Appendix E

A. Secondary and Cumulative Impacts

1. INTRODUCTION

The assessment of secondary and cumulative impacts in NEPA documents is required by Council on Environmental Quality (CEQ) regulations. Secondary and cumulative impacts result when the effects of an action or project are added to or interact with other effects in a particular place and within a particular time. The cumulative impacts of an action or project can be viewed as the total effects on a resource, ecosystem, or human community of that action or project and all other activities affecting that resource no matter what entity is taking the actions. Secondary and cumulative impacts may occur outside the highway right-of-way and are generated as a result of changes in development patterns. Secondary or cumulative impacts may be the unintended consequences of roadway improvements. These impacts may include increases in traffic volumes outside the study corridor; or changes in population, housing, employment, tax base or other land use changes.

Determining the boundaries and time period depends on the characteristics of the resources affected, the magnitude and scale of the projects' impacts, and the environmental setting. To avoid extending data and analytical requirements beyond those relevant to decision-making, a practical delineation of the spatial and temporal factors is needed. For this project, the existing spatial factor is the I-70 Corridor from Kansas City to St. Louis, and the time period will cover from approximately the 1950's up to and through the year 2030. For the purpose of the overall secondary and cumulative impacts evaluation, the length of the I-70 Corridor is approximately 200 miles, the width for evaluation is resource dependent, and the time period will cover approximately 75 years. The secondary and cumulative impacts evaluation for each section of independent utility (SIU) will cover the same time period. This secondary and cumulative impact analysis will consider impacts that are due to past, present, and reasonably foreseeable actions.

2. EXISTING I-70 OVERALL CORRIDOR

a. Land Use

Beginning in the 1910s and 1920s, Missouri improved and paved its first major cross-state highway. The route was designated Highway 40 and by the 1930s, the road was carrying cross-state and national traffic. A number of small communities arose along the highway to provide basic services for travelers such as fuel, food, and lodging. When the original I-70 Corridor was located and constructed during the 1950s and 1960s, the direct and secondary impacts included noticeable changes to land use.

Most of the former Highway 40 was either incorporated into the new interstate or changed into a local access road along the new I-70 Corridor. Local access was lost to the controlled access I-70 facility and as a result many of the unincorporated villages and their transportation related businesses disappeared along the corridor. Although today the primary land use within the corridor is rural in character, the change from forest and agricultural lands to the location of development was highly related to the selection of the new corridor, as well as the locations of the current interchanges. Economic development generated new jobs, which in-turn increased the demand for housing, commercial, and retail services, and fundamental community infrastructure such as schools, libraries, police and fire protection, and sewer and water service. The economic growth and the secondary growth that follows is a cumulative impact. The I-70 transportation corridor, past, now, and in the future, will continue the economic development trend and hence, impacts to land use. Transportation contributes to and is one of several factors that helps facilitate economic development.

The existence or the creation of adequate utilities and other infrastructure was an attraction for development. Communities or areas with these types of facilities were and are able to attract development. Development is then a generator of tax rate revenues that contribute to the initial investment in the utilities and infrastructure. Over time, the expansion of the population, households and employment took place with the accompanying increase in the tax base. The cumulative impacts of the corridor have continued with these development trends until the present and it is expected that these trends will continue with the reconstruction and widening of the existing I-70 Corridor.

Agricultural uses, scattered residential and retail development, mining, forested and natural areas distinguish the rural areas. More dense and urbanized land uses occur within the cities located along the I-70 Corridor. These include Columbia, Warrenton, Wright City, and Wentzville. Smaller urbanized areas are found at Oak Grove, Grain Valley, Higginsville, Odessa, Concordia, Boonville, Kingdom City, and High Hill. Eastern Jackson County and western St. Charles County are generally characterized by low density, suburban development, and represent the outermost reaches of the Kansas City and St. Louis metropolitan areas, respectively. The development trend is especially expected to continue on the fringe or edges of the urban areas of Kansas City, Columbia, and St. Louis. The basic infrastructure is already in place, the typical level of traffic is high, and the non-interstate roadways usually have unrestricted access. These three features are important factors to attract development. With the ultimate improvement of I-70, their will be some residential and business displacements along the existing roadway. It is likely that these displaces would relocate close to or within the I-70 corridor area, especially the transportation dependent businesses. This, in turn, would cause an additional change in land use, from non-developed to developed use.

b. Parklands

Section 4(f) of the U.S. Department of Transportation Act of 1966, as codified and amended, has afforded publicly owned parkland protection from being converted to uses other than park and recreation. Consequently, and over time, Federal-aid highway projects have avoided or mitigated any impacts to the taking of parkland. Most often, parkland has been avoided and if impacted, the impact has been minor and appropriately mitigated.

Reconstructing and widening the existing I-70 Corridor could result in secondary and cumulative impacts resulting from improved transportation access. As ensuing development expands around existing parkland facilities, particularly in urban areas, some encroachment could take place because of street widening or changes in land use/zoning. Increased development could also result in increased noise levels and visual impacts in some parklands that were previously somewhat isolated.

An additional secondary impact could occur in urban areas in the form of park system expansion. A trend of expanding development in an area can trigger the city to purchase more property to be preserved as part of a parkland plan or open space corridors. This land use determination might have otherwise been at the discretion of private developers and individual property owners. Also, with the reconstruction of existing interchanges, there will be the opportunity to provide increased trails plus bicycle and pedestrian infrastructure. Additionally, these areas could provide the opportunity for community initiated enhancement features.

c. Prime Farmland

The proposed reconstruction and widening of I-70 may result in secondary impacts to prime farmland due to farmland conversion along the new required right-of-way. It is estimated that

approximately 1,300 acres of farmland will be directly impacted along the entire length of the corridor. Farmers affected by the conversion of all or part of their land to the development of the roadway may choose to no longer farm or cultivate their land. As a result, more farmland soils could be taken out of production if farmers choose to sell their land for non-farm uses. If the farmland is sold, it may be subdivided and converted to commercial and residential land use.

The improved roadway may, at some time in the future, act as a catalyst for increased growth, relocated development and expansion in the region. Historically, this has taken place in the I-70 Corridor. New development would depend on the location, and such development would be expected to occur in areas already near the main population centers. However, with the proposed reconstruction and widening of existing I-70, overall secondary and cumulative impacts to the prime farmland resource are expected to be minimal.

d. Terrestrial and Aquatic Communities

Although the direct loss of forest acreage can eliminate or reduce the size of habitats, secondary and cumulative impacts can also occur as a result of habitat fragmentation, which can have an adverse effect on species diversity and connectivity. It is estimated that approximately 230 acres of forest land will be directly impacted along the length of the corridor. Habitat fragmentation in both terrestrial and aquatic areas can create variable-sized parcels or "islands" of viable habitats that become isolated. Secondary and cumulative impacts could also result by inducing more development within the corridor. Forested areas and watersheds across the I-70 Corridor are resources that have been impacted by the initial location and construction of I-70. With the reconstruction and widening of I-70 and, as more land is encroached upon by private development, the potential for additional disturbance of terrestrial and aquatic areas increases.

e. Threatened and Endangered Species

Much of the land near and adjacent to the I-70 Corridor already exhibits appreciable amounts of disturbance and/or development. Therefore, most of these areas are unlikely to harbor listed species that could be impacted by secondary development. Most of the recorded habitat locations are remote and are far enough removed from the I-70 Corridor to be secondarily impacted by reconstructing and widening existing I-70. Because of this, the potential for cumulative impacts to listed threatened and endangered species is considered to be low.

f. Wetlands and Waters of the U.S.

There is the potential for the proposed reconstruction and widening of the I-70 Corridor to contribute to secondary and cumulative impacts to wetlands and other water of the U.S. During the construction phase, activities that impact these sites through sedimentation, changes in the nature of stream hydraulics, or clearing of vegetation in riparian habitat, are likely to have impacts on wetland functions and values of downstream or downslope waters of the U.S., including wetlands. It is estimated that approximately 80 acres of wetlands will be directly impacted along the I-70 Corridor. It should be noted however, that there will be wetland mitigation planned within the corridor to ensure, at a minimum, no net loss of wetlands as a resource. Major floodplain and floodplain complexes across the 200-mile corridor include the: Blackwater, Lamine, Missouri, and Loutre Rivers. The Missouri River floodplain and Overton Bottoms wetlands complex is a special area within the I-70 Corridor.

g. Air Quality

The proposed reconstruction and widening of the 200-mile long I-70 Corridor falls within the Metropolitan Kansas City Interstate Air Quality Control Region, the Southwest Missouri Intrastate Air Quality Control Region, the Northern Missouri Intrastate Air Quality Control

Region, and the Metropolitan St. Louis Interstate Air Quality Control Region. The Metropolitan Kansas City Interstate Control Region is classified as a maintenance area for Ozone, while the Metropolitan St. Louis Interstate Air Quality Control Region is classified as non-attainment for Ozone. Corridor wide, emissions are projected to decrease in the next 20 to 30 years. These reductions in emission will offset the increase in free-flow traffic volumes along the study corridor. It is recognized that development trends are expected to continue throughout the foreseeable future. With the improved mobility and the access management policy implemented with the ultimately reconstructed I-70 corridor, this project is not anticipated to cause a violation of the National Ambient Air Quality Standards. At the western and eastern termini, conformity statements may be required from the Metropolitan Planning Organizations.

h. The Land and Visual Quality

The I-70 Corridor travels through several physiographic regions of north-central Missouri. The western portion of the study corridor is located in the Western Glaciated Plains, consisting of gentle to moderate slopes with rolling hills. Much of this area has been cleared for use as agricultural cropland and pastureland.

The middle portion of the corridor includes the Lower Missouri River and the adjacent Ozark Border. The Lower Missouri River region consists of level river bottoms in a wide floodplain area, most of which has been cleared and is used for agricultural cropland. Some areas remain as wetlands and riparian forests. The Ozark Border is characteristically rugged with forested hilly terrain of steep to moderately steep slopes and narrow valleys. Some of this area has remained forested.

The eastern portion of the study corridor is located in both the Eastern Glaciated Plains and the Ozark Border adjacent to the Missouri River. The Eastern Glaciated Plains consist of gentle to moderate slopes with rolling hills, most of which has been cleared for agricultural use over time. The Ozark Border is characterized by hilly terrain similar to that of the middle portion of the corridor, however, there is much more remaining forested land in Callaway, Montgomery and Warren Counties, between Kingdom City and Wright City, especially in the area south of I-70.

In addition to the Missouri River valley, the study corridor includes several other perennial and intermittent stream valleys. Each of these provides a unique visual environment, which is composed of water, trees and rocks or bluffs.

The majority of the built environment is concentrated within the larger towns and cities such as the east side of the Kansas City metropolitan area, the west side of the St. Louis metropolitan area and the city of Columbia. In these areas, there is a sharp contrast between the built environment and the natural environment. In most cases, the edges of these urbanized or built-up areas tend to include highway corridors with adjacent commercial and industrial uses that lack harmonious or cohesive aesthetic relationships. In contrast, the smaller towns within the study corridor are less intrusive, and can be more aesthetically pleasing, depending upon architectural styles and maintenance practices.

The proposed reconstruction and widening of existing I-70 would secondarily and cumulatively impact the visual quality of the environment as increases in growth, development and traffic volumes occur as a result of the proposed improvement. However, the visual quality of the corridor will be enhanced in accord with the appropriate elements of an I-70 Corridor Enhancement Plan.

3. MITIGATION AND ENHANCEMENT OF I-70 OVERALL CORRIDOR CUMULATIVE IMPACTS

The First Tier EIS documented the commitments of MoDOT and the FHWA to provide corridor-wide impact coordination, impact mitigation and considerations of corridor enhancements. The document provided agencies and community assurances, through the development of an enhancement master plan, that corridor-based considerations will be fulfilled and appropriate special considerations will be provided for each of the second tier studies.

A Corridor Enhancement Subcommittee, one of three subcommittees for the I-70 Corridor, is a consortium of the project team and local, state, and federal agency technical staff. This committee developed a proposed mitigation and an enhancement plan for the overall I-70 Corridor. The goals of the corridor mitigation and enhancement plan include creating an approximately 200-mile I-70 transportation corridor that:

- Complements the existing natural environment.
- Maintains sensitivity to the existing context of the corridor.
- Provides a sense of consistency along the entire route.
- Showcases Missouri through enhancements which highlight Missouri history, cultural resources and economy.
- Establishes baseline enhancements for the entire corridor and identifies opportunities for additional enhancements by local communities and other partnering agencies.

Included in the plan are: a program for aesthetic enhancements for the existing natural features in the corridor; visual design treatments to built elements that reduce their sense of scale; an overall design theme for enhancements to complement the visual context of the corridor (context sensitive design); corridor landscape enhancements for both the mainline and interchanges; and, riparian habitat enhancement and wildlife corridors treatment. Applicable parts of the mitigation and enhancement plan will be incorporated and committed to in the second tier environmental decision documents.