900 acres of prime farmland would be flooded less frequently. Lands that were once prime farmlands but are no longer classified as such due to flood damage could experience secondary benefits as a result of borrow activities. If the flood-borne sand deposits were borrowed for random fill, the land could potentially qualify as prime farmland again.

#### **7.11 NATIONAL ENVIRONMENTAL POLICY ACT OF 1969, AS AMENDED.**

The compilation and distribution for public review and comment of this Environmental Assessment and the mitigated Finding of No Significant Impact fulfills NEPA compliance.

## 8. CONCLUSIONS OF FINDINGS

Alternative 10a (NED Plan) is the preferred plan for implementation as it reduces damages caused by repeated flood events in the area. There are substantial investments in commercial, industrial and public facilities that contribute to the economic viability of the study area. Without substantial expenditures to floodproof or relocate these facilities, periodic flooding will cause continued direct and indirect damages. The NED Plan does incorporate environmental, cultural and socioeconomic considerations.

Based upon information contained in the General Reevaluation Report, the Environmental Assessment, the Technical Appendices, other supporting data, and coordination with outside agencies and other interested individuals, preparation of an Environmental Impact Statement is not anticipated at this time. The proposed action would not have a significant adverse effect on the quality of the human environment and would more than likely have some beneficial effects. Wildlife habitat from of the proposed wetland mitigation area would be improved over existing wetlands that are susceptible to farming during dry conditions. The proposed action would also have beneficial effects on recreation by adding a spur to the Katy Trail on top of the proposed levee. Water quality benefits are gained by protecting the sewage treatment plant which dumped over a billion gallons of untreated raw sewage during the 1993 and 1995 flood events combined. Federally listed threatened and endangered species will not be adversely affected by the proposed action. Impacts to the floodplain associated with fish and wildlife habitat as well as available flood storage, and induced development are negligible. No additional impacts to archeological and historic sites should occur as a result of the construction of the L142 levee. No significant cumulative effects were identified in this analysis. The proposed action meets all compliance requirements for applicable laws and regulations (Table EA-7). Therefore, we have prepared a Mitigated Draft Finding of No Significant Impact (FONSI) and included it with this EA.

## **9. PUBLIC INVOLVEMENT AND AGENCY COORDINATION**

Coordination with the public, Federal, State and local governmental agencies has been maintained throughout the planning process for this project. Under the Fish and Wildlife Coordination Act, the Missouri Department of Conservation, the Missouri Department of Natural Resources, The U.S. Environmental Protection Agency, the Natural Resource Conservation Service, and the U.S. Fish and Wildlife Service were contacted by letter dated June 24, 1998. The State Historic Preservation Office (SHPO) was coordinated with by submission of a Phase I report dated September 1996. The SHPO responded to this coordination by letter dated October 2, 1996. The agencies have indicated agreement with the evaluation that the net effect of the proposed project would not be significant. Individual agency concerns were addressed throughout this report.

Additional coordination for this Environmental Assessment was accomplished by circulating it for review and comment by various individual members of the public, and local, State, and Federal agencies, as shown on the distribution list.

## 10. DISTRIBUTION LIST

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**Table EA-7**  
**Compliance of Preferred Plan with Environmental Protection Statutes**  
**and Other Environmental Requirements**

| <u>Federal Polices</u>   | <u>Compliance</u> |
|--|-------------------|
| Archaeological and Historic Preservation Act, 16 U.S.C. 469, et seq.           | Full Compliance   |
| Clean Air Act, as amended, 42 U.S. C. 1857h-7, et seq.                         | Full Compliance   |
| Clean Water Act (Federal Water Pollution Control Act), 33 U.S.C. 1251, et seq. | Full Compliance   |
| Coastal Zone Management Act, 16 U.S.C. 1451, et seq.                           | Not Applicable    |
| Endangered Species Act, 16 U.S.C. 1531, et seq.                                | Full Compliance   |
| Estuary Protection Act, 16 U.S.C. 1221, et seq.                                | Not Applicable    |
| Federal Water Project Recreation Act, 16 U.S.C. 460-1(12), et seq.             | Full Compliance   |
| Fish and Wildlife Coordination Act, 16 U.S.C. 601, et seq.                     | Full Compliance   |
| Land and Water Conservation Fund Act, 16 U.S.C. 460/-460/-11, et seq.          | Not Applicable    |
| Marine Protection Research and Sanctuary Act, 33 U.S.C. 1401, et seq.          | Not Applicable    |
| National Environmental Policy Act, 42 U.S.C. 4321, et seq.                     | Full Compliance   |
| National Historic Preservation Act, 16 U.S.C. 470a, et seq.                    | Full Compliance   |
| River and Harbor Act, 33 U.S.C. 403, et seq.                                   | Full Compliance   |
| Watershed Protection and Flood Prevention Act, 16 U.S.C. 1001, et seq.         | Full Compliance   |
| Wild and Scenic River Act, 16 U.S.C. 1271, et seq.                             | Not Applicable    |
| Flood Plain Management (Executive Order 11988)                                 | Full Compliance   |
| Protection of Wetlands (Executive Order 11990)                                 | Full Compliance   |
| Farmland Protection Act  | Full Compliance   |

**NOTES:**

- a. Full compliance. Having met all requirements of the statute for the current stage of planning (either preauthorization or postauthorization).
- b. Partial compliance. Not having met some of the requirements that normally are met in the current stage of planning.
- c. Noncompliance. Violation of a requirement of the statute.
- d. Not applicable. No requirements for the statute required; compliance for the current stage of planning.