

Hazardous Waste Impacts

What is hazardous waste?

An assessment of the proposed Route 63 corridor was conducted to identify any hazardous waste concerns in the study area. Hazardous wastes as regulated by the Environmental Protection Agency (EPA) are defined as “waste with properties that make it dangerous or potentially harmful to human health or the environment. Hazardous wastes can be liquids, solids, contained gases, or sludges. They can be the by-products of manufacturing processes or simply discarded commercial products, like cleaning fluids or pesticides.” In order for a waste to be considered hazardous, a waste must exhibit at least one of the the four characteristics of hazardous waste; ignitability, corrosivity, reactivity, or toxicity. If the waste exhibits just one of these characteristics, it is given the title of a hazardous waste.

What resources were used to search for hazardous waste data?

The following sources were searched for potential hazardous and solid waste concerns, in the study area: Federal Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS); Environmental Protection Agency (EPA) Emergency Response Notification System (ERNS); Missouri Department of Natural Resources (DNR) Confirmed Abandoned or Uncontrolled Hazardous Waste Disposal Sites in Missouri, Fiscal Year 2007; DNR Missouri Hazardous Waste Treatment, Storage, and Disposal Facilities List; DNR Solid Waste Facilities List; and DNR Underground Storage Tank database.

These information sources were used to identify listed hazardous waste sites such as underground and above ground petroleum storage tanks (UST’s and AST’s), that could cause an environmental impact in the projected right of way. After reviewing the site databases, a field check of the study area was conducted by MoDOT environmental specialists to identify listed and any other additional hazardous waste sites that may be of concern. Any unknown sites that are encountered during project construction would be handled in accordance with federal and state laws and regulations. See Appendix I, Plates 1-9 for location of all identified hazardous waste sites. Waste can also be hazardous by being identified as a “listed waste” in state and federal regulations.

An evaluation of the study corridor for possible hazardous waste impacts found that there is a possibility for site impacts on each of the three alternatives being considered, the majority being along the existing route. Throughout the corridor there are sites that include petroleum storage tanks, (gasoline, diesel, etc.) these sites are listed as “Tank Sites” in Table 16. Petroleum storage tanks have the potential to cause problems because of releases that contaminate the surrounding soil and groundwater. Other sites of concern in the proposed Route 63 corridor are things such as automobile repair facilities and equipment dealers, listed as “Other Concerns” in Table 16. Facilities of this nature have the potential to contaminate soils and groundwater due to the oil, fuel, solvents and other chemicals that could be released into the environment and cause need for cleanup. A short description of each of the sites is also included with approximate location.

Table 16. Potential Hazardous Waste Sites

Facility Name	ID#	Preferred Alternate	Alternative 1	Alternative 2
Weber Equipment	1	OC	OC	OC
Fritz's Auto Body	2			OC
CSH Automotive	3			OC
Leroy's 63 Mini Mart (CNEX)	4			T
Shelter Insurance	5			T
Rehagen HT/AC	6			OC
Delbert Wieberg DumpTruck Service	7			T
Play Mor Trailers	8		OC	
Skidmore Lumber	9		OC	
Luecke's Roofing	10		OC	
MFA Bulk Storage	14		T	
Dickneite Oil	15		OC	
Vichy Café	59	T	T	
Suspect Gas Station	60	T	T	
Suspect Gas Station	61	T	T	
Vichy Store, Tire & Deli	63	T	T	
J & M Feed	64	T	T	
Auto Repair	65	OC	OC	
Abandoned Trailer Park	66	OC	OC	
Dump Site	67	OC	OC	
T = Tank Site				
OC = Other Concerns				

Weber Equipment is located on the east side of Route 63 approximately 4,000 feet south of the Route 50/63 junction. The site is currently used as a farm implement dealer and farm equipment repair facility. No commercial sales of petroleum products are known to have occurred at the facility.

Fritz's Auto Body is located on the west side of Route 63 approximately 250 feet south of Route 133. The site is currently used as an auto repair facility. No commercial sales of petroleum products are known to have occurred at the facility.

CSH Automotive is located on the west side of Route 63 approximately 500 feet north of County Road 511. The site is currently used as an auto repair facility and trailer sales. No commercial sales of petroleum products are known to have occurred at the facility.

Leroy's 63 Mini Mart is located on the west side of Route 63 approximately 1,300 feet south of County Road 511. The site is currently being used as an active gas station. Currently the site has three AST's in use.

Shelter Insurance is located on the east side of Route 63 approximately 1,600 feet south of County Road 511 and is the site of a former gas station. Three UST's were removed from the site and the site was closed on August 30, 1996.

Rehagen Heating and A/C is located on the west side of Route 63 approximately 2,000 feet south of County Road 511. This site is the former location of Weber Equipment, a farm implement dealer and repair facility. No commercial sales of petroleum products are known to have occurred at the facility.

Delbert Wieberg Dump Truck Service is located on the east side of Route 63 approximately 1,300 feet north of County Road 615. The facility currently has two AST's in use. Minor auto repair may also be performed at the site. No commercial sales of petroleum products are known to have occurred at the facility.

Play-Mor Trailers is located on the west side of Route 63 approximately 1,800 feet north of Route T. This site is currently used as a manufacturer of trailers. No known UST's or AST's are present at the site. No commercial sales of petroleum products are known to have occurred at the facility.

Skidmore Lumber is located on the east side of Route 63 directly across from the junction of Route T and Route 63. This site is currently used as a sawmill. There are field mounted AST's present at the site. At this time it is not known if any wood treatment is done onsite. No commercial sales of petroleum products are known to have occurred at the facility.

Luecke's Roofing is located on the west side of Route 63 approximately 1,500 feet south of Route T. Now used as a roofing company, this site was formerly Bray's Auto Sales. Minor auto repair may also have been performed at the site. No commercial sales of petroleum products are known to have occurred at the facility.

MFA Bulk Storage is located on the east side of Route 63 approximately 400 feet north of Route JJ. This site is currently used as a bulk storage facility of petroleum products. Several AST's are located at this site.

Dickneite Oil is located on the west side of Route 63 approximately 800 feet south of Route JJ. This site is currently used as a bulk storage facility of propane and propane accessories. Several tanks are located on this property.

Vichy Cafe is located on the east side of Route 63 approximately 450 feet north of Route 28. This site is currently used as a restaurant but was the site of a former gas station. Pump islands are present at the site. The presence or absence of tanks is not yet confirmed.

Suspect Gas Station is located on the west side of Route 63 approximately 450 feet north of Route 28. This site is currently abandoned. A structure resembling a station remains at the location. It is not yet determined if the structure was at one time a gas station. The presence or absence of tanks is not yet confirmed.

Suspect Gas Station is located on the west side of Route 63 approximately 575 feet south of Route 28. This site is currently abandoned. Concrete resembling pump islands remain at the site. The presence or absence of tanks is not yet confirmed.

Vichy Store, Tire, and Deli is located on the east side of Route 63 approximately 500 feet north of County Road 444. This site is currently used as a tire change facility and formerly was used as a gas station. Two underground storage tanks are on site and remain temporarily closed since about December 14, 2005. Tanks deemed beyond repair.

J & M Feed is located on the east side of Route 63 approximately 1,300 feet south of County Road 444. This site is currently vacant. The site was once used as a gas station and AST's still remain onsite. The conditions of the tanks are unknown at this time.

Auto Repair is located on the west side of Route 63 approximately 1,200 feet north of County Road 443. This site is currently used as an auto repair facility. No commercial sales of petroleum products are known to have occurred at the facility.

Abandoned Trailer Park is located on the west side of Route 63 approximately 500 feet north of County Road 443. The site is currently abandoned and contains many abandoned house trailers that are in disrepair.

Dump Site is located on the west side of Route 63 approximately 150 feet north of County Road 443. This site is currently being used as a dumpsite for an unknown party or parties. Significant amounts of solid waste have been dumped at this site.

Until the sites are acquired by MoDOT, and sufficient sampling and/or a Phase I/II Environmental Site Assessment is conducted to determine if the site is contaminated, MoDOT can not determine the amount of effort and cost it would take to clean up a potentially contaminated site.

What happens if an unknown hazardous waste site is discovered?

If regulated solid or hazardous wastes are found unexpectedly during construction activities, the MoDOT construction inspector would direct the contractor to cease work at the suspect site. The construction inspector would contact the appropriate environmental specialist to discuss options for remediation. The environmental specialist, the construction office, and the contractor would develop a plan for sampling, remediation if necessary, and continuing project construction.

Environmental Justice

This section analyzes the potential adverse and excessive environmental and human health impacts the proposed project may have on low income and minority communities. The area of analysis includes the entire length of the study corridor since a regional view, as performed for community impacts, would not produce substantive differences for the analysis.

What is environmental justice?

In early transportation projects, many of the impacts affected minority and low-income populations in greater ways than other groups. This has been partly attributed to low-income populations and neighborhoods being located near downtowns and other common destinations, which were the target of transportation projects.

These neighborhoods typically had low value properties and perceived to have a lack of political power and representation. As a result, low income and minority populations and neighborhoods were impacted more often than other populations and neighborhoods. Environmental justice is an attempt to address disproportionately high and adverse human health or environmental impacts that projects funded by the federal government may have on minority and low-income populations.

The President of the United States created the current environmental justice analysis requirements through Executive Order 12898 in 1994. The President directed all federal agencies to make environmental justice part of their missions and to identify and address the effects of their programs, policies and activities on minority and low-income populations.

Title VI of the 1964 Civil Rights Act:
Prohibits discrimination on the basis of race, color, and national origin in programs and activities receiving federal financial assistance.

Environmental justice was built on Title VI of the 1964 Civil Rights Act, which prohibits discrimination on the basis of race, color, and national origin in programs and activities receiving federal financial assistance.

Environmental justice is a policy that has three major parts:

1. Avoid, minimize, or mitigate disproportionately high and adverse human health or environmental effects, including social and economic effects of the project, on minority populations and low-income populations,
2. Ensure the full and fair participation by all potentially affected communities in the transportation decision-making process, and
3. Ensure minority and low-income populations receive their equal share of the benefits from the project.

What groups are included in environmental justice analysis?

For the analysis of environmental justice, minority persons are defined as any person who is African American, Hispanic, Asian American, American Indian, or Alaskan Native. Low-income populations are those households with incomes at or below the Department of Health and Human Services poverty guidelines of \$21,200 for a family of four.

Whether or not they fit the definition of an environmental justice population, all groups and individuals have the right to access and participate in the transportation decision-making process as protected by Title VI of the Civil Rights Act. The environmental justice analysis for this project was performed using a set of guidelines provided by the Federal Highway Administration (FHWA).

The environmental justice analysis included all of the census tracts and block groups that are associated with the study corridor. Eight census block groups, made up of 10,313 residents, were used to determine the environmental justice population.

Low-Income Populations Defined:

Low-income households are those with annual incomes at or below the Department of Health and Human Services poverty guidelines of \$21,200 for a family of four.

However, since this is a rural, low-populated region, the eight census block groups encompass more geographical area than is necessary. Census block data for low-income populations indicates no more than 9.87 percent of the residents along the entire corridor live at or, below the poverty rate, while the total for any of the cities (Westphalia, Freeburg, Vienna) was no greater than approximately 2.8 percent.

There are low-income housing units and Section 8 HUD Rental Assistance located in Vienna near Route 63. Neither would be relocated as a result of this project since the alternative on existing Route 63 through Vienna was eliminated partially because of the excessive residential and business relocations.

Rural housing supply, in general for any income group, is typically lower than a large metropolitan area; therefore sufficient housing replacement may not be available if in the future a family who receives a housing subsidy is relocated. According to the Phelps County Public Housing Authority, it would not be difficult to relocate families with the program. The Housing Choice Voucher program gives the family its choice of where they would like to live. Nevertheless, if there are more than a few families relocated they may find it more difficult to find housing.

How did MoDOT ensure full and fair participation by minority and low-income communities?

Both Federal and MoDOT policies stress that early and ongoing public outreach is a vital component of the environmental justice process. While the study team did not specifically seek out and solicit information from potentially low-income and/or minority individuals who live and work in the area, many opportunities were provided to have full and fair participation in the decision making process. Various public outreach efforts, including meetings held in local area facilities accessible to low-income and minority populations, were available.

The strategy used for effective public participation included a series of well-advertised public meetings, held at convenient times in two locations along the corridor, Westphalia and Vienna, at strategic points in the study process. The public involvement chapter outlines all of the efforts taken to acquire public comment.

The study team encouraged the public to comment on the study and alternatives at all meetings. Newsletters, including meeting notices and study updates, were sent to homes and businesses within the study corridor that would have included any minority and lower income households. Several hundred copies of the newsletters also were provided at local gathering places, including churches, to be distributed to concerned citizens who may not have received the newsletter through other sources. All low-income, minority, and other community members will have further chances to comment on the project through a well-advertised public hearing process and public comment period of the Environmental Impact Statement.

What are the minority groups in the study corridor?

Based on information obtained from the 2000 United States Census, the study team compared the populations affected by the alternatives. As previously mentioned, the environmental justice analysis included all of the census tracts and block groups that covered the impact area of the reasonable alternatives in the study area. The resulting analysis identified that there is a higher percentage of minorities in the census block adjacent to the city of Rolla in Phelps County. No other parts of the study corridor contained a larger percentage of minority populations.

Within the study corridor the two largest minority groups are African American and Hispanic. Other groups in the study corridor include White (Non-Hispanics), American Indian, and Asian populations. The study team did not identify any concentrations of other populations or ethnic groups that would be protected under Title VI and fit the specific criteria of environmental justice populations.

Of the 10,313 residents found in the study corridor, 98 percent of the residents are identified as white (non-Hispanic). African-Americans and Hispanic are the two largest minority groups at 0.2 percent each of the total population in the analysis area.

A summary of the racial makeup of the cities located in the study corridor follows. The exception is at Vichy, where no specific demographic data is available.

- The city of Westphalia had a residency of 320 people and 137 households. The racial makeup of the city is 97.81 percent white, 0.31 percent African-American, and 0.62 percent Hispanic.
- The city of Freeburg had a population of 414 people and 345 households. The racial makeup of the city is 99.3 percent white and 0.7 percent Hispanic.
- The city of Vienna had a population of 630 people and 545 households. The racial makeup of the city is 98.7 percent white and 1.0 percent American Indian.

What are the effects of each alternative on environmental justice populations?

Potential environmental justice impacts are defined as the unavoidable negative effects of the project that would be mostly experienced by minority and low-income populations or are higher than the negative effects that would be suffered by non-minority and/or non-low-income populations. The analysis has determined that there are no disproportionately high and adverse human health or environmental impacts on minorities and/or low-income populations by any of the Reasonable Alternatives.

Impacts from any Reasonable Alternative would be similar for all groups regardless of the demographic or socioeconomic characteristics of the community. All negative impacts to environmental resources, such as water quality, noise, and public services would be avoided, minimized, or rectified to the highest extent possible.

MoDOT would provide purchasing and relocation assistance and advisory services, as stated by the Uniform Relocation Act, for any member of the community whose property is needed for the project. MoDOT would inform individuals, businesses, and non-profit organizations of the impacts of the project on their property to the highest extent possible.

All residents of the study corridor, including minorities and lower income groups, would benefit from positive impacts of an improved Route 63. Potential beneficial impacts include relief of local traffic congestion, increased safety, potential job creation, and improved economic conditions for businesses.

The No-Build Alternative would have no disproportionate impacts on any segment of the population including minorities and low-income persons. However, the potential benefits of the build alternatives mentioned above would be lost.

Given the homogenous demographic nature of the study corridor, the effects of any of the build alternatives on environmental justice populations are considered nearly the same. Therefore, the discussions of the effects by each build alternative are combined.

Approximately two percent of the residents in the census blocks encompassing the corridor study area would be considered part of a minority group. The census blocks located at the south end of the corridor study area are the only ones that contain greater than three percent minority population. However, MoDOT already owns adequate right of way along stretches of that section. Therefore, limited property acquisition would be needed and thus there would be only limited residential relocations. The village of Vichy is the exception. Concentrated relocations would occur here with the Preferred Alternative. However, using previously mentioned project experience in Vichy, the residents are known to be non-minority.

The total number of relocations for any of the build alternatives is low given the length of the corridor. The greatest concentration of relocations is at Vichy. Any cohesion of the city, given the division by the highway, would be further damaged as a result of expansion at this location.

The potential relocation of businesses currently operating in the corridor could also affect low-income and minority households. The Preferred Alternative has 13 commercial relocations and Alternative 2 has 16. Alternative 1 was well below these numbers with only two potential commercial relocations. As with residential relocations, the opportunity to decrease the numbers would likely be possible during the design process. If local retail businesses would be relocated, this could present a challenge to the local low-income population to find sufficient alternatives to these businesses. Similar businesses to the relocated businesses, such as gas stations and restaurants, would still exist in the study corridor. However, for some unique businesses such as medical offices the effect would increase if these or similar businesses do not relocate at the other sites near the study corridor.

It is likely that minorities and/or low-income families would be relocated by any one of the build alternatives. However, the low minority and poverty rate percentages and relocation numbers discussed above are strong evidence that there are no disproportionately high and adverse human health or environmental impacts on minorities and/or low-income populations by any of the build alternatives.

All of the impacts by any of the build alternatives discussed in sections of this document would affect various segments of the general population based on their proximity to the project and their use of the existing roads in the study corridor. Neighborhood effects or effects to residences created by a build alternative would be the same for all persons regardless of race or income. Environmental justice populations would experience the same changes in access, emergency service routes as the entire population. Changes in noise levels, would affect all community groups in a similar manner, and not disproportionately affect low income and minority households. In addition the noise levels, aesthetic and visual impacts of a new route, would also affect environmental justice populations in the same manner as the general population. All of the alternatives would result in the reduction of the local tax base, which would be felt by all residents regardless of income or race.

Environmental justice populations would share the potential benefits of any of the build alternatives. Reduced congestion, improved safety, and reduced travel times on the new Route 63 and on local roads would benefit all users. Congestion is costly to local and state economies and individuals. The improvement may lead to more jobs and reduced transportation costs, with widespread benefits to general population including low income and minority populations.

Bicycle and Pedestrian Concerns

How would the alternatives affect pedestrians and bicyclists?

Since the study corridor has no known extensive pedestrian and bicycle use, none of the alternatives would have a negative effect on bicycle or pedestrian use. Further, there are no designated bicycle routes or documented extensive use of either existing Route 63 or the connecting road network by bicyclists. The alternatives do not improve access for pedestrians or bicyclists. However, long distance bicyclists would likely find a geometrically improved Route 63, an attractive north-south route through Missouri.

In accordance with the American Disabilities Act (ADA), sidewalk ramps would be upgraded to current ADA standards on roadways that are altered as part of this project. Sidewalks would be maintained on roadways, which currently feature sidewalks. New sidewalks would be provided on affected roadways that do not currently have sidewalks if there is a demonstrated need for pedestrian accommodation and/or a need to maintain or improve pedestrian connectivity between the neighborhoods affected by the proposed project.

There are sidewalks within MoDOT right of way within the commercial section of Route 63 through the city of Freeburg (north and south lanes). These sidewalks start at Beck Motors and run approximately 0.75 miles to Holy Family Catholic Church. This is the only location where MoDOT owns and is responsible for maintenance of sidewalks along Route 63. These sidewalks would not be affected since the preliminary alternative along existing Route 63 in Freeburg was eliminated. There are no MoDOT proposed pedestrian or bicycle facilities in the corridor.

New sidewalks or upgrades are not anticipated in the communities of Westphalia, Freeburg or Vienna, since the Preferred Alternative relocates the roadway outside of these communities. Pedestrians and bicyclists would benefit from improved safety from the reduced vehicle movements through these communities. Conversely, the Preferred Alternative would continue on the existing alignment through Vichy. Sidewalks through Vichy would be provided if there is demonstrated need for pedestrian accommodation.

There have been no public comments on the need for pedestrian or bicycle facilities. MoDOT would continue to work with local stakeholders to assess need during the design phase.

Land Use and Zoning

The study corridor is located in east-central Missouri on the northern edge of the Ozark region. The landscape patterns in Osage and Maries Counties are highly diverse. Route 63 closely approximates the location of a winding ridge top that divides the major watersheds in the counties. To the west, tributaries flow to the Maries River or other smaller tributaries that drain to the Osage River in neighboring counties. On the eastern side, most of the drainage flows toward the Gasconade River.

The dominant landscape configuration between these rivers consists of moderately sloping to steep uplands dissected by flood plains along small streams. In the south portion of Maries County and into Phelps County, broad plateaus occur on the crests of the major divides. The major flood plains in Osage and Maries Counties are along the Gasconade River and Maries River and their tributaries.

Each of the build alternatives would mostly affect land uses in the rural, agricultural portion of the counties. Land uses in Phelps County would not be impacted since the Preferred Alternative, the only alternative in the county, provides lane additions adjacent to the existing lanes on existing right of way.

The Preferred Alternative would affect land uses in Vichy, while Alternative 2 would affect the land uses of Westphalia. Both of these alternatives make improvements on existing Route 63 through each respective city. Land uses would not be impacted in either Freeburg or Vienna. Alternatives through Freeburg and Vienna were eliminated partly due to a large number of relocations.

What are the land uses in the study area?

There are various land uses within the entire corridor study area. These land uses include farms, single-family residential, multiple family residential, commercial, and public facilities. The following sections describe the study area land uses.

Both developed and undeveloped land can be found in the study area. Developed lands are primarily found in the cities established in the study corridor. These developed lands include various uses typical of cities, such as residential, commercial, and recreational.

Undeveloped lands are generally found in the primarily rural and agriculture portion of Osage and Maries Counties. Existing undeveloped lands are either open fields of pasture or hay, limited tillable fields or wooded tracts.

How would the alternatives affect land use?

Discussed in the following sections are the impacts of the alternatives on land uses within and adjacent to the study corridor. The compatibility of the alternatives with local zoning ordinances, if applicable, is also discussed. Potential impacts to land uses in communities outside the study corridor are discussed in the Indirect and Cumulative Impacts section of this chapter.

The study team analyzed all of the local land use plans and zoning ordinances for the communities located in the study corridor. The Westphalia Planning and Zoning Code, the only city with an ordinance, was obtained from the City Clerk of Westphalia, for the analysis. Officials from the Meramec Regional Planning Commission (MRPC) were contacted to discuss any known land use plans and zoning impacts of the alternatives. Members on the Route 63 Advisory Committee were also consulted.

The discussion of land use and zoning compatibility is based on the planning and development data and future land use plans available at the time of the analysis. At this time there are no county or city comprehensive land use plans.

The No-Build Alternative would have few impacts on land use policies and decisions within the study area. Any future land use plans would have to acknowledge Route 63 in its existing location and plan land use development accordingly.

With the No-Build Alternative, existing land uses would not be impacted because Route 63 would maintain its current footprint and would not encroach upon adjacent development. Increased congestion along with the associated safety reduction and potential noise issues may impact adjacent residential areas but are unlikely to cause widespread conversion to other land uses. The increases in traffic expected by 2030 would likely result in some bottlenecks and backups at several intersections. This could impact access to local businesses and change land uses.

Primarily due to the principally rural, undeveloped nature of the corridor, the build alternatives would have similar impacts to all of the land use categories regardless of the location of the alternative in relation to the existing route or city.

The majority of the Preferred Alternative and Alternatives 1 and 2 are on new location in land use designated as agriculture. These undeveloped, rural areas would not change. However, the alternatives would influence land use development patterns, and population density at the location of the corridor communities. The magnitude of that influence would be a function of where and how close the alternative is in relation to the cities. Likewise, the access provided to the city from the relocated route would influence land use change and be the cause of indirect or secondary impacts. Further influences of change, discussed by city, are given in the following paragraphs.

At the Westphalia section, the Preferred Alternative would have the most likely influence on land use development patterns in comparison to Alternative 1. That is due to its desirable proximity and location in developable landscape. The location of Alternative 1 to the east creates a barrier with Westphalia by more distance and the Maries River. Hence, the influence to cause land use changes would be little or nonexistent. As with the Preferred Alternative in Vichy, Alternative 2 would impact land uses along the existing route. Minimum relocations would occur, but businesses and the Lions Club recreational facility would likely be negatively impacted by increased traffic. Any businesses relocated may be interested in moving as close as possible to the widened route to remain within or near Westphalia's designated business districts. This in turn could cause the conversion of residences to businesses in the immediate surrounding location of the widened highway.

By Freeburg, the same situation with the Preferred Alternative would exist. The western location of the Preferred Alternative, especially at the intersection with Route P, makes it more favorable to influence increased development. Without access to Alternative 1 on the east side of Freeburg, land use changes would be gradual.

With the Vienna section, both the Preferred and Alternative 1 relocate Route 63 to the east side of Vienna. However, using proximity as a basis for influence, Alternative 1 would be more likely to cause a change in land use patterns and population density. The Preferred Alternative is approximately 1.5 miles from Vienna, at this distance it could be speculated there would be changes to commercial land use and development patterns. However, as discovered in the *Pre-Construction Community and Business Impact Study, Hwy 63 Route Relocation Report* (Appendix E), 91 percent of Vienna retail customers are within 30 miles of the town. Therefore, with that percent of a local customer base a relocated Route 63 would not cause a commercial land use change within Vienna.

In Vichy, an expanded highway would greatly influence land use decisions. This will be the situation with the Preferred Alternative in Vichy, as relocations will result from lane additions on the west. This in turn will open up agriculture or undeveloped property to the possibility of development. On the converse, Alternative 1 in the Vichy section would not cause land use changes.

Are the alternatives consistent with local zoning and ordinances?

Westphalia is the only community in the study corridor with land use zoning plans. The No-Build Alternative would be consistent with local planning in Westphalia. This alternative would have no impacts on land use policies and zoning within the city.

Only a small portion of the Preferred Alternative passes through the city limits on the south side of the city. It would impact rural residential zoned land and therefore would not be consistent with the planned zoning and land uses within Westphalia. This area may be rezoned to accommodate the new highway location.

Alternative 2 improves existing Route 63 through the city of Westphalia. Most of the adjoining zones are categorized as highway commercial making Alternative 2 consistent the zoning plan. The other areas are zoned rural residential and multi-family residential. The widening of Route 63 would not be entirely consistent with these planned uses. The widening is not anticipated to relocate these multi-family residential facilities. Therefore, this land would not require rezoning.

Farmland Impacts

Missouri has a long history of farming, especially in the project vicinity. Farming, a \$5 billion per year industry in Missouri, produces approximately \$78 million in agricultural revenue each year in Osage, Maries, and Phelps Counties.

How is farmland impact evaluated?

Recognizing the importance of protecting farmland from conversion to non-agricultural uses by minimizing the impacts to it from federally funded programs, Congress passed the Farmland Protection Policy Act (FPPA) in 1981. Before farmland can be used by a federal project, it must be determined if prime, unique, statewide, or locally important farmland would be converted to non-agricultural uses. This assessment is a collaborative process with the Natural Resources Conservation Service (NRCS). If farmland is used in excess of parameters developed by NRCS, then the federal agency must take measures to minimize farmland impact.



Study Corridor Farmland

How is farmland classified?

NRCS classifies farmland as prime, unique, or of statewide or local importance based on soil type. Prime farmland has the best blend of physical and chemical characteristics for producing normal crops while requiring less human labor and less assistance from pesticides and fertilizer than farmland of statewide or local importance. Unique farmland is used for the production of specific high-value food items such as nuts and certain fruit

or vegetables, and usually has the special combination of soil characteristics, moisture, and location needed to produce high quality and high yields.

Statewide or locally important farmland is designated by state or local agencies for the production of crops in a specific area, but is not of national significance.

How were the project alternatives rated?

Statewide or locally important farmland is common throughout the area of the proposed project, as is, to a lesser extent, prime and unique farmland (Appendix I, Plates 1-9). The average farm size in Osage County is 258 acres, in Maries County it is 265 acres, and Phelps County is 244 acres.

Agricultural enterprise in the study vicinity is primarily devoted to pasture and livestock; pigs, hogs, and cattle provide much of the area's agricultural income. Row crops, primarily soybeans and corn, also provide income to area farmers. The study area has been evaluated (Appendix F) using the Farmland Conversion Impact Rating Form (SCS-CPA-106). Because ratings were determined by NRCS before the final alternatives were picked, the following are approximates of the final ratings. Four alternatives were evaluated: 1) Alternate A (nearly identical to the Preferred Alternative), 2) Alternate B (or the current Alternative 1), 3) connectors between the two, and 4) expanded acreage surrounding existing Route 63 (closely aligned with Alternative 2).

Alternate A required approximately 2,609 acres of new right of way, Alternate B required about 2,278 acres, the connectors required approximately 496 acres, and 953 acres were required for improvements along existing Route 63. The recorded Part V Relative Value of Farmland to be converted totaled 63.1 points out of a possible 100 for Alternate A, 65.3 points for Alternate B, 62.2 points for the connectors, and 58.4 points for land along existing Route 63.

The Part VI Site Assessment Criteria rating scored 64 points out of a possible 160 for Alternates A and B, 51 points for the connectors, and 52 points for land along the existing route. The total conversion impact ratings were 127.1 points, 129.3 points, 113.2 points and 109.4 points respectively, which is well below the 160-point threshold established by NRCS for consideration of farmland protection.

The proposed alternatives are primarily located east and west of Route 63's existing alignment, with links between the two or expanded acreage along existing Route 63 as additional options. The project is not protected from conversion by any state, local government, or private nonprofit policy or program. Any project impacts to on-farm investments, such as water diversion systems or terracing, would be minimized as design is further refined.

Severances to farmland will be avoided to the extent possible. After project completion, any farms with uneconomic remnants would be compensated at prevailing market rates. All farm support services are available to the area and would not be negatively impacted by the project. The project would be fully compatible with existing agriculture.

Threatened and Endangered Species and Unique Natural Communities

The Endangered Species Act of 1973 provides for the protection of threatened and endangered species, both plants and animals, and the habitats that are considered critical to the survival of these species, e.g., breeding, nesting, roosting, and foraging areas.

The U.S. Fish and Wildlife Service (USFWS) is empowered as the chief administrative, regulatory, and enforcement agency regarding threatened and endangered species and their critical habitats. The State of Missouri also maintains endangered species legislation that protects those species, which have been determined to be endangered in the state.

What is an endangered species?
An endangered species is a species that is in danger of extinction throughout all or a significant portion of its range.

The Missouri Department of Conservation (MDC) is the administrative, regulatory, and enforcement agency for state sensitive species. The following sections explain the potential impacts that this project could have on threatened or endangered species, designated critical habitat, and unique natural communities.

What methods were used to assess potential impacts?

MDC maintains a Natural Heritage Database (NHD) that tracks known locations of all rare species (state and federal) and sensitive habitats in the state as well as significant or unique natural communities. The NHD database was used to determine if there are any known locations of rare species or unique natural communities within the corridor of the three alternatives.

Caves are one of the unique natural communities found in Missouri. The NHD lists some of the cave locations in Missouri. However, the Missouri Speleological Survey maintains a database of all known cave locations in the state of Missouri. This database was used to determine if any caves would be directly impacted by any of the alternatives for this project.

MoDOT also corresponded with the USFWS and MDC to obtain any information they may have regarding rare species or communities within the project corridor. Finally, a MoDOT biologist conducted initial field observations from existing roadways. Information from all of these sources was used to determine the projects potential impacts to threatened or endangered species and unique natural communities.

Would the project impact any threatened or endangered species?

A review of the NHD revealed state designated critical habitat for the Niangua darter (*Etheostoma nianguae*) throughout this entire stretch of the Maries River. There are also numerous records of this species in the Maries River near the existing bridge.

The NHD also indicates that the Gasconade River supports populations of two federally endangered species, the pink mucket (*Lampsilis abrupta*) and scaleshell (*Leptodea leptodon*), one federal candidate, the freshwater mussel species spectaclecase

(*Cumberlandia monodonta*), and one state endangered amphibian, the eastern hellbender (*Cryptobranchus alleganiensis alleganiensis*). It is unknown if there are any populations of these species in the immediate vicinity of the existing bridge.

Although there are no known records of these species within the corridor of any of the alternatives for this project, correspondence from the USFWS indicates that the following federally listed species could also occur in the area: Indiana bat (*Myotis sodalis*), gray bat (*Myotis grisescens*), running buffalo clover (*Trifolium stoloniferum*), and Hine's emerald dragonfly (*Somatochlora hineana*). Besides the potential for the project to directly impact these species, it could also have indirect impacts to these and other species by impacting water quality and riparian habitat.

What is a threatened species?
A threatened species is a species that is likely to become endangered within the foreseeable future.

Finally, during field investigations, stains left by roosting bats were observed under the existing Gasconade River Bridge. At this point it is unknown what species of bat is roosting under the bridge. Further field investigations would be necessary to identify what species left these stains. The potential impacts the project could have on each of these species are discussed below.

What is an endemic species?
An endemic species only occurs in a particular area. Species that are endemic to Missouri *only* occur in Missouri.

Niangua Darter: The Niangua darter is a federally threatened fish endemic to Missouri. It is a small fish, 2 to 4 inches long, that lives in clear upland creeks and small to medium sized rivers with slight to moderate currents. The species requires continuously flowing

streams with silt-free gravel or rock bottoms. The species survival is threatened by deterioration of stream quality, loss of habitat because of reservoir and bridge construction, stream channelization, loss of streamside vegetation, and unrestricted sand and gravel removal.



Niangua darter. Courtesy of Craig Fuller, Missouri Department of Conservation.

All three alternatives involve constructing a new bridge across the Maries River within a stretch that MDC considers important for the Niangua darter. There are numerous known locations of the species upstream and downstream of the existing bridge. Therefore, all three alternatives could have some impact on this species.

Alternative 2 and the Preferred Alternative both cross the river at the same location. Both of these alternatives could result in direct impact to important habitat for the species as well as temporary impacts from sedimentation that results from construction of the bridge.

Alternative 1 would have the least potential for direct impacts to the species or its habitat. However, Alternative 1 would have more indirect impacts because it follows close to the stream for some distance and thus would involve clearing more riparian vegetation. Loss of streamside vegetation is considered one of the major threats to this species survival.

Pink Mucket: The pink mucket is a federally listed endangered freshwater mussel. Freshwater mussels live on the bottom of streams or ponds. This species is found in mud, sand and in shallow riffles and shoals in major rivers and tributaries. They move very little and they depend on water current to bring them oxygen and food. Most species



Pink Mucket mussel. Photo courtesy of the Missouri Dept. of Conservation.

burrow into the bottom of the stream, leaving the upper edge of the shell exposed to the current. As river currents flow over the animals, they siphon the water for food, which includes different types of microorganisms such as plankton. They need a stable river bottom to survive. If the river bottom they are living in is washed away, they get washed away with it. Freshwater mussels provide food for wildlife like muskrats, otters, and raccoons and act as filters that improve water quality.

Dredging and in-stream sand and gravel mining are threats to this species. Besides directly killing individual mussels, these activities disturb and destabilize the river bottom resulting in mortality for large numbers of individuals.

Since it is difficult for freshwater mussels to move, sediment is also a threat because it can suffocate them. Increased sediment levels may also make it difficult for them to feed, which can lead to decreased growth, reproduction, and survival. Diminishing water quality is a concern for all aquatic species. Because mussels are sedentary (stay in one place), they are especially sensitive to any kind of contamination, including pesticides and agricultural runoff.



Scaleshell mussel. Photo courtesy of Dr. M.C. Barnhart

There is only one proposed option for this project at the Gasconade River crossing. Therefore, the impacts of the three alternatives on this species would be the same

Scaleshell: This species is also a federally listed endangered freshwater mussel. Scaleshells live in medium-sized and large rivers with stable channels and good water quality. They bury themselves in sand and gravel on the bottom with only the edge of their partially opened shells exposed. All other life history information and threats are very similar to those discussed for the pink mucket.

There is only one proposed option for this project at the Gasconade River crossing. Therefore, the impacts of the three alternatives on this species would be the same.

Eastern Hellbender: The eastern hellbender is state listed as an endangered species. Hellbenders are aquatic throughout their life and remain active year-round. They generally spend the daylight hours in a natural or self-excavated den beneath large slabs of rock or other shelter-providing objects (logs and boards) on the bottom of streams or rivers.



Eastern hellbender. Photo courtesy of the Marshall University Web site.

Hellbenders become active after dark, leaving shelter to forage, feeding primarily on crayfish, fish, frogs and a variety of invertebrates.

Hellbenders prefer swift running, well oxygenated, unpolluted streams and rivers. An important physical characteristic of these habitats is the presence of riffle areas and abundant large flat rocks, logs or boards which are used for cover and nesting sites.

There are no known locations of this species in the immediate area of the existing bridge and that area does not appear to be suitable habitat for this species. Therefore, none of the alternatives should have a direct impact on this species. There could be indirect impacts caused by sedimentation entering the stream and other temporary impacts to water quality.



Hibernating Indiana bats. Photo courtesy of Bill Elliott.

Indiana Bat: The Indiana bat is a federally listed endangered species that hibernate in caves during the winter months and roost in trees during the summer months.

Individuals begin congregating around the caves where they will hibernate in early fall. They emerge from hibernation in early spring and begin migrating to their summer roosting and foraging areas.

Indiana bats are entirely insectivorous, eating primarily moths, but also mosquitoes and aquatic insects. In the summer, females gather beneath the loose bark of living and dead trees in maternity colonies of 50 to 100 individuals.

Indiana bats exhibit strong loyalty to their roosting and hibernating sites and will return to the same locations year after year. Current threats to the species include stream channelization, bank modification, agricultural development, and conversion of forested land, which has affected the amount and quality of habitat available to the species.

Harvesting suitable live trees and removing dead trees reduces the amount of available habitat and forces the bats to utilize areas where the potential for disturbance or predation may be higher. Pesticide contamination is another threat to this species. Contamination of waterways that eliminates aquatic insects may hurt local populations of Indiana bats.

The USFWS considers the entire state of Missouri to be within the breeding range of this species. Therefore, any project that involves tree clearing in Missouri could potentially impact this species by removing potential roosting habitat.

All three alternatives involve tree clearing so they could potentially impact this species. At this time it is estimated that Alternative 1 would require clearing 1,686 acres of trees. It is estimated that Alternative 2 would require clearing 1,402 acres of trees. It is estimated the Preferred Alternative would involve clearing 1,475 acres of trees. Alternative 1 requires the greatest amount of tree clearing, so it has the greatest potential to impact this species. Alternative 1 also involves clearing more forested riparian habitat than the other alternatives. This could also impact the Indiana bat because it removes foraging habitat.

Gray Bat: The gray bat is federally listed as an endangered species that uses caves year round. They roost, breed, rear young, and hibernate in caves. Unfortunately, few caves meet their specific roost requirements. Most of the caves used by gray bats for hibernation have deep vertical passages with large rooms that function as cold air traps. Summer caves must be warm or have small rooms or domes that can trap the body heat of roosting bats.

Individuals migrate between summer and winter caves and will use transient or stopover caves along the way.

Summer caves are normally located close to rivers or lakes where the bats feed. A few hundred to many thousands of pregnant females congregate to form maternity colonies. Males and nonreproductive females gather in smaller groups to form what are known as bachelor colonies.



Gray bat. Photo courtesy of Adam Mann, Environmental Solutions and Innovations.

Gray bats feed primarily on flying insects over rivers and lakes. Aquatic insects, particularly mayflies, make up most of their diet. Threats to this species include human disturbance of caves that the bats are using, alterations of caves and cave entrances, e.g., commercialization and improper gating, and overuse of pesticides. Gray bats have also been killed during natural flooding and flooding caused by manmade reservoirs. Pollution and siltation of streams causing a reduction in aquatic insects may also affect gray bat populations.

Although none of the alternatives would directly impact any known gray bat caves, they all could still have indirect impacts to this species. Gray bats forage in riparian areas along wadeable streams. They have been known to fly as far as 12 miles from their colony to feed, so clearing riparian habitat within 12 miles of a gray bat colony could have an indirect impact on the species by removing potential foraging habitat.

There is a known gray bat maternity cave approximately 10 miles from the proposed Maries River crossings and approximately 12.5 miles from the proposed Gasconade River crossing. In addition, gray bats have been found using the underside of concrete bridges for night roosts.

Alternative 1 is likely to have the greatest impact on this species because it would require clearing more riparian habitat along the Maries River than the other alternatives. There is also a transient gray bat cave within two miles of all three alternatives. However, the project should not have an impact on this resource.

Running Buffalo Clover: Running buffalo clover is a native clover of Missouri on the federal list of endangered species that was thought to be extirpated from the state until 1989 when it was rediscovered in St. Louis. It is a perennial that grows from 4 to

Extirpated: extinct or gone from a particular area but surviving in other places.



Running Buffalo Clover. Photo courtesy of the U.S. Forest Service.

20 inches tall, blooming generally from mid-May through June. It is called *running* buffalo clover because it produces runners similar to stolons that extend from the base of erect stems and run along the surface of the ground.

Running buffalo clover grows in rich moist soils on areas that have a pattern of periodic disturbance such as mowing, trampling, grazing, or light bank scouring. At one time buffalo and other large herbivores probably dispersed the seeds. These same animals may have also created habitat for this species by periodically disturbing areas.

In Missouri the species is generally found in riverine settings, along the first wooded terrace or bench above the river. Threats to the species include habitat loss and competition with

introduced clover species. A lack of prescribed fire or other regular disturbances has resulted in a loss of open woodlands and a reduction in running buffalo clover habitat. Mowing may remove seed heads before seeds are mature but may help the clover by controlling competing vegetation.

At this time there are no known locations of running buffalo clover within the corridor for any of the three alternatives. Therefore, none of the alternatives should impact this species.



Hine's emerald dragonfly. Photo courtesy of the Illinois Natural History Web site.

Hine's Emerald Dragonfly: This federally listed endangered species lives in calcareous (high in calcium carbonate), spring-fed marshes and sedge meadows overlaying dolomite bedrock, called fens. This dragonfly has brilliant emerald-green eyes and a dark brown and metallic green body, with yellow stripes on its sides. Its body is about 2.5 inches long; its wingspan reaches about 3.3 inches.

The greatest threat to the Hine's emerald dragonfly is habitat destruction. Most of the fen habitat that this dragonfly depends on for survival has been drained and filled to make

way for urban and industrial development. Contamination of fens by pesticides or other pollutants also poses a threat to this species.

The dragonfly depends on fens with good water quality for growth and development. Development that decreases the amount or quality of ground water flowing to the dragonfly's habitat threatens its survival because it depends on spring-fed shallow water to breed.

There are no known locations of the species within the corridor for any of the three alternatives and there are no known fens in any of the corridors. Therefore, none of the alternatives would likely impact this species.

This section described the project's potential impacts to rare species that could occur in the study area. However, the true extent of these impacts cannot be determined until plans for the project have been completed. MoDOT will conduct periodic reviews of the NHD and coordinate with the USFWS and MDC throughout the design phase of the project to track new locations and further analyze the projects impacts to these species.

If it is deemed necessary, MoDOT will have qualified biologists conduct surveys for individual species. If it is determined that the project may impact one of these species, MoDOT and FHWA would conduct the necessary consultation with the USFWS to comply with the Endangered Species Act and to determine what measures can be implemented to eliminate or reduce the projects impacts to these species.

Will the project impact any unique natural communities?

A review of the NHD and the cave database did not reveal any unique natural communities within the corridor for any of the three alternatives. Further field investigation will be necessary to verify these preliminary findings. It is possible that unique natural communities do exist in the study area, but to date they have not been identified.

What are unique natural communities? Natural communities are recurring groupings of plants and animals found in a particular physical environment. Unique natural communities include all examples of rare types and high quality examples of more common types. These are often difficult or impossible to replace, such as a cave or prairie.

Wildlife

How would the project affect more common wildlife and their habitats?

The variety of wetland and terrestrial ecosystems in the study area provide habitat for a diverse mix of wildlife species. White-tailed deer, wild turkeys, rabbits, and squirrels are known to frequent forests, cutover forests, and open areas. These species seem to have adapted well to the fragmented landscape created by humans.

Upland woods may support wildlife such as fox, deer, raccoon, opossums and many other species. Woodlands interspersed with old field or overgrown lots favor species such as skunk, woodchuck, rabbit, squirrel, red-tailed hawk, turkey vulture, and a variety of songbirds and small mammals.

The wetlands found in the vicinity of the study area are used by a variety of reptiles and amphibians and provide valuable foraging areas for numerous species of wading and shorebirds. Other species such as muskrats, beavers, otters, kingfishers, blackbirds, wood ducks, and numerous insects also use wetland areas.

There are two perennial streams/rivers within the study corridor, the Maries River and the Gasconade River. Both of these waterways are home to numerous species of fish and other aquatic species. The project will have minimal direct impacts to habitat for these species where construction activities occur within the waterway and where bridge piers are placed in the waterways. The project may also have temporary indirect impacts from sedimentation in these waterways.

Species such as robins, starlings, house sparrows, house wrens, cardinals, mockingbirds, squirrels, and many rodents are commonly found in developed residential areas. These species have adapted to human disturbance and seem to thrive in these areas. Several communities, which provide this type of habitat, are located in the study area.

Clearing and grading operations during construction of the project might temporarily affect the flora and fauna within the study corridor. Nearby areas of habitat similar to that within the limits of construction for this project are expected to support indigenous wildlife potentially relocated by the project. Some initial stress on the carrying capacity of the ecosystem may occur, but the impact should be minimal because of to the relatively small scope of the project in relation to the amount of similar habitat in the area. Clearing of trees and other vegetation would be confined to construction limits to preserve as much existing natural growth as possible.

Clearing of a highway corridor such as this one does fragment existing habitat. Habitat fragmentation occurs as the result of subdividing larger parcels of wildlife habitat into smaller parcels. Habitat fragmentation has varying degrees of impact on different species.

Fragmentation of forested habitat tends to be more detrimental than other types of habitat. Larger species such as deer, raccoons, and coyotes may be able to cross the barrier created by a roadway with little or no impact. Some would not be impacted but others may be if the width of the corridor exceeds the distance that they are willing to travel between forested areas. However, for smaller species that cannot cross wide stretches of hot pavement, such as amphibians, the potential impact due to fragmentation is greater. For these species, the roadway may be a complete barrier, in effect confining them to the remaining habitat on one side of the road. The remaining habitat may not supply enough resources to support the population.

Forest fragmentation can also impact migratory birds by creating more edge habitat. Predators such as skunks, raccoons, foxes, etc. tend to follow forest edges looking for food and thus bird nests that are constructed close to forest edges are more commonly predated and are overall less successful than those built farther from the edge of a forested tract.

If habitat is fragmented to the point that it no longer supports viable populations of certain species, species diversity can be lowered to the point that only species with a high tolerance of man and development can survive. Or, as in the case of many amphibians, the adults live in upland drier habitats but must return to wetland habitats to breed. If the barrier prevents access to the breeding habitat, the adults would be unable to reproduce. Ultimately, barriers to movement may reduce gene flow between individual populations and cause genetic defects, further impacting species.