3.0 Affected Environment and Environmental Consequences

3.1 Social and Economic Conditions within the Affected Environment

For the purpose of characterizing the affected environment, the "region" refers to the larger affected area of Camden and Miller counties and the "study area" refers to the Route 54 project area as noted on Figure 3-1. The study area includes portions of both the city of Lake Ozark and the city of Osage Beach.

The socioeconomic features of the Route 54 study area were identified as:

- Neighborhoods and communities;
- Population characteristics and trends;
- Employment centers and income distribution;
- Land use characteristics; and
- Trends in economic development.

3.1.1 Community Characteristics

The proposed project would be located in the southern portion of Miller County and the northern portion of Camden County, within city limits of both Lake Ozark and Osage Beach. The existing land use is primarily commercial, with some residential areas on the western side of the existing Route 54 and some undeveloped land to the east. Single-family residences comprise the majority of the residential areas.

Two census tracts are located within the study area, Census Tract 9828 is located in the southern portion of Miller County, and Census Tract 9502 is located in northern Camden County. Table 3-1 indicates the general demographics of the census tracts.

Table 3-1. General Demographics, 2001.

	Census Tract	
	9828	9502
Population	5,659	5,130
Median Age	36.0	45.4
Percent Age 65 and over	13.1	18.9
Percent White	96.6	97.3
Percent Black	0.4	0.8
American Indian and Alaskan Native	0.7	0.5
Asian	0.2	0.5
Native Hawaiian and Other Pacific Islander	0.0	0.0
Percent Other	0.5	0.2
Average Household Size	2.51	2.16
Per Capita Income	$14,517	$24,611
Median Household Income	$29,277	$41,233
Persons Below Poverty Level	14.4%	7.1%

Source: U.S. Census Bureau, 2000.

3.1.2 Regional Populations Trends

The city of Lake Ozark has been increasing since 1980 when it was estimated at 420 persons (U.S. Census Bureau). By 2000 it had grown to 1,489 persons (U.S. Census Bureau, Census 2000). The city of Lake Ozark exhibited a higher growth rate during the 1990s than Miller County or the state of Missouri. Census Tract 9828 was similar to Miller County in percent growth during the 1990s, with a 17 percent increase since the 1990 census. The city of Osage Beach has grown from 840 persons in 1980 to 3,662 persons in 2000. The city of Osage Beach exhibited a lower growth rate than Camden County and a higher growth rate than the state of Missouri. Census Tract 9502 was similar to the city of Osage Beach in percent growth during the 1990s.

Some of the population growth experienced in the city of Lake Ozark may be due to the inclusion of the town of Lakeland and the village of Lakeview into the corporate city limits of Lake Ozark (Lake Ozark, Missouri Five Year Comprehensive Plan, revised 2002). All of the areas included in Table 3-2 were greater than the state of Missouri in average growth during the specified time periods.

Table 3-2. Population Trends

	1980	1990	2000	% Change 1990-2000
Miller County	18,532	20,700	23,564	13.8
Lake Ozark	420	1,259	1,489	18.3
Census Tract 9828	3,772	4,758	5,659	18.9
Camden County	20,017	27,495	37,051	34.8
Osage Beach	840	2,599	3,662	40.9
Census Tract 9502	1,501	3,800	5,130	35.0
State of Missouri	1,793,399	5,117,073	5,595,211	9.3

Source: Lake Ozark Demographic Detail Report; 1980 and 2000 Census, US Census Bureau.

3.1.3 Housing Characteristics

Nearly 10 percent of Miller County's housing is seasonally occupied, and 5.8 percent of housing for Census Tract 9828 is seasonally occupied (Table 3-3). In comparison, 46.1 percent of Camden County's housing and 55.0 percent of housing for Census Tract 9502 is seasonally occupied. The high percentage of seasonally occupied housing may be due to the proximity of the Lake of the Ozarks as a popular vacation location (Lake Ozark, Missouri Five Year Comprehensive Plan, revised 2002). The percentage of vacant housing units is similar in Miller County and Census Tract 9828, with 17.6 and 15.2 percent, respectively. In Camden County, 52.9 percent of the housing units are vacant. Census Tract 9502 is higher than the county at 64.9 percent vacant housing units (U.S. Census Bureau, Census 2000).

Table 3-3. Housing Characteristics, 2000

	Number of Housing Units	Full-Time Occupied	Vacant	% Vacant	Seasonally Occupied	% Seasonally Occupied
Miller County	11,263	9,284	1,979	17.6	1,095	9.7
Census Tract 9828	2,562	2,173	389	15.2	148	5.8
Camden County	33,470	15,779	17,691	52.9	15,444	46.1
Census Tract 9502	6,596	2,315	4,281	64.9	3,625	55.0
State of Missouri	2,442,017	2,194,594	247,423	10.1	66,053	2.7

Source: U.S. Census Bureau, Census 2000.

3.1.4 Age Characteristics

The median age of the Miller County was 37.2 in 2000, which is slightly lower than the city of Lake Ozark (41.0). Camden County's median age was 45.2 in 2000, which is similar to that of Osage Beach at 44.8. The state of Missouri was lower than both the city of Lake Ozark and the city of Osage Beach at 36.1.

Table 3-4. Age Characteristics, 2000

	Year	Median Age	17 & Under (%)	65 and Older (%)
Miller County	1990	34.0	27.9	15.5
	2000	37.2	26.3	15.3
Lake Ozark	1990	33.9	25.3	13.8
	2000	41.0	21.6	13.6
Camden County	1990	41.7	21.9	18.4
	2000	45.2	20.3	19.0
Osage Beach	1990	42.1	17.4	20.2
	2000	44.8	16.0	20.3
State of Missouri	1990	33.5	25.6	14.0
	2000	36.1	25.5	13.5

Source: U.S. Census Bureau, Census 2000.

3.1.5 Racial Characteristics

The racial compositions of the cities of Osage Beach and Lake Ozark are very similar to the counties of Miller and Camden, but have a lower percentage of minorities than the state of Missouri (Table 3-5).

Table 3-5. Racial Characteristics, 2000

	White (%)	Black (%)	American Indian and Alaskan Native (%)	Asian (%)	Native Hawaiian and Other Pacific Islander (%)	Other (%)
Miller County	98.8	0.3	0.5	0.1	0.0	0.3
Lake Ozark	96.2	0.4	1.3	0.5	0.0	0.5
Camden County	97.7	0.3	0.5	0.3	0.0	0.2
Osage Beach	97.4	0.8	0.4	0.5	0.0	0.2
State of Missouri	84.9	11.2	0.4	0.2	0.1	0.8

Source: U.S. Census Bureau, Census 2000.

3.1.6 Educational Level

Miller County and Census Tract 9828 have higher percentages of high school graduates (40.2 and 40.3 percent, respectively) and lower percentages of advanced degrees (11.4 and 11.0 percent, respectively) when compared with the state of Missouri (32.7 and 21.6 percent, respectively) (Table 3-6). Camden County also has a higher percentage of high school graduates (37.3 percent) and a lower percentage of advanced degrees (17.7 percent) when compared to the state. In comparison, Census Tract 9502 and the city of Osage Beach have a similar percentage of high school graduates (32.2 and 34.8 percent respectively), when compared with the state of Missouri. Census Tract 9502 and the city of Osage Beach have a slightly higher percentage of those that have completed advanced degrees (27.0 and 23.7 percent) than Camden County (17.7 percent).

Table 3-6. Educational Characteristics, 2000

	Persons 25 years or Older	High School Graduate (%)	Advanced Degrees (%)
Miller County	15,369	40.2	11.4
Census Tract 9828	3,629	40.3	11.0
Lake Ozark	1,073	36.9	21.3
Camden County	27,303	37.3	17.7
Census Tract 9502	3,945	32.2	27.0
Osage Beach	2758	34.8	23.7
State of Missouri	3,634,906	32.7	21.6

Source: U.S. Census Bureau, Census 2000.

3.1.7 Economic Characteristics

Economic activity in the study area is primarily focused along the existing Route 54; however, the greatest concentration is located within the Camden County portion of the study area (Table 3-7). Miller County and Census Tract 9828 are lower in per capita income and median household income when compared to the state of Missouri and have a higher percentage of persons below the poverty level than the state. Census Tract 9502 and the city of Osage Beach are higher in per capita income and median household income when compared with the state of Missouri, and similarly have a lower percentage of persons below poverty level than the state of Missouri.

Table 3-7. Income Characteristics

	Per Capita Income	Median Household Income	% Persons below Poverty Level
Miller County	$15,144	$30,977	14.18
Census Tract 9828	$14,517	$29,277	14.43
City of Lake Ozark	$20,830	$37,386	13.14
Camden County	$20,197	$35,840	11.39
Census Tract 9502	$24,611	$41,233	7.12
City of Osage Beach	$22,685	$38,448	6.73
State of Missouri	$19,936	$37,934	11.74

Source: Lake Ozark Demographic Detail Report, 2002; and Claritas, 2002.

3.1.8 Labor Force Characteristics

Unemployment data was unavailable on an annual basis for the cities of Lake Ozark and Osage Beach. Miller County and Camden County had a higher unemployment rate than the state of Missouri for the years 1990 to 2000 (Table 3-8). A trend that many jurisdictions experienced in the early 1990s was an increase in the unemployment rate. However, by the mid-1990s the unemployment rates for all jurisdictions were below 1990 levels.

Table 3-8. Percent Unemployment Rate

	Miller County	Camden County	State of Missouri
1990	9.0	7.4	5.8
1991	10.9	9.6	6.7
1992	9.4	8.2	5.7
1993	11.1	10.1	6.5
1994	7.8	7.3	4.9
1995	6.8	6.8	4.8
1996	6.9	6.4	4.6
1997	6.8	6.1	4.2
1998	6.4	5.3	4.2
1999	4.8	4.6	3.4
2000	5.1	4.4	3.5

Source: Missouri Works! Department of Economic Development, Labor Market Information, Annual Labor Force Data, 2001.

In 2000, job types accounting for the largest percentage of workers in Census Tract 9828 are those representing the sales and office occupations (Table 3-9). However, in Census Tract 9502, the highest percentage of workers is found in management, professional, and related occupations.

Table 3-9. Labor Force Characteristics by Job Type, 2000

Job Type	Census Tract 9828 (percent)	Census Tract 9502 (percent)
Management, Professional, and related occupations	20.1	36.2
Service Occupations	21.5	15.7
Sales and Office Occupations	24.1	31.7
Farming, Fishing, and Forestry Occupations	1.5	0.2
Construction, Extraction, and Maintenance Occupations	15.6	9.2
Production, Transportation, and Material Moving Occupations	17.2	7.1
Total	100	100

Note: Employed persons are those 16 years and older.

Source: U.S. Census Bureau, Census 2000..

3.1.9 Summary of Socioeconomic Conditions

The populations of the cities of Lake Ozark and Osage Beach have shown substantial increases (18.3 and 40.9 percent, respectively) since the 1990 Census when compared with the state of Missouri. Miller County and Census Tract 9828 have less than 10 percent seasonally occupied housing and less than 20 percent vacant housing. Camden County and Census Tract 9502 have 46.1 and 55.0 percent of housing seasonally occupied, and 52.9 and 64.9 percent vacant housing, respectively. The median age for the study area has increased over the past decade indicating a maturing population. The majority of the study area is Caucasian (greater than 97 percent), which is high compared to the state of Missouri (85.66 percent). The city of Osage Beach has a higher number of persons with advanced degrees than the city of Lake Ozark, while Census Tract 9828 has a lower percentage than the state of Missouri. The per capita income of Osage Beach is higher than that of Lake Ozark ($22,685 vs. $20,830, respectively). The poverty level in the city of Lake Ozark (13.14 percent) is higher than the state of Missouri

(11.74 percent); however, the city of Osage Beach is lower than the state at 6.73 percent. Miller and Camden counties have shown a similar trend in unemployment throughout the 1990s. However, they have remained above the state's unemployment levels. The job types of sales and office occupations accounted for the largest percentages of jobs in 2000 for Census Tract 9828. The job types of management, professional, and related occupations accounted for the largest percentage of jobs in 2000 for Census Tract 9502.

3.1.10 Social and Economic Impacts

3.1.10.1 Residential and Business Relocations and Employment Impacts

The preferred alternative for Route 54 requires the right of way acquisition for the proposed improvement. These rights of way necessitate the relocation of some existing households, businesses, and other facilities along the alternative (Figure 3-2). Buildings located within the proposed right of way for Alternative C' were considered displacements. The number of residences, commercial businesses and individuals displaced, partial and total acquisitions, and right of way costs for each alternative are depicted in Table 3-10.

Table 3-10. Residential and Business Displacements

Alternative	Displacements		Acquisitions		Acreage Required	Costs	
	Households/ Residents	Businesses/ Employees	Partial	Total		Relocation[a] ($ millions)	Total Right of Way ($ millions)
A1	5[b] / 15	18 / 107	37	34	128.83	$ 0.952	$ 12.496
A2	9[c] / 27	18 / 107	41	31	123.79	$ 1.122	$ 14.310
C' (Preferred)	0 / 0	16 / 98	37	56[d]	188.00[e]	$ 0.560	$ 10.154

a Estimated relocation cost assumptions: $22,500 per household and $40,000 per business.
b All households are single family dwellings.
c One household is single family; 8 households are multi-family.
d This total includes 41 platted, but undeveloped, small lots along Cabana Lane behind Stonecrest Mall.
e Includes 39.21 acres of additional right of way required in lieu of construction of future frontage road (see Appendix B, Plate 9). Costs for the frontage road were not estimated.

Source: MACTEC, 2003.

Potentially displaced businesses associated with the preferred alternative are shown in Table 3-11. For business owners that choose to be relocated, adequate vacant land area exists throughout the corridor. Businesses may choose to locate outside the project area, elsewhere along the corridor, or not to reopen. Reestablishment of commercial uses would most likely occur on vacant land along the highway, as market conditions warrant.

In addition to land acquisition, the project may require temporary or permanent easements for construction or utility location. All parcels, whether or not they are impacted by right of way acquisitions, would continue to have access to Route 54 via direct driveway access or side roads. No parcel is denied access as a result of right of way purchase and road construction.

In addition to the businesses described in Table 3-11, four other businesses are impacted but not considered displaced. Boscos Unlimited, Marks Mobile Glass, Lake Leisure Spa & Bath, and a car wash are all located on parcels that are owned by the Missouri Highway Commission and leased to these businesses. At the time of construction, the leases will be terminated.

Table 3-11. Business Displacements – Preferred Alternative

Business Name	City
Dulle Overhead Door	Osage Beach
General Custards	Osage Beach
Super Lube	Osage Beach
Wally's Refrigeration (Parcel A)	Osage Beach
Wally's Refrigeration (Parcel B)	Osage Beach
Carl's Supermarket (vacant)	Osage Beach
Hardware Store	Osage Beach
Kelly's Port Boat Sales	Osage Beach
Walnut Bowls	Osage Beach
Nascart Go Karts*	Lake Ozark
The Finer Things Home Appliance	Lake Ozark
Double Diamond Boat Brokers	Lake Ozark
Legend Land Services, Inc.	Lake Ozark

Source: MACTEC, 2002.

There are two businesses that are located within 10 feet of the proposed right of way of the preferred alternative. O'Reilly Auto Parts and Driving Range T-Boxes are additional potential business impacts. These businesses will be evaluated during the design phase.

Property acquisitions include purchases of entire parcels as well as partial property purchases. Parcel sizes along the preferred alternative vary in size from small residential lots to large undeveloped or agricultural tracts. In some cases existing structures are setback from the existing right of way by a large distance and would not necessitate building acquisition for the proposed right of way. In many of these situations, only a portion of land (or partial acquisition), would be required. The remaining useable land would be retained by the property owner.

In some cases, after required right of way is purchased from a parcel, the remaining property may not be feasible for development due to lack of access or deficient size. A parcel of the real property in which the owner is left with an interest after the partial acquisition of the property, and which the acquiring agency has determined to have little or no value or utility to the property owner, is called an uneconomic remnant. If acquisition of only a portion of property leaves the owner with a remnant, MoDOT will determine whether the remnant maintains utility or value to the present owner. If MoDOT determines that the portion of property is an uneconomic remnant, they will offer to acquire the remnant along with the portion of property needed for the project. The owner would retain the choice to sell the uneconomic remnant.

Acquisition for the project would be accomplished in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 and amendments (Act). The Act, as well as Missouri state law, requires that just compensation be paid to the owner of private property taken for public use. The appraisal of fair market value is the basis of determining just compensation to be offered to the owner for property to be acquired. An appraisal is defined in the Act as a written statement independently and impartially prepared by a qualified appraiser setting forth an opinion of defined value of an adequately described property as of a specific date, and supported by the presentation and analysis of relevant market information.

The Act is carried out without discrimination and in compliance with Title VI (Civil Rights Act of 1964), the President's Executive Order on Environmental Justice, and the Americans with

Disabilities Act. Relocation assistance under this program is made available to all affected parties without discrimination.

During the relocation phase, MoDOT is responsible for assuring that a displaced person will not be required to move unless the agency has made comparable, decent, safe, and sanitary housing available and that the displacee will not be required to move without at least a 90-day notice in writing. The Act requires that comparable, decent, safe, and sanitary replacement housing within a person's financial means be made available before that person may be displaced. Should this project include persons who cannot readily be moved using the regular relocation program benefits and/or procedures [i.e., when there is a unique housing need or when the cost of available comparable housing would result in payments in excess of statutory payment limits ($22,500 or $5,250)], MoDOT's relocation policy commits to utilizing housing of last resort. Housing of last resort involves the use of payments in excess of statutory maximums or the use of other unusual methods of providing comparable housing.

Any displaced owner-occupant or tenant of a dwelling who qualifies as a displaced person is entitled to payment of his or her actual moving and related expenses, as MoDOT determines to be reasonable and necessary. A displaced owner-occupant who has occupied a displacement dwelling for at least 180 days is also eligible to receive up to $22,500 for a replacement housing payment which includes the amount by which the cost of a replacement dwelling exceeds the acquisition cost of the displacement dwelling, increased interest costs, and incidental costs. A displaced owner-occupant who has occupied a displacement dwelling for at least 90 days but less than 180 days and a tenant who has occupied a displacement dwelling for at least 90 days, is entitled to a payment not to exceed $5,250 for either a rental or down payment assistance.

The MoDOT Right of Way Division would carry out the acquisition and relocation of commercial and industrial properties in accordance with the Act of 1970, as amended. Business owners would be paid fair market value for the real property to be acquired and for relocation costs. Acquisition of commercial properties would not involve relocation of businesses if no operating business is located on the property.

Any displaced business, farm operation, or nonprofit organization which qualifies as a displaced person is entitled to payment of their actual moving and related expenses, as MoDOT determines to be reasonable and necessary. In addition, a business, farm, or non-profit organization may be eligible to receive a payment, not to exceed $10,000 for expenses incurred in reestablishing their business, farm operation, or non-profit organization at a replacement site.

A displaced business may be eligible to choose to receive a fixed payment in lieu of the payments for actual moving and related expenses, and actual reasonable reestablishment expenses. The payment amount of this entitlement alternative is based on the average net earnings of the business. This fixed payment amount cannot be less than $1,000 or more than $20,000.

3.1.10.2 Employment

Employment impacts are measured by jobs lost and jobs generated by the preferred alternative. Under the preferred alternative, no major employers in the corridor are displaced, and it is likely that job losses would be offset by businesses relocating elsewhere in the study area. Table 3-12 presents the employer and the approximate number of employees that are affected by the preferred alternative.

Table 3-12. Employment Impacts – Preferred Alternative

Business Name	Number of Employees (estimated)
Boscos Unlimited	4
Marks Mobile Glass	5
Lake Leisure Spa and Bath	5
Dulle Overhead Door	6
Car Wash	3
General Custards	10
Super Lube	10
Wally's Refrigeration	15
Carl's Supermarket (vacant)	0
Hardware Store	10
Kelly's Port Boat Sales	3
Walnut Bowls	10
Nascart Go Karts*	3
The Finer Things Home Appliance	6
Double Diamond Boat Brokers	4
Legend Land Services, Inc.	4

* The track at Nascart Go Karts is displaced by the preferred alternative. However, the commercial buildings remain.

Source: MACTEC, 2002.

The proposed action will create construction-related jobs. Positive economic effects may be realized during the construction period due to the expenditure of public funds within the study area. This includes direct income for construction workers which may be expended for goods and services within the area. Local materials suppliers may benefit from providing goods to the construction contractor for the project. The level at which these positive impacts will occur is determined to a great degree by the contractor based upon the extent the local labor and materials are used in the construction project.

Both the cities of Lake Ozark and Osage Beach have experienced business development in areas adjacent to Route 54 within the study area. Both cities intend to maintain frontage areas to foster tourism and to maintain traffic flow. The recent past and current economic development trends are anticipated to continue in this rapidly developing part of the Lake of the Ozarks. This project will assist with accommodating those economic development trends and could foster economic development within those areas due to better access and better traffic circulation.

3.1.10.3 Environmental Justice

Executive Order 12898, entitled "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" mandates that federal agencies identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of the programs on minority and low-income populations. A minority population in defined as a group of people and/or a community experiencing common conditions of exposure or impact that consists of persons classified by the U.S. Bureau of the Census as Negro/Black/African-American, Hispanic, Asian or Pacific Islander, American Indian, Eskimo, Aleut, or other non-white persons. A low-income population is defined as a person with an annual income or $8,350 or less or a family of four equal to or below the national poverty level of $17,050 (U.S. Department of Health and Human Services, 2002).

The project corridor was evaluated to identify the presence of low income or minority residents and the potential impacts to them in accordance with Executive Order 12898. Although the

study area does contain populations of minorities and low income groups as presented in Sections 3.1.1, 3.1.5, and 3.1.7, no disproportionately high and adverse human health or environmental effects to these groups result from the preferred alternative.

3.1.11 Community Cohesion

None of the final alternatives disrupt current land use patterns or community components, cause a considerable change in communities, or result in community segmentation. There are no residential displacements or residential properties required by the preferred alternative. No neighborhood segmentation or isolation of communities occur as a result of the proposed project.

3.2 Land Use and Zoning

Land use and zoning information was obtained from the comprehensive plans for the cities of Osage Beach and Lake Ozark. Existing land use was verified through site visits.

3.2.1 Existing Zoning

Zoning reflects the existing land use controls implemented by the cities of Lake Ozark and Osage Beach (Figure 3-3). The majority of the study area is zoned for commercial businesses. These areas are primarily through the center of the study area and occupy approximately 566.72 acres.

Residential zoning accounts for approximately 173.43 acres within the study area. This is primarily in the northern and western portion of the study area with a small portion in the southern part of the study area. These are mostly single family residences with a small number of multi-family residences.

Agricultural zoning occupies the third largest portion of the study area with approximately 98.31 acres. This area is located in the western portion of the study area near the Lake of the Ozarks.

Manufacturing/industrial zoning is present in the southern portion of the study area and accounts for 53.76 acres.

3.2.2 Impacts to Zoning

The preferred alternative impacts approximately 105.44 acres of commercial land. Approximately 32.91 acres of residential land and 27.06 acres of agricultural land are impacted by the preferred alternative. The preferred alternative impacts 8.44 acres of industrial land.

3.2.3 Existing Land Use

3.2.3.1 Regional Land Use

The project is located in south-central Missouri where regional land uses generally consist of rural residential with some agricultural and concentrated urban-type land use patterns located in the incorporated cities and towns. Land development patterns in the counties of Miller and Camden have been strongly influenced by the creation of Bagnell Dam and Lake of the Ozarks State Park. For example, within the region, development is concentrated on high relief ridgetops overlooking the lake, or coves of the lake (Lake Ozark, Missouri, Comprehensive Plan, revised 2002; Comprehensive Plan City of Osage Beach, 1992).

3.2.3.2 Local Land Use

Most major business development has occurred around existing Route 54. Residential development has experienced the most growth to the east and west of Route 54, with some undeveloped land to the north and east. Residential development is heaviest west of existing Route 54 nearer the Lake of the Ozarks. Land use categories for the study area are presented in Table 3-13 and Figure 3-4.

Table 3-13. Existing Land Use

	Acres	Total Land Use (%)
Commercial/Business	298.2	31.2
Industrial	18.1	1.9
Residential	156.4	16.4
Public/Semi-Public/Recreational	12.7	13.3
Undeveloped	469.4	49.2
Total	954.8	100

Undeveloped land is the largest land use category accounting for approximately 49.2 percent of the study area. This is scattered throughout the corridor.

Commercial/Business purposes occupy approximately 31.2 percent of the study area. This is concentrated primarily on existing Route 54. This includes larger businesses such as Wal-Mart, Lowes, Staples, and Stonecrest Mall.

Residential land occupies approximately 16.4 percent of the study area. Single-family housing dominates this with 36.6 acres, and multi-family housing occupies approximately 10.0 acres.

Public, Semi-Public, and Recreational land accounts for approximately 13.3 percent of the study area and includes both public and private facilities.

3.2.3.3 Land Use Planning

The following plans were reviewed as part of the socioeconomic and land use analysis:

- Comprehensive Plan for the City of Osage Beach, Missouri (Booker, 1992); and
- City of Lake Ozark, Missouri, Five Year Comprehensive Plan (Bucher, Willis & Ratliff, 1994, Revised 2002).

Both plans address transportation goals, zoning, existing land use, and future land use. The city of Osage Beach is in the process of updating their comprehensive plan. There are no adopted comprehensive plans for the region, Miller County, or Camden County.

The proposed project is specifically identified in the five-year comprehensive plan for Lake Ozark as part of their goals and objectives (Policy T3.6 – Lake Ozark, Missouri Five Year Comprehensive Plan, Bucher, Willis & Ratliff, 1994, Revised 2002). The 1992 comprehensive plan for Osage Beach does not specifically identify the need for a new expressway; however, it does mention the need to widen Route 54 to enhance traffic flow and provide a continuous route through Osage Beach (Comprehensive Plan for the City of Osage Beach, Missouri, 1992). The proposed project is intended to be an objective in the revised comprehensive plan (expected completion unknown) and is supported by Osage Beach (correspondence, John Porth, Chairman, Public Infrastructure Advisory Committee, October 30, 2002).

As part of this study, no proposed development has been identified that would be prohibited from proceeding unless the proposed project was approved.

The proposed project, by itself, is not anticipated to cause substantial growth within Lake Ozark or Osage Beach, as the area has already been experiencing substantial growth (see Section 3.1.2). The proposed action could induce development; however, development is not just a function of transportation improvements but a combination of the population growth and the proximity of the Lake of the Ozarks as a popular resort vacation site. Therefore, the exact extent of the induced development based solely on the proposed project is difficult to determine.

Trends in land use, population density, and growth rate are not anticipated to substantially change as a result of the proposed project.

3.2.4 Future Land Use

Future land uses are represented in comprehensive plans for the cities of Lake Ozark and Osage Beach. Future land uses include those areas designated by these entities as a result of municipal planning procedures. Additionally, future land use is a reflection of existing development patterns and a reflection of where government agencies believe that certain types of development are appropriate based on current conditions. These conditions include access to transportation facilities, the ability to provide basic utility infrastructure, and existing vicinity land uses. The majority of the study area is designated for commercial/business development followed by residential and parks/open space.

3.2.5 Impacts to Existing Land Use

The impacts to existing land use are presented in Table 3-14. The majority of the right of way for the preferred alternative extends through land that is undeveloped, which accounts for approximately 90.7 acres (48.1 percent). The preferred alternative requires 60.4 acres of commercial/business land. Approximately 32.0 acres (17.0 percent) of residential land are required for the preferred alternative. Approximately 4.9 acres of industrial land are required for the preferred alternative.

Table 3-14. Potential Existing Land Use Impacts Associated with the Preferred Alternative

Type	Acres	Total land Use (%)
Commercial/Business	60.4	32.1
Industrial	4.9	2.6
Residential	32.0	17.0
Undeveloped	90.7	48.2
Total	188.00	100

Source: MACTEC, 2002.

3.3 Community Facilities

3.3.1 Parks, Recreation, and Open Space

The Lake of the Ozarks State Park is the state's largest park with over 17,000 acres. It is located south and west of the study corridor. Lake Ozark has renovated an old fish hatchery into a park, located on Woodriver Road to the east of the study area (Lake Ozark, Missouri Comprehensive Plan, revised 2002). The city of Lake Ozark also owns and maintains two

roadside parks along Bagnell Dam Boulevard west of the study area. Osage Beach has one park along Highway 42, and one proposed park to be located on a 90-acre parcel previously used by AmerenUE as a fish hatchery (Osage Beach Comprehensive Plan, 2001). Neither of these parks is within the study area.

3.3.2 Churches

Riverview Church, located east of Route 54 at the Route 42 intersection, is the only church in the study area (Figure 3-5).

3.3.3 Schools

There are two school districts located in the study area. This includes the School of the Osage R-II (K-12), which is located in Camden and Miller counties, and Camdenton R-III (K-12), which is located in Camden County. Within the School of the Osage there are four schools: two elementary schools, one middle school, and one high school. Camdenton School District operates one high school, four elementary schools, one middle school, and two technical schools. There are no schools in the study area.

3.3.4 Cemeteries

There are no cemeteries in the study area. Arnold Cemetery is located just south of the study area (Figure 3-5).

3.3.5 Emergency Services

The city of Osage Beach and the city of Lake Ozark each have their own police department. Miller County provides the 911 emergency services for the city of Lake Ozark, and the city of Osage Beach provides their own 911 service (Lake Ozark, Missouri Comprehensive Plan, revised 2002; Osage Beach Comprehensive Plan, 2001).

The cities of Osage Beach and Lake Ozark are both under the jurisdiction of the Lake Ozark Fire Protection District (Lake Ozark, Missouri Comprehensive Plan, revised 2002; Osage Beach Comprehensive Plan, 2001). There is one fire station located near the study area (Figure 3-5). This is located along Lake Road 54-22 (Bluff Drive) north of Route 54.

There are no hospitals in the study area. Hospital services are provided by the Lake Regional Health System, which is composed of a major hospital and emergency complex in Osage Beach several miles south of the study area.

3.3.6 Impacts to Community Facilities

There are no effects to any public parks, recreational facilities, schools, private recreational areas or churches. Police and fire protection should benefit from the alternative due to better access to Route 54 and less congestion once the project is completed.

3.4 Agriculture

This project, containing approximately 170 acres of new right of way, lies within the city limits of Osage Beach in Camden County and Lake Ozark in Miller County. As such, it meets the definition of “farmland already committed to urban development” as contained in the Farmland Protection Policy Act (FPPA) and, therefore, is not subject to the Act.

3.5 Traffic and Transportation

3.5.1 Existing Traffic

Traffic volumes on existing Route 54 in the study area are relatively high especially during the summer months and on weekends. This accounts for the recreational nature of the study area. Currently, over 45,000 vpd use existing Route 54 just south of the Route 42 intersection. Of the traffic south of Route 42, nearly 50 percent of it is destined to either Wal-Mart or the Factory Outlet Village. Existing levels of service range from a Level C to a Level D, with a projected level in 2021 of an F and volumes of 65,000 vpd. A new expressway has the potential to attract approximately 30,000 vpd off of existing Route 54 once completed and connected to the overall lake area expressway system.

There is an absence of an AM or PM peak hour in the study area. Instead, traffic volumes grow gradually during a given day to a peak in the later morning where they remain peaked until early evening. This is referred to as a peak-hour spreading. Traffic volumes on Route 54 increase even more on rainy days when boating recreation on the lake itself is less. By 2021, if no action is taken to improve the situation, traffic volumes will reach a theoretical limit where an appreciable amount of avoidance of the facility will occur. This would likely result in gridlock of the facility and an inability of the facility to attract future growth.

A detailed analysis of the traffic conditions in the study area is provided in Appendix A.

3.5.2 Mass Transit

There are no known mass transit services in the study area. There are no known planned mass transit services in the study area.

3.5.3 Bicycle and Pedestrian Use

Pursuant to 23 Code of Federal Regulations (CFR) Part 652, an inventory and analysis of existing bicycle routes and pedestrian walkways was conducted within the study area. Currently, there are no designated bicycle or pedestrian walkways along existing Route 54 in the study area. Parts of existing Route 54 have a shoulder, which could be used by bicycle or pedestrian traffic. The preferred alternative has no direct impact to any bicycle or pedestrian facilities in the study area.

3.6 Air Quality

The Air Quality Analysis Agreement executed in March 1988 by FHWA, MDNR, and MoDOT states that a detailed air quality analysis for inclusion in an environmental document will only be prepared on federally funded highway projects when the present or predicted ADT volume on the project exceeds 54,000 vehicles in the year of project construction or 72,700 vehicles in the 20^{th} year following the project construction. The ADT for this project displays a wide range, in part, because of the confluence of three major routes (Route 42, Route 54, and Business 54) and because of the seasonal nature of traffic volumes. The present year ADT is 43,400 while the design year is predicted to be 58,700 ADT. Therefore, a detailed air quality analysis is not required for this project.

The state of Missouri is required by the Clean Air Act Amendments of 1990 to provide measures that will comply with the National Ambient Air Quality Standards. Miller and Camden counties

are non-designated counties and are in attainment for all air pollutants. This project is in an area where the State Implementation Plan (SIP) does not contain any transportation control measures. In addition, the traffic volume falls below the agreed upon threshold for analyzing the impacts of the project on air quality. For these reasons, the conformity procedures of 40 CFR Part 51 do not apply to this project.

3.7 Geology, Cover Type, and Terrestrial Ecology

The project and all alternatives are located within the Upper Ozark Section of the Ozark Division. The terrain of the area is generally sloping to steeply sloping, which is characteristic of the upland setting. Rock parent material of limestone and dolomite is detectable on the surrounding landscape because of the very shallow soil depth.

The corridor study area, including all three alternatives, contains a wide variety of land use/land cover types. There has been extensive commercial development adjacent to Route 54 and both commercial and residential projects closer to the Lake of the Ozarks. This urban development includes roadways, businesses, homes, condos, and associated infrastructure necessities. This has subsequently spawned large areas of urban vegetation. Adjacent to this urban setting is a buffer area dominated by cool season grasslands. The grassland areas provide a transition towards the more common upland deciduous forest areas. Based upon offsite GIS mapping data, Alternative A1 will impact approximately 100.04 acres of deciduous forest, Alternative A2 will impact approximately 88.23 acres of deciduous forest, and Alternative C' will impact approximately 116.02 acres of deciduous forest.

There are no known caves or sinkholes located within the project area. There is one spring located east of Alternative C', but it is not anticipated that the spring will be impacted by this project. A large portion of the project area has already been disturbed and cleared for past and future development endeavors. There are numerous roads, housing subdivisions, and commercial businesses located adjacent to and extending from Route 54.

Clearing and grading operations during the actual construction of the proposed action may temporarily affect flora and fauna within the corridor limits. Areas of habitat identical to those within the narrow limits of construction are expected to support any indigenous wildlife potentially displaced by the improvement. Clearing will be confined to construction limits to preserve as much habitat as possible.

The MoDOT tree replacement program plants two trees for every tree of 6 inches diameter at breast height (dbh) or larger lost through clearing. New trees will be planted as close as possible to the affected area. Tree species will be selected to restore or improve the appearance of affected areas. Over time, MoDOT tree plantings may actually enhance areas adjacent to the right of way, which are not of much present value to certain species of wildlife.

3.8 Water Quality and Aquatic Ecology

A Water Quality Certification is required for any project that involves discharge into waters of the United States and is linked to the issuance of a Section 404 permit. The state of Missouri has the authority to issue Water Quality Certifications under Section 401 of the Clean Water Act (CWA). Since this project involves the placement of fill across waters of the United States, a Section 404 Clean Water Act permit application will be submitted to MDNR, the state Section 401 certifying agency, for their compliance review. Generally, a complete Section 404 permit application, as determined by the USACE, provides MDNR the needed information to

issue the Section 401 certification. Water quality conditions included in the certification become conditions of the Section 401 permit. Either MoDOT coordinates with MDNR in a pre-permit application field meeting or MDNR notifies MoDOT is has questions about the application details. It is anticipated that this project will receive a Section 401 certification with conditions to protect the waters of the United States.

This project does not substantially modify or impound any stream. Alternatives A1 and A2 cross three unnamed streams on the west side of Route 54, while Alternative C′ crosses one unnamed stream west of Route 54 and one on the east side of Route 54 (see Section 3.13). While there are stream crossings associated with the project and the preferred alternative, none of the crossings entail stream relocations or rechannelizations. Long-term water quality will not be adversely affected by the proposed improvements. To prevent contamination of streams, watercourses, lakes, ponds, or other water impoundments adjacent to the project area, job construction specifications are to require immediate temporary or permanent pollution control measures as outlined in MoDOT's Sediment and Erosion Control Program approved by MDNR on October 8, 1991.

Through MoDOT's approved program, the control of water pollution is to be accomplished by the use of berms, slope drains, ditch checks, sediment basins, silt fences, rapid seeding and mulching, and other erosion control devices or methods as needed. These temporary measures, employed during construction, are to be coordinated with planned permanent erosion control features to ensure effective and continuous erosion control. In addition, all construction activities are to comply with the existing rules and regulations of governmental agencies with jurisdiction over area streams and water supplies.

3.9 Threatened and Endangered Species

A review of the MDC's Heritage Database did not reveal any rare, threatened or endangered species, critical habitat, or sensitive natural communities in the immediate area of the proposed project. However, the site may be within the breeding range of the federally endangered Indiana bat (*Myotis sodalis*). The USFWS is continually collecting new information on this species and their guidance for determining impacts to the species changes occasionally. Based on their current guidance and the existing information on this species, it would appear that this project is not likely to have a negative impact on this species. However, MoDOT should continue to coordinate with the USFWS and to re-evaluate potential impacts to this species 1 to 2 years prior to construction.

3.10 Cultural Resources

A review of NRHP listings indicated that no historic buildings are located within the project area. There are no known archaeological sites located within the project area, and no bridges are to be impacted by this project.

3.10.1 Archaeology

A background check of files at the Historic Preservation Program and MoDOT's Cultural Resources Section did not reveal any records of previously recorded archaeological sites within the project area. Following the designation of a preferred alternative, a detailed field reconnaissance was conducted. No portions of the preferred alternative, Alternative C′, were considered to exhibit a high probability for archaeological sites and few areas exhibited even a moderate probability. The reconnaissance revealed that even the areas with a moderate potential for archaeological sites have been very heavily impacted by past construction activity.

Following consultation with the Missouri State Historic Preservation Officer it was agreed that no additional archaeological investigation was necessary.

3.10.2 Architecture

The architectural investigation is designed to consider historically and architecturally significant architectural resources within the designated project area. The intent is to identify any architectural resources (buildings, structures other than bridges, objects, and districts comprised of these resources) that are (1) listed in or believed to be eligible for listing in the NRHP, (2) located within or adjacent to the alternatives, and (3) may be directly or indirectly impacted by the proposed project.

The final three alternatives for this corridor study were considered for the architectural investigation. Due to irregular terrain requiring an unusual amount of slope cutting and filling, and the need for efficient and possibly extended interchanges at both the north and south termini of the project, the proposed new right of way widths for all three final alternatives are variable. In order to consider not only possible direct impacts to architectural resources, but also indirect impacts to resources near the perimeter of the alternatives, an additional 25-meter area on each perimeter of the three final alternatives was included in the investigation.

Both archival research and field survey were used to obtain information regarding the surveyed properties. Information and data were gathered from, but not limited to, the following repositories for archival research:

- State Historic Preservation Office (SHPO) of MDNR, Jefferson City;
- MoDOT, Jefferson City;
- Missouri State Archives, Jefferson City; and
- State Historical Society of Missouri, Columbia.

Records available through the NRHP, National Park Service (NPS), and Department of the Interior internet sites were also consulted.

An intensive research of documents at the Cultural Resources Inventory Library at the SHPO office revealed one SHPO-sponsored architectural survey for Miller County and none for Camden County. There are properties in Camden and Miller Counties listed in the NRHP, but none are within the project area, and none will be affected by the project.

To be eligible for the NRHP, properties must possess integrity of location, design, setting, materials, workmanship, feeling and association, and fulfill at least one of four criteria, as established by the U.S. Department of the Interior. The criteria are as follows:

- Criterion A – properties associated with events that have made a significant contribution to the broad patterns of our history;
- Criterion B – properties that are associated with the lives of persons significant in our past;
- Criterion C – properties that embody the distinctive characteristics of type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; and
- Criterion D – properties that have yielded or may be likely to yield information important in prehistory or history.

Additionally, there may be additional criteria considerations used to determine eligibility for the NRHP. Ordinarily cemeteries, birthplaces, graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past 50 years shall not be considered eligible for the NRHP. However, such properties *will qualify* if they are integral parts of districts that do meet the criteria or if they fall within the following categories of consideration:

a. A religious property deriving primary significance from architectural or artistic distinction or historical importance; or
b. A building or structure removed from its original location but which is primarily significant for architectural value, or which is the surviving structure most importantly associated with a historic person or event; or
c. A birthplace or grave of a historical figure of outstanding importance if there is no appropriate site or building associated with his or her productive life; or
d. A cemetery that derives its primary importance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events; or
e. A reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived; or
f. A property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or
g. A property achieving significance within the past 50 years if it is of exceptional importance.

The SHPO has formally evaluated the historical or architectural significance of properties surveyed for this project. Preliminary evaluations of NRHP eligibility, provided in the Draft of this report, are the opinions of MoDOT-Cultural Resources staff. These evaluations were forwarded to SHPO for the Final EA. The results of the SHPO review can be found in Appendix F – Cultural Resources Survey.

One property surveyed as part of the draft phase of the study required further investigation to determine its eligibility for listing on the NRHP. Architectural Resource 1 (AR 1), the Mace Property encompassing the Ozark Opry and the residence of Joyce and Lee Mace (Figure 3-6), may be eligible for listing in the NRHP under Criterion A and/or possibly Criterion B. If applicable, either or both eligibility criteria would be significant in local contexts, in the categories of commerce and entertainment/recreation. However, because the oldest building at the property was not constructed until 1957, one of the above-listed criteria considerations must apply. Unlike the Mace residence, the Ozark Opry has been substantially remodeled and, therefore, retains little integrity. However, the Ozark Opry has contributed significantly to the history of the Lake of the Ozarks and is considered of exceptional importance. Therefore, criteria consideration “g” applies. Presently, it is MoDOT’s opinion that the Mace House, built in 1960, fulfills criteria for listing on the NRHP based on criteria consideration “b.”

The house, associated swimming pool, and detached garage, occupy a portion of this property that is within Alternative A2; therefore, Alternative A2 would affect this property and its potential for fulfilling NRHP criteria in the future. By 2007 and 2010, the theatre and house will be 50 years old, and it will no longer be necessary to apply Criterion G. The Mace property/AR 1 also is adjacent to, but not within, Alternative A1. It is neither within nor adjacent to Alternative C’. Neither alternative directly impacts the property. The proposed Mace Road

overpass (Alternatives A1 and A2) allows no access from the new Route 54 expressway, thus there should be no added traffic along Mace Road. In conclusion, Alternative A2 is the only alternative that threatens architectural resources considered eligible for listing on the NRHP. MoDOT informally consulted with SHPO staff regarding the Mace property's eligibility on October 30, 2002 and SHPO staff concurred that the evaluation would be complicated, especially considering the property's recent origin, physical alternations, and questionable significance. Since the preferred alternative, C′, does not present any impacts to AR 1, no additional consideration is necessary in relation to this project. SHPO staff agreed with this decision and documented it in a letter dated November 21, 2003 (Appendix F).

3.11 Hazardous Materials

A records review was conducted for the project area. The following sources were searched for potential hazardous and solid waste concerns:

- Federal Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS);
- National Response Center Hotline data base;
- MDNR Confirmed Abandoned or Uncontrolled Hazardous Waste Disposal Sites in Missouri, Fiscal Year 2003;
- MDNR Missouri Hazardous Waste Treatment, Storage, and Disposal Facilities List;
- MDNR Solid Waste Facilities List; DNR Underground Storage Tank (UST) database;
- Center for Agricultural, Resource and Environmental Systems; and
- Missouri Petroleum Storage Tank Insurance Fund database.

The highest potential for hazardous waste sites within the project area is found at the extreme southern end of the project area, where this project connects with the already approved project J5P0309 (Figure 3-7). MODOT has already evaluated and purchased a block of properties along the north side of existing Route 54. There are numerous USTs located along existing Route 54. Some of the USTs are located at abandoned gas station sites while others are associated with stations currently in operation. None of the known sites provide enough reason to cause a location shift of the proposed improvements. Alternative A1 impacts six of the known sites. Alternative A2 also impacts six of the known sites.

Seven potential hazardous waste sites were identified in this EA as being impacted by the preferred alternative. Based on the sources reviewed and a site reconnaissance on March 25, 2004, none of these sites were identified as a known and/or potential hazardous waste site. The sites identified include the following: Walnut Bowls/Chicago Cutlery, Kelly's Port, Marks Mobile Glass, Spa/Hottub business, American Hog, Car Wash, and a custard business. Minor amounts of hazardous materials may be present from day-to-day operation activities at some of these sites; however, no significant impacts are expected. The potential to encounter wastes from sites unknown to MoDOT should always be a consideration. MoDOT personnel have found no other potential hazardous waste sites in the project area. Any unknown sites that are found during project construction will be handled in accordance with Federal and State Laws and Regulations.

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

MoDOT has the capability to collect samples and analyze for volatile organics and heavy metals. If necessary, the MDNR will be contacted for coordination and approval of required activities. In excavations where hazardous atmospheres could reasonably be expected to exist, such as in areas where hazardous substances are stored nearby, the contractor is responsible for appropriate worker safety precautions, as required by the Occupational Safety and Health Administration (OSHA).

3.12 Floodplains

Executive Order 11988, Floodplain Management, and subsequent federal floodplain management guidelines mandate an evaluation of floodplain impacts. When available, flood hazard boundary maps (National Flood Insurance Program) and flood insurance studies for the project area are used to determine the limits of the base (100-year) floodplain and the extent of encroachment.

The FEMA and FHWA guidelines 23 CFR 650 have identified the base (100-year) flood as the flood having the 1 percent probability of being equaled or exceeded in any given year. The base floodplain is the area of 100-year flood hazard within a county or community. The regulatory floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 100-year flood discharge can be conveyed without increasing the base flood elevation more than a specified amount. FEMA has mandated that projects can cause no rise in the regulatory floodway and a 1-foot cumulative rise for all projects in the base (100-year) floodplain. For projects that involve the state of Missouri, the State Emergency Management Agency (SEMA) issues floodplain development permits. In the case of projects within regulatory floodways, a “no-rise” certificate, if applicable, should be obtained prior to issuance of a permit.

No floodplain information is available for Osage Beach, which is an incorporated area within Camden County. Flood Insurance Rate Maps (FIRMs) are available for the project area in Miller County, which at the time of mapping was not incorporated within Lake Ozark. There is no regulatory floodway or 100-year (base) floodplain within the project area.

3.13 Wetlands and Waters of the United States

Wetlands are defined as “..areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas” [33 CFR 328.3(b)]. Wetlands are regulated by the USACE under Section 404 of the CWA. Additionally, Executive Order 11990 requires all federal agencies to minimize impacts to wetlands when conducting specific activities.

Waters of the United States means, “All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters, which are subject to the ebb and flow of the tide. This includes interstate wetlands, as well as all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa takes, or natural ponds. The use, degradation or destruction of which could affect interstate or foreign commerce including any such waters” [33 CFR 328.3(b)]. Waters of the United States are regulated by the USACE under Section 404 of the CWA. Additionally Executive Order 11990 requires all federal agencies to minimize impacts to waters of the United States when conducting specific activities.

The following overview provides an environmental summary of the jurisdictional wetlands and streams that may potentially be impacted by the construction of the various alternatives associated with the proposed realignment of Route 54 through the project area. Environmental features within the corridor were reviewed at a screening level using the USFWS' NWI map, USGS 7.5-minute topographic maps, NRCS Soil Survey for Camden County, and aerial photographs posted on http:\\terraserver.homeadvisor.msn.com/default. The Soil Survey for Miller County has not yet been published.

3.13.1 Wetlands

According to the NWI maps and Camden County Soil Survey, no wetlands are located within the Route 54 project area. The Camden County Soil Survey indicates that soils in the portion of the study area in Camden County are from the Niangua-Bardley Association. That association is deep to moderately deep, well drained, moderately sloping to very steep, very cherty, silty soils, and located only in upland areas. Based on a field investigation conducted on March 12, 2002 by a MoDOT wetland specialist, there are no wetlands affected in the study area by the preferred alternative, C′.

3.13.2 Ponds

According to the topographic maps, the NWI map, and recent aerial photographs, two small ponds are located within Alternative A2 (Figure 3-6). One of the ponds (P1) is connected to adjacent jurisdictional waters by a stream originating at the spillway of the pond. The other pond (P2) appears to be isolated and is most likely non-jurisdictional. Another small pond (P3) is located adjacent to Alternative A2 and within the right of way slope limit for Alternative C'.

Upon field inspection of P3, it was determined to be an isolated, dry, manmade pond. There is no direct surface connection to a jurisdictional waterway and is probably not regulated by the USACE. The NWI maps do not indicate the presence of any ponds or lakes within the proposed corridor for Alternative A1. However, the USGS 7.5-minute topographic map for the Bagnell Quadrangle indicates that there is a sewage disposal pond approximately 1,050 feet west northwest of the existing intersection of Route 54 and Route 42 that could potentially be affected by the proposed project. Alternative C′ may affect the sewage disposal pond. Based on the field investigation, MODOT wetland specialists determined that the sewage disposal pond is connected to a jurisdictional waterway and would potentially be regulated by the USACE.

3.13.3 Stream/River Crossings

Perennial streams are identified as streams possessing continuous flow during the entire year and are represented by a solid blue line and named on USGS 7.5-minute topographic maps. Intermittent streams are characterized as having a base flow (groundwater discharge) at least some time during the year, and are represented as a dashed blue line on USGS 7.5-minute topographic maps and show an obvious connection to the watershed. Ephemeral streams, those streams that contain no flow except during rain events, were not included in the analysis.

Alternatives A1 and A2 cross three rides and three draws (Pogue Hollow and two unnamed draws). As shown on the 7.5-minute Bagnell Quadrangle map, two unnamed perennial streams cross the first two draws from north to south. However, neither stream is named. Based on their respective watershed, they are most likely intermittent streams incorrectly mapped as perennial. The first stream to be crossed (ST1) is in the hollow south of the existing Route 54/Business 54

intersection, and is crossed approximately at the Miller/Camden county line (Figure 3-6). The largest stream (ST2) flows through Pogue Hollow and is crossed by Alternatives A1, A2 and C'. Based on field inspection, MoDOT determined that ST2 is an intermittent stream with a defined bed and bank; therefore, it is a stream regulated by the USACE. Approximately 2,050 feet of ST2 will likely need to be channelized and placed in a culvert to allow for the placement of fill in Pogue Hollow for the proposed alignment of Route 54 for all of the alternatives. As such, ST2 will be shortened by at least 340 feet.

A third intermittent stream (ST3) shown on the Bagnell Quadrangle map is south of existing Route 54 and is impacted by all of the alternatives. Near that point, the study area connects with another proposed construction project for Route 54 (J5P0309B), which will have the greatest impact to ST3. However, there is potential for the study area of Alternative C' to have an impact on a small portion of ST3 at the extreme headwaters requiring approximately 200 feet of the stream to be placed in a culvert. Based on field inspection by MoDOT wetlands specialists, ST3 in the study area of Alternative C' is composed of mostly overland flow with some downcutting and a small area that may exhibit wetland characteristics. A fourth intermittent stream (ST4) flows through Hudson Hollow, to the east of the existing Route 54. ST4 will not be directly affected by the proposed construction, but could be affected by runoff and sediment from Alternative C'.

Through MoDOT's approved program, the control of water pollution is to be accomplished by the use of berms, slope drains, ditch checks, sediment basins, silt fences, rapid seeding and mulching, and other erosion control devices or methods as needed. These temporary measures, employed during construction, are to be coordinated with planned permanent erosion control features to ensure effective and continuous erosion control. In addition, all construction activities are to comply with the existing rules and regulations of governmental agencies with jurisdiction over area streams and water supplies.

3.13.4 Riparian Corridor

Due to the recreational nature of the Lake of the Ozarks, many roads have been cut from Route 54 through draws leading to coves on the lake, where houses and docks have been constructed. In the two draws identified by ST1 and ST2, the proposed corridor crosses gravel roads leading from Route 54 to the lake. The riparian corridor along the first 2,600 feet of ST2 is undisturbed, with roads no closer than 120 feet from the stream. However, the road through Pogue Hollow from Route 54 to the lake runs basically parallel with the right descending bank for ST2s last 1,200 feet, where the riparian corridor has an approximate width of between 20 feet and 100 feet. The unnamed draw at ST1 also contains a road running adjacent to ST1 at the point where Alternatives A1 and A2 cross the draw. The riparian corridor has been reduced to from 20 to 60 feet wide along the left descending bank. As such, the riparian corridors in both draws have been impacted by Alternatives A1 and A2. In both instances, the side of the riparian corridor away from the road appears to be undisturbed, and relatively well forested.

3.13.5 Public Wells

There are 29 public wells located in and around the proposed project area (Figure 3-5). Most wells are located along the existing Route 54 and will not be directly affected by this project. However, several wells will be impacted by the proposed realignment.

Alternative A1 will likely impact one well west of the Osage Plaza, and four wells near the intersection of the realigned Route 54 and the existing Route 54 at the southern end of the

project. Four additional wells near the southern terminus are also within the project corridor and could potentially be affected.

Alternative A2 will likely impact one well near the southern terminus of the project. Another well northwest of the intersection of Routes 54 and 42 could also be affected. Eight other wells near the southern terminus of the project could also potentially be affected by being in the project corridor.

Alternative C' will likely impact one well near the intersection of the realigned Route 54 and the existing Route 54 at the southern end of the project. In addition four wells at the intersection of the realigned Route 54 and Route 42 will also potentially be impacted. A sixth well on the northeast side of the existing Route 54 across from the Stonecrest Mall could also be impacted. Other wells are within the project corridor, but will likely not be affected.

If wells will be destroyed during construction of this project, the MDNR's Division of Geology and Land Survey will be contacted for directions to properly close and relocate any well as agreed upon between MoDOT and the owner of the well. Care will also be taken to prevent sedimentation and discharge of petroleum and other contaminants in a recharge area for all wells.

3.13.6 Possible Mitigation Site

Because there is no stream of sufficient length within the corridor in need of stabilization, MoDOT is required to perform off-site mitigation at a ratio to be determined by the USACE after their review of the permit application. MoDOT discussed the possibility of doing stream restoration and bank stabilization on a stretch of ST4 within the park being developed by Lake Ozark in the location of an old fish hatchery while MoDOT was securing a 404 permit for Project J5P0649 (Figure 3-6). At that time, the city was in the initial stages of developing the park, and did not want the constraints of a permanent easement along the creek that could prohibit future development of the resource. However, by the time this project is actually constructed, the city might have more defined plans for developing the park, and might agree to stream restoration and enhancement on the creek within the park. The full extent of the stream impacts will be determined during the design phase of the project. Mitigation plans will be implemented prior to actual construction.

3.14 Noise

The Federal Aid Highway Act of 1970 established the requirements contained in 23 CFR Part 772 that traffic noise control be a part of the planning and design of all federally aided highway projects. The Noise Abatement Criteria (NAC), as shown in Table 3-15, was established by Federal code. This criterion states that the average sound level, during each day's noisiest hour, should not exceed specified dBA (L_{eq}) levels for specific activity categories.

MoDOT has implemented an FHWA-approved noise abatement policy stating that noise abatement measures will be considered as part of the highway construction project if it is deemed reasonable and feasible and meets the requirements of the following noise abatement criteria.

Table 3-15. Noise Abatement Criteria, Hourly A-weighted Sound Level--Decibels (dBA)

Activity Category	$L_{eq}(h)$	Description of Activity Category
A	57 (exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of these qualities is essential if the area is to continue to serve its intended purpose.
B	66 (exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (exterior)	Developed lands, properties, or activities not included in Categories A and B above.
D		Undeveloped lands.
E	52 (interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

Feasibility deals with the engineering considerations of noise abatement, for example, topography, access, drainage, safety, maintenance, and if other noise sources are present. Feasibility is the ability to provide abatement in a given location with consideration to the physical and acoustical limitations of the site. Reasonableness implies use of good judgment and is more subjective than evaluation of feasibility (Table 3-16).

Table 3-16. Factors to Determine Reasonableness

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

The 20-year projected traffic counts indicate that the 66-dBA contour is located approximately 150 feet from the edge of the outside pavement lane. The 66-dBA contour line is generally located within the projected right of way slope line for all alternatives. In places where the 66 dBA contour line extends past the right of way, there are no known eligible impacted receptors. Traffic noise is not a factor in the interchange areas. Other single receptors located some distance apart might remain upon completion of the project.

To reduce the impacts of construction noise, MoDOT has special provisions for construction which require that all contractors comply with all applicable local, state, and federal laws and regulations relating to noise levels permissible within and adjacent to the project construction site. Construction equipment is required to have mufflers constructed in accordance with the equipment manufacturer's specifications. Further, project construction noise is to be monitored and abated in cases where the criterion is exceeded.

3.14.1 Alternative A1

This alternative may impact a senior citizens housing site (Lake Ozark Village) along Mace Road. However, in the area of Mace Road, the 66-dBA contour line is contained within the projected right of way limits. All other receptors appear to be commercial buildings that are either not impacted or are acquired for rights of way. Businesses normally wish to have visibility from the highway.

3.14.2 Alternative A2

All residential receptors within this alternative are located along Mace Road. The 66-dBA noise contour is contained within the proposed right of way limits through the Mace Road area. This alternative requires the displacement of numerous receptors (i.e., houses and apartments). In addition, Alternative A2 involves the displacement of a senior housing complex (Osage Beach Senior Housing). All other receptors appear to be commercial buildings that are either impacted or are acquired for rights of way.

3.14.3 Alternative C'

All receptors within this alternative appear to be commercial structures except for some platted residential lots located just west of the existing Route 54 and Stonecrest Mall. These lots are undeveloped in the vicinity of the crossing of Alternative C'. Depending upon the final alignment and if the platted lots are ever occupied by a residence, additional noise analysis may be required to determine if any residence falls within the 150-foot contour.

3.15 Park Lands and Public Lands Section 4(f)/6(f) Properties

Section 4(f) is part of the Department of Transportation (DOT) Act of 1966 and was designed to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites. To be Section 4(f)-eligible, a property must be publicly owned, except for historic sites, which could be either publicly or privately owned.

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

A review of literature and on-site investigation of the project area revealed that there are no parks or public lands associated with this project. Lake Ozark has purchased an old fish hatchery northeast of the Route 54/Business 54 intersection and is developing the property into a city park. The preferred alternative (Alternative C') passes approximately 500 feet west of the boundary of the park property but does not affect the property (Figure 3-6). Since the park is not impacted, a Section 4(f) evaluation is not required.

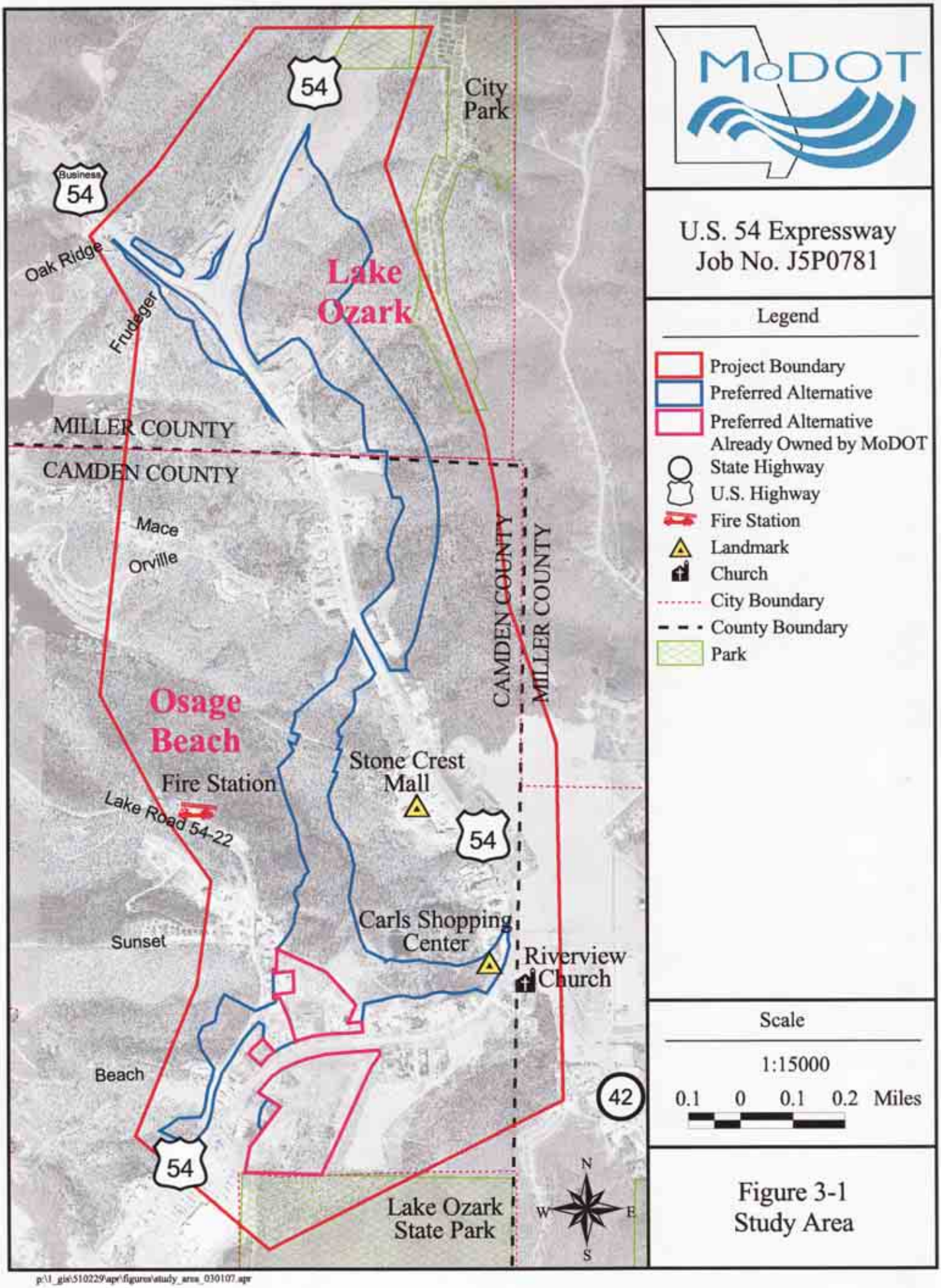
3.16 Construction Impacts

There will be some short term, temporary impacts in the vicinity of the proposed project, including noise, dust, and machine pollutants. All applicable measures will be used to minimize or mitigate any potential impacts. For example, air pollution in the form of dust will be reduced by application of water to exposed earth areas, and all construction waste materials will be

removed from the construction site and disposed of in accordance with regulations and ordinances. No open burning of waste material will be allowed without written permission from the proper authorities.

The MoDOT Sediment and Erosion Control Program will be included within contract specifications to address temporary erosion and sedimentation problems. Erosion will be reduced, by limiting the surface area of erodible material exposed during clearing and grubbing, excavation, and borrow and fill operations. Oil spills from machinery will be minimized by frequent checks of construction equipment. Careful refueling practices will limit spills of gasoline and diesel fuels.

To reduce the impacts of construction noise, MoDOT has special provisions in the construction contract which require that all contractors comply with all applicable local, state, and federal laws and regulations relating to noise levels permissible within and adjacent to the project construction site. Construction equipment will be required to have mufflers constructed in accordance with the equipment manufacturer's specifications. Further, MoDOT will monitor project construction noise and require noise abatement in cases where the criterion is exceeded.



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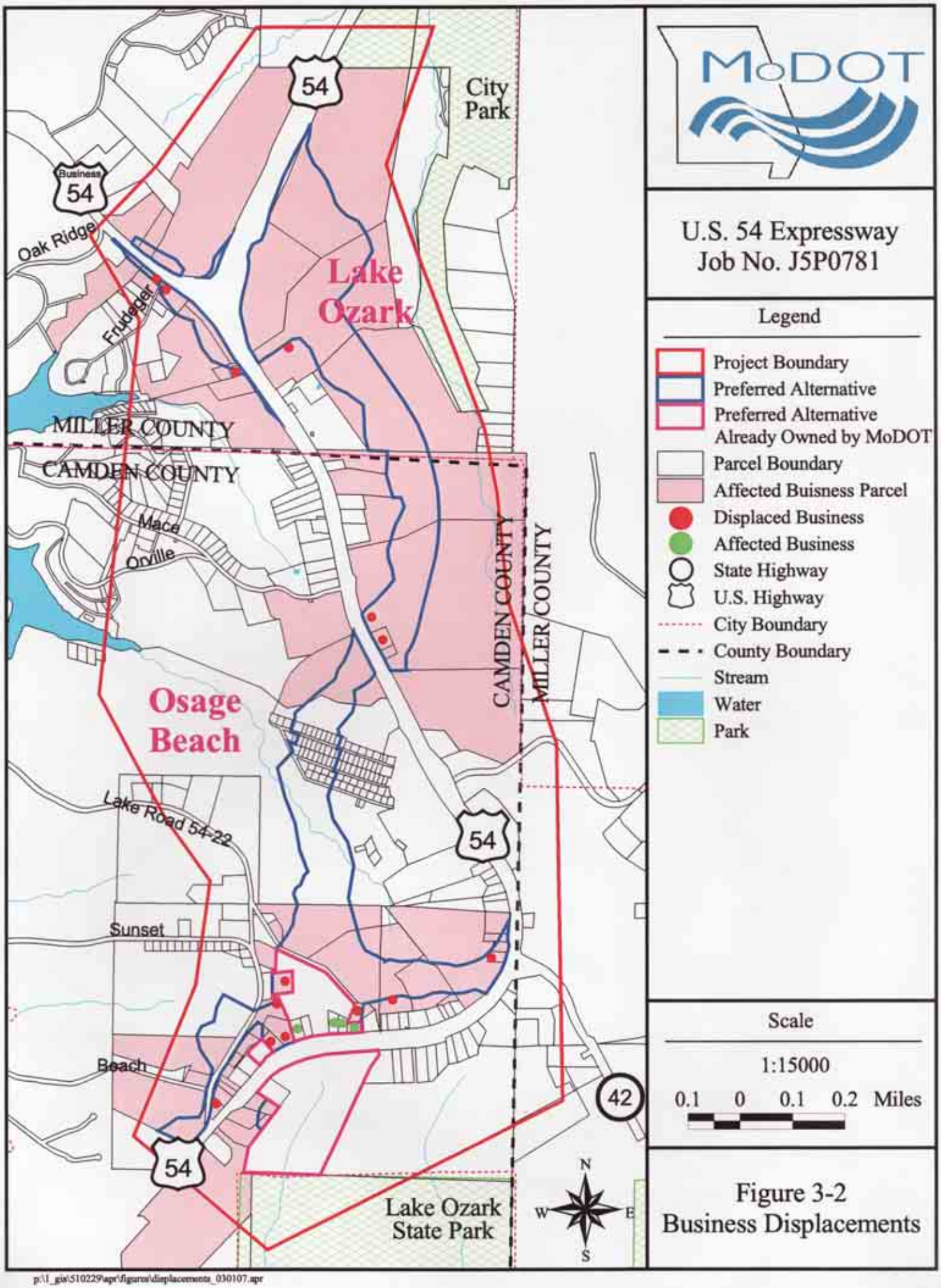
MoDOT
U.S. 54 Expressway
Job No. J5P0781
Legend
Project Boundary
Preferred Alternative
Preferred Alternative Already Owned by MoDOT
Parcel Boundary
Affected Buisness Parcel
Displaced Business
Affected Business
State Highway
U.S. Highway
City Boundary
County Boundary
Stream
Water
Park
Scale
1:15000
0.1 0 0.1 0.2 Miles
Figure 3-2
Business Displacements
54
Business 54
City Park
Oak Ridge
Frudeger
Lake Ozark
MILLER COUNTY
CAMDEN COUNTY
Mace
Orville
Osage Beach
Lake Road 54-22
Sunset
Beach
42
Lake Ozark State Park
N
W
E
S
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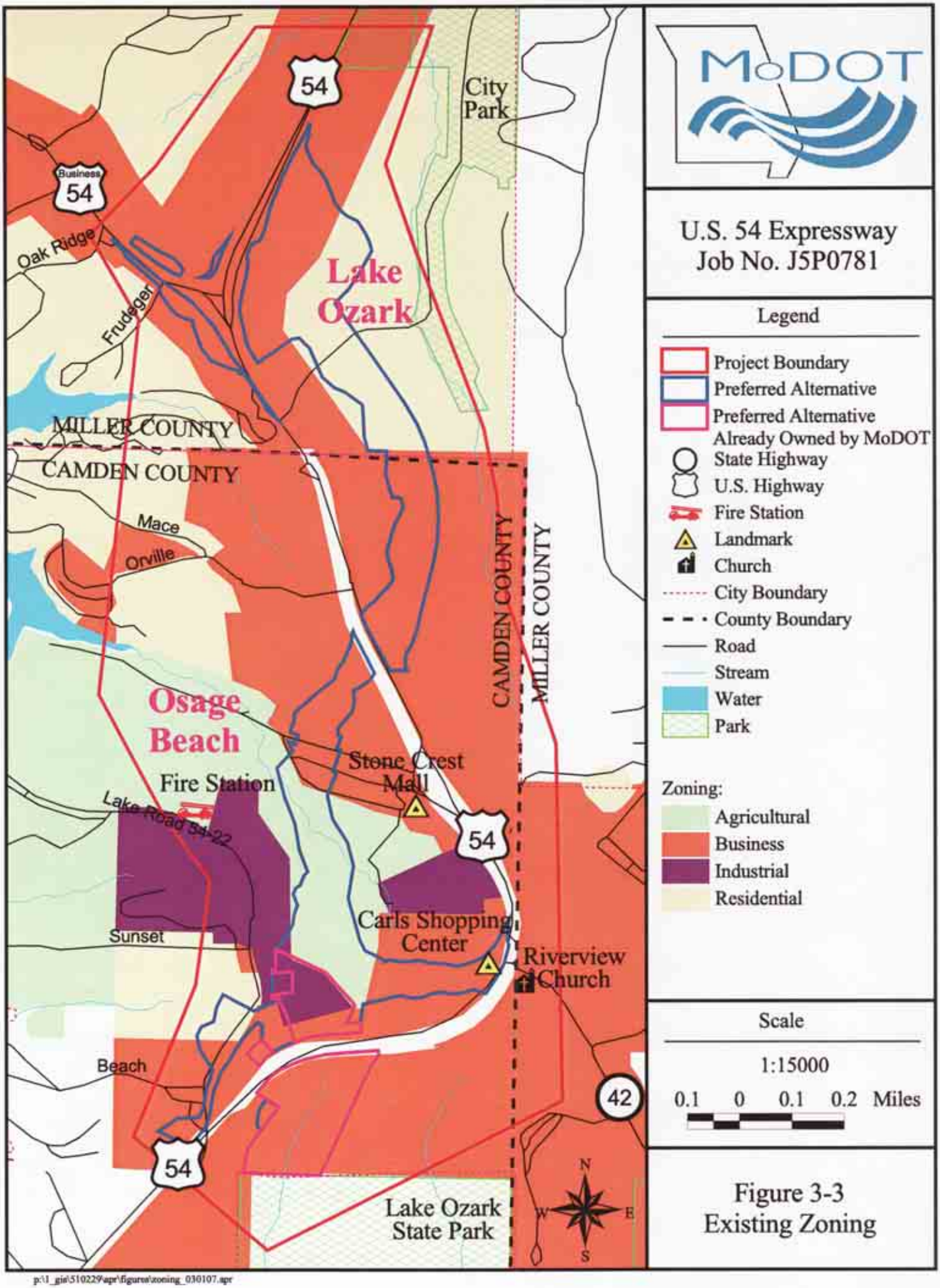

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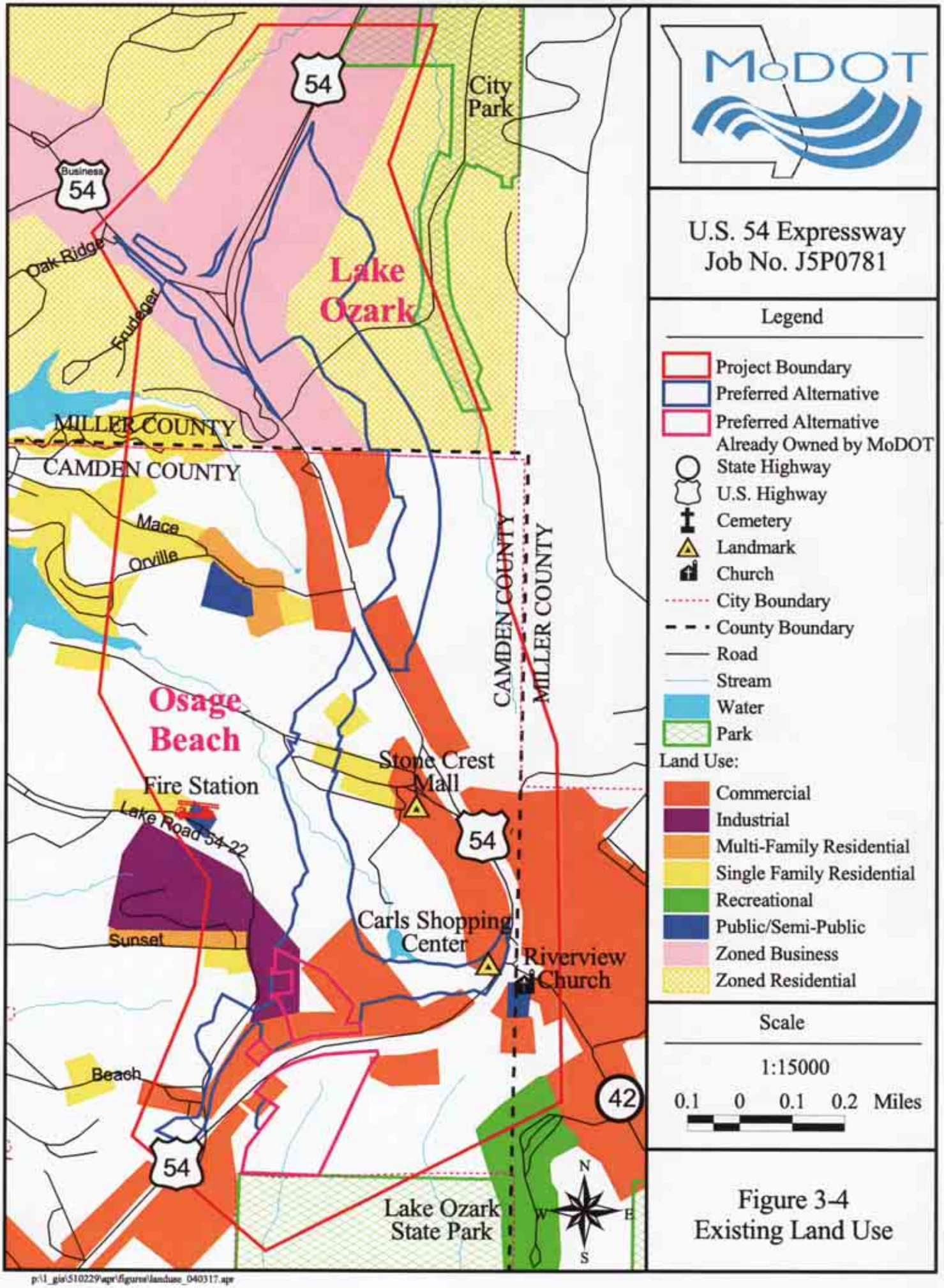

MoDOT

U.S. 54 Expressway
Job No. J5P0781

Legend

- Project Boundary
- Preferred Alternative
- Preferred Alternative Already Owned by MoDOT
- State Highway
- U.S. Highway
- Cemetery
- Landmark
- Church
- City Boundary
- County Boundary
- Road
- Stream
- Water
- Park

Land Use:

- Commercial
- Industrial
- Multi-Family Residential
- Single Family Residential
- Recreational
- Public/Semi-Public
- Zoned Business
- Zoned Residential

Scale

1:15000

0.1 0 0.1 0.2 Miles

Figure 3-4
Existing Land Use

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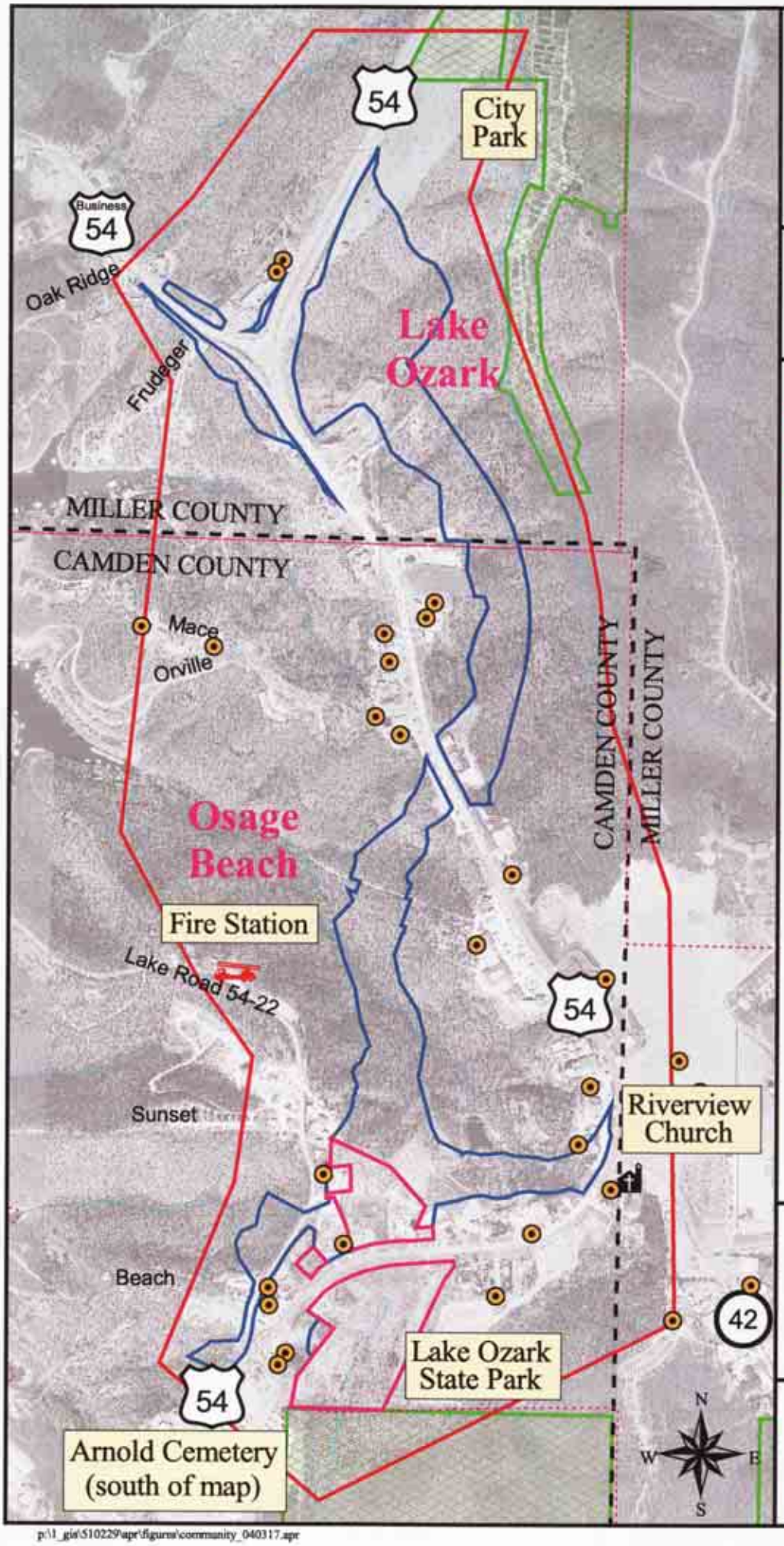

MoDOT

U.S. 54 Expressway
Job No. J5P0781

Legend

- Project Boundary
- Preferred Alternative
- Preferred Alternative Already Owned by MoDOT
- Fire Station
- Church
- Public Wells
- Park
- State Highway
- U.S. Highway
- City Boundary
- County Boundary
- Stream

Scale

1:15000

0.1 0 0.1 0.2 Miles

Figure 3-5
Community Facilities

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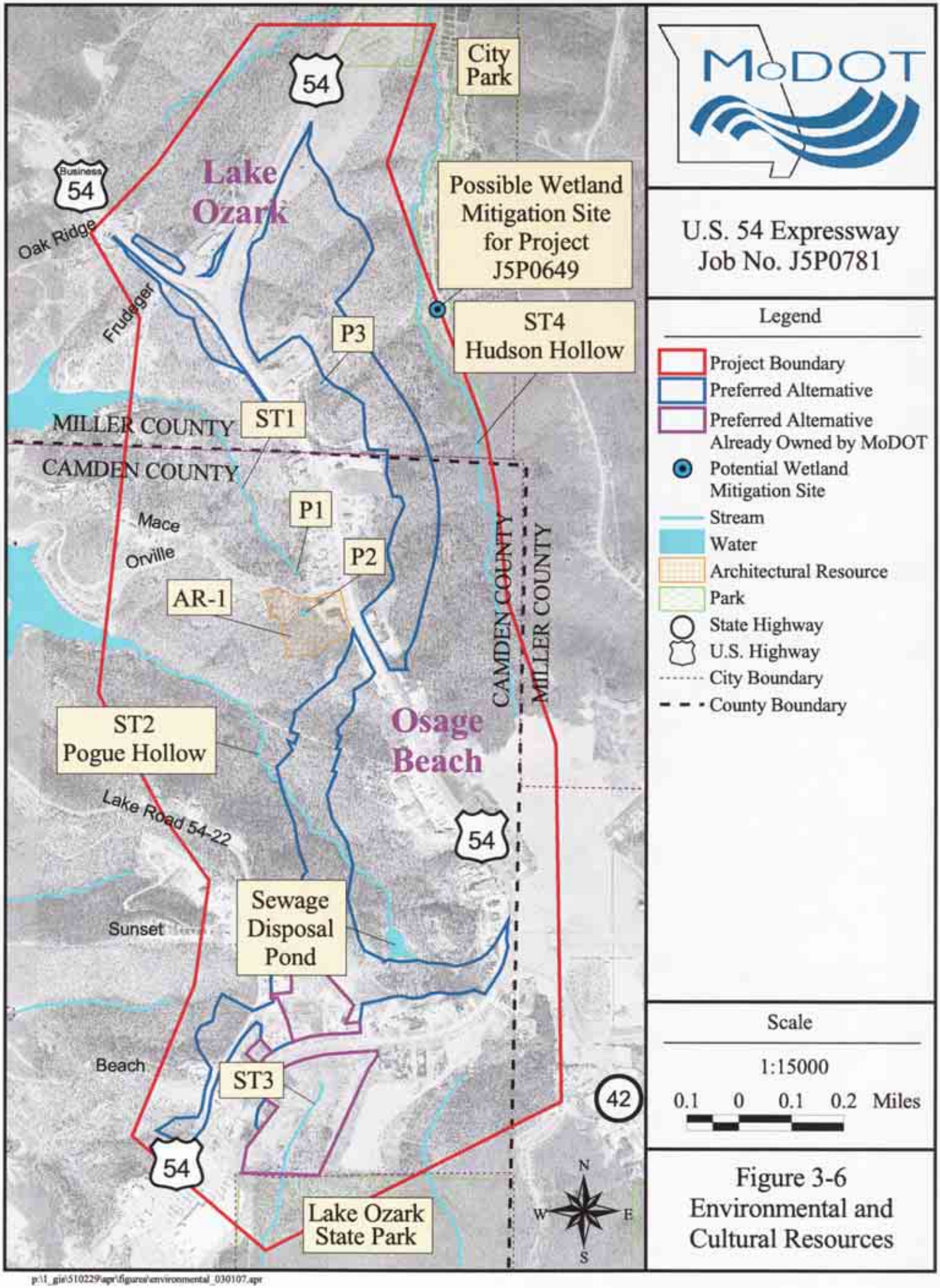
MoDOT
U.S. 54 Expressway
Job No. J5P0781
Legend
Project Boundary
Preferred Alternative
Preferred Alternative Already Owned by MoDOT
Potential Wetland Mitigation Site
Stream
Water
Architectural Resource
Park
State Highway
U.S. Highway
City Boundary
County Boundary
Scale
1:15000
0.1 0 0.1 0.2 Miles
Figure 3-6
Environmental and Cultural Resources
54
City Park
Business 54
Lake Ozark
Possible Wetland Mitigation Site for Project J5P0649
Oak Ridge
Frudeger
P3
ST4 Hudson Hollow
MILLER COUNTY
ST1
CAMDEN COUNTY
Mace
Orville
P1
P2
AR-1
CAMDEN COUNTY
MILLER COUNTY
ST2 Pogue Hollow
Osage Beach
Lake Road 54-22
54
Sewage Disposal Pond
Sunset
Beach
ST3
42
54
Lake Ozark State Park
N
W
E
S
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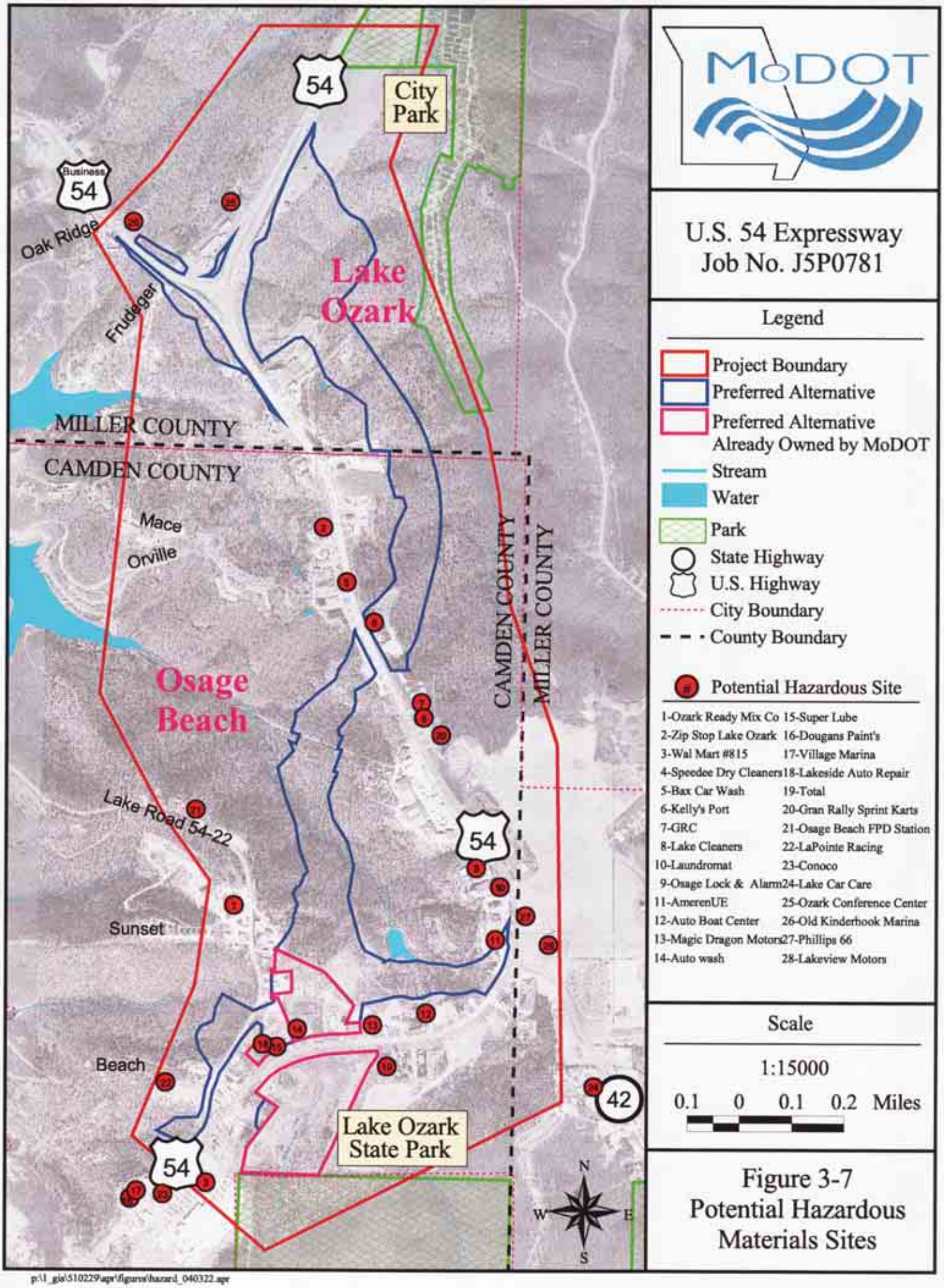

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