
4.0 AFFECTED ENVIRONMENT

This section updates information on existing social, economic, and environmental conditions that have changed since the publication of the Draft Supplemental Environmental Impact Statement (DSEIS) in September 2002 for the US-31 freeway in Berrien County, Michigan. For Affected Environment issues that remain unchanged, refer to the September 2002 DSEIS for an in-depth analysis of each topic. In selected sections of this Final Supplemental Environmental Impact Statement (FSEIS) data may be identical as the information presented in the DSEIS. This is to offer a basis for comparison or for clarity purposes.

The Social, Economic, and Environmental Inventory of the 1981 FEIS is summarized in **Section 1.4 Social, Economic and Environmental Inventory**.

4.0.1 Key Changes from the 1981 FEIS

The following summarizes the key changes between the study area presented in the 1981 FEIS and the study area covered by this FSEIS. The majority of the US-31 freeway approved in the 1981 FEIS has been constructed and the associated impacts south of Napier Avenue have already taken place. The current study area is much smaller in magnitude, traverses only one community instead of six, and crosses two creeks instead of seven creeks and the St. Joseph River. The current study area also does not include any public parkland, which was a key issue for the larger study area south of Napier Avenue. However, there are a number of key issues that have changed in the twenty years subsequent to the 1981 approval of the FEIS.

1. The Mitchell's satyr butterfly, placed on the federal endangered species list in 1991, was discovered in the ecologically sensitive Blue Creek Fen. The statement that there were no threatened or endangered species in the study area reported in the 1981 FEIS is no longer accurate.
2. The population of the study area has not grown as predicted in the 1981 FEIS and has in fact shrunk since 1980. Little growth is expected over the next 25 years.
3. Environmental Justice provisions were not in place at the time of the 1981 FEIS. There is a substantial low-income and minority population within Berrien County and Benton Charter Townships and potential disproportionate impacts on these communities must be considered.
4. Since the completion of the 1981 FEIS, projects that may irreversibly convert farmland (directly or indirectly) to nonagricultural use and are completed by a federal agency or with assistance from a federal agency are subject to the Farmland Protection Policy Act (FPPA). The FPPA is intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses.

4.1 Land Use

Recommended Alternative PA-2 will not impact any 4(f) or 6(f) properties. There are no recreation or public lands within the study area that have been acquired or developed with Land and Water Conservation Funds and a 6(f) evaluation is not required.

The study area remains predominantly rural and land use has not changed greatly since the 1981 FEIS. Sections 4.1.1 Development, 4.1.2 Recreation and Park Land, and 4.1.3 Natural Environmental Features and Vegetation of the DSEIS provide a complete discussion on land use issues associated with the study area.

4.2 Agriculture

As indicated in the DSEIS, cash crops and fruit produce remain the dominant agricultural operations in the study area and Berrien County. Prime and Unique Farmland as classified by the Natural Resources Conservation Service is found throughout the current study area and is shown in **Figure 5.2 of Section 5.2 Farmland Impacts**. For further agricultural discussions on farmland and soils issues, see sections 4.2 Agriculture and 4.2.1 Soils of the DSEIS.

4.3 Economics

While unemployment in Benton Charter Township has grown, the level of development in the current study area has not changed much since the 1981 FEIS. Berrien County remains at or below average in terms of economic conditions when compared to the State of Michigan.

The economy of the current study area is strongly linked to the economically depressed City of Benton Harbor, which accounts for higher unemployment rates and lower per capita incomes.

Tax base and study area economics remain unchanged since the publication of the DSEIS in September 2002 (see 4.3.1 Tax Base and State Equalized Value and 4.3.4 Economic Base of the DSEIS for more detail). However, study area income and labor statistics have been updated to reflect the latest information available

4.3.1 Income

In 2000, the per capita incomes for Berrien County and Benton Charter Township were \$19,952 and \$14,137 respectively. These were lower than the state average of \$22,168.

The percentage of people living below the poverty line has increased in Berrien County since the 1981 FEIS. According to the 2000 Census, 12.7% of people in Berrien County are living below the poverty line, which is higher than the Michigan rate of 10.5%.

4.3.2 Labor

Since 1970, the Berrien County labor force has increased to approximately 81,275 in July 2003. The unemployment rate was 8.3% compared to an 8.0% rate for the State of Michigan. Berrien County now has a level of unemployment near the state average as opposed to being consistently below the Michigan average as presented in the 1981 FEIS. The unemployment rate in Benton Charter Township is much higher, estimated at 15.0% in July 2003. The average weekly wage in Berrien County was \$582.01 in 1999, 15.7% less than the Michigan average of \$690.26 (Michigan Department of Career Development).

4.4 Secondary and Cumulative Development

These terms are defined as follows:

- *Secondary effects* are indirect impacts “caused by an action and are later in time or further removed in distance but are still reasonably foreseeable” (40 CFR 1508.8).
- *Cumulative effects* are “impacts which result from the incremental consequences of an action when added to other past and reasonably foreseeable actions” (40 CFR 1508.7).

Section 5.4 Secondary and Cumulative Development Impacts provides thorough analysis of secondary and cumulative development issues.

4.5 Socio-Demographics

Significant population growth within Berrien County and Benton Charter Township as forecast within the 1981 FEIS has not materialized. Both jurisdictions have decreased in population since 1980 and are not projected to grow significantly by 2025. Sections 4.5.1 Population and 4.5.2 Selected Population Characteristics of the DSEIS provide details on population statistics associated with the study area.

Much of the housing as cited in Section 4.5.4 Housing of the DSEIS was built before 1950 and remains in the study area today. Locations of community facilities as described in Section 4.5.5 Community Facilities of the DSEIS are found on **Figure 4.1** of this FSEIS.

Income data and Environmental Justice issues connected with low-income and minority communities were updated in this FSEIS using 2000 Census data rather the 1990 Census data previously available.

4.5.1 Income Characteristics

Income statistics for the study area and other jurisdictions are presented in **Table 4.1**. Median household income and per capita income within the study area are above the township levels, but below the county and state averages. The study area poverty rate is approximately 8.5%, which is lower than the township, county, and state poverty rates of 27.7%, 12.7%, and 10.5%, respectively.



Community Facilities

US-31 Freeway Connection to I-94



Source: US-31 Project Team Field Evaluations

Figure 4.1 Community Facilities

Affected Environment

Table 4.1 Median Household Income, Per Capita Income, and Poverty Rates

Community	Median Household Income	Per Capita Income	% Rate of Population Below Poverty
Study Area	\$28,013	\$19,547	8.5%
Benton Charter Township	\$25,942	\$14,137	27.7%
Berrien County	\$38,567	\$19,952	12.7%
State of Michigan	\$44,667	\$22,168	10.5%

Source: US Census 2000

A weighted average median was used to calculate the median household income for the study area. The median household incomes for census blocks, mostly or entirely contained within the study area boundaries, were weighted by the number of households in each block. For blocks with only a small portion of their total households located within the study area, an estimate of the number of households within the block that are also in the study area was calculated using aerial photography. This estimated number of households was used to weight the median incomes of these blocks in the calculation of the total median income for the study area. A similar method was used to calculate the poverty rate and per capita income for the study area.

Figure 5.4 of Section 5.5.2 Environmental Justice shows that all of the block groups in the study area had a 2000 per capita income lower than the state average except for the northeast corner. The northwest and west components of the study area show particularly low per capita incomes.

Extra meetings were held with community leaders and the residents of the neighborhoods in the northwest portion of the study area which had the potential for being affected by one or more of the alternatives. The purpose of these meetings was to ensure that community members were aware of the project and that their views were fully considered in the analysis of alternatives.

4.6 Relocations

Between January and August 2003, the average selling price of residential homes in the study area, was \$74,000. A relocation analysis is provided in **Section 5.6 Relocation Impacts** and **Appendix D, Relocation Plan – Conceptual Stage**.

4.7 Joint Development

There are no joint development initiatives currently planned in the study area to enhance non-motorized facilities or transit services. A potential development conflict exists with the approved Southwest Michigan Regional Airport expansion project. The airport expansion project, requiring 225 residential relocations, could occur during the same time as the proposed US-31 residential relocations. For a comprehensive analysis see **Section 5.4 Secondary and Cumulative Development Impacts** and **Section 5.7 Joint Development Impacts**.

4.8 Non-Motorized Travel

There are no existing public sidewalks or non-motorized paths within the study area. Local roads provide the existing travel network, while the principal mode of non-motorized travel is minor pedestrian or bicycle use.

4.9 Air Quality

The study area corridor is located within the Benton Harbor Metropolitan Statistical Area for air quality. As described and analyzed in Section 4.9 Air Quality of the DSEIS, the study area remains unchanged and is within an attainment area for all criteria pollutants.

4.10 Noise

Existing noise level measurements were conducted at ten representative sites in the study area: one church, six residences, two vacant parcels, and one proposed residential development. The measurements were made in accordance with FHWA guidelines using an integrating sound level analyzer meeting American National Standards Institute (ANSI) and International Engineering Consortium (IEC) Type 1 specifications. See Section 4.10 Noise of the DSEIS for a complete noise analysis of the study area.

4.11 Water Quality

As referenced in the 1981 FEIS, the current study area is located in the Paw Paw River sub-watershed for both surface and groundwater. This outlets into the St. Joseph River Basin. According to the US Geological Survey Water-Supply Paper 2437, page 18, the area receives approximately 14.2 inches of recharge a year. This is one of the highest recharge rates in the St. Joseph River Basin, which has recharge rates ranging from 4.5 to 14.5 inches per year.

4.12 Wetlands

There are 81 delineated wetland complexes within the study area (**Figure 5.6 of Section 5.12 Wetland Impacts**). The higher quality wetlands are associated with Blue and Yellow Creeks and are located in the northern quarter of the study area. The three primary types of wetlands found in the northern quarter are (1) large forested wetlands that are contiguous with watercourses, (2) emergent and scrub-shrub wetlands that border Blue and Yellow Creeks, and (3) a fen that is located south of Territorial Road and abutting Blue Creek. The Blue Creek Fen has a high plant and animal diversity and is a unique type of wetland. These areas were found to harbor and provide habitat for threatened, endangered, and special concern plant and animal species. These wetlands also provide important water quality functions necessary for ensuring and maintaining clean water, fish, and the support of aquatic communities typically associated with higher quality watercourses.

In the southern three quarters of the study area (south of Territorial Road and Blue Creek), the wetland complexes are predominantly (1) open-water ponds, (2) abandoned farmlands that are reverting to wetlands, and (3) agricultural drains. Most of the wetlands are isolated and surrounded by agricultural lands with no direct inlet or outlet to a defined watercourse. These wetlands contain emergent vegetation in the interior and a mixture of shrubs and trees on the exterior margins. These areas were not found to harbor or provide habitat for any threatened, endangered, or special concern plant or animal species. However, they do provide for storm water storage, water filtration, and habitat for other non-listed species of wildlife.

4.13 Water Bodies

There are few substantive changes from the content of the 1981 FEIS with regard to hydrological conditions except that the focus is now on Blue and Yellow Creeks and not on the St. Joseph River, which is not impacted by this section of US-31.

4.13.1 Water Quality

Water quality issues connected with the Blue and Yellow Creek systems were not discussed in the 1981 FEIS. The report on Fisheries and Aquatic Biota (**Appendix A.3**) prepared for this study concluded that there are fish and invertebrate communities located in Blue Creek indicative of a high quality stream. The presence of a large quantity of mottled sculpin within Blue Creek, as found in several assessments of the stream, is indicative of good water quality. Mottled sculpin are classified as insectivorous fish in Michigan streams. Typically, the abundance of insectivorous fish species decline with stream degradation, likely due to a decline in food supply. Therefore, the relative abundance of these fish is used as an indicator of good water quality.

The study team has confirmed drain locations with the Berrien County Drain Commissioner. All of the Build Alternatives considered would affect the headwaters of Ox Creek, and the Wright and Woodley County Drain located north of Empire Avenue that is partially enclosed. The Carmichael and Closson County Drain will also be affected by various alternatives, which are documented in **Section 5.13 Water Body Impacts**.

4.13.2 Fisheries and Aquatic Habitat

Blue Creek is a high quality coldwater stream that provides good habitat for macroinvertebrate and fish. Blue Creek has also been classified by the state as a designated trout stream. The biotic communities and habitats associated with the creek include valued aquatic resources with important habitats for both cold and cool water fish. The creek is stocked with brown trout and appears to be favored for fishing by area residents, but Dexter (1997) noted that there is no natural reproduction of brown trout. A separate technical study on Fisheries and Aquatic Biota was conducted for the US-31 study area and is summarized in **Appendix A.3**.

4.14 Stream Crossings and Floodplains

Blue Creek and Yellow Creek are the two major streams located in the current study area and remain as described in the 1981 FEIS. Yellow Creek flows into Blue Creek from the north approximately 2000 feet upstream (east) of where mainline I-94 crosses Blue Creek. The 100-year floodplain would be impacted by any potential alternative that crosses the Blue Creek and is shown in **Figure 5.6** of **Section 5.12 Wetland Impacts**.

4.15 Wild and Scenic Rivers and Natural Rivers

The study area crosses no federal Wild or Scenic River systems. There are no state designated Natural Rivers within the study area, as defined in Part 305 (Natural Rivers) of Act 451, Natural Resources and Environmental Protection.

4.16 Coastal Barriers / Critical Dunes

There are no federally designated coastal barriers within the study area, as defined in the Coastal Barriers Act of 1982 (P.L. 97-348), and there are no critical dune areas within the study area as defined by Part 323, Shoreline Protection and Part 353, Sand Dune Protection.

4.17 Coastal Zones

The study area is not located within a federal coastal zone management boundary, as defined by the Coastal Zone Management Act of 1972.

4.18 Threatened and Endangered Species

The identification of the Mitchell's satyr butterfly and potential habitat for other species of concern within the wetland complex associated with Blue Creek are the primary ecological issues for the current study area. Additional areas have been identified as wetlands that were not classified as such in the 1981 FEIS.

The Blue Creek Fen as shown in **Figure 5.6** of **Section 5.12 Wetland Impacts** is a unique habitat of high floristic quality found along Blue Creek, south of Territorial Road and northeast of Blue Creek Road. In the late 1980s it was discovered that the Blue Creek Fen contained the Mitchell's satyr butterfly (*Neonympha mitchellii*). This butterfly was placed on the federally endangered species list by the United States Fish and Wildlife Service (USFWS) on June 25, 1991 and now receives protection under the Federal Endangered Species Act. The Mitchell's satyr butterfly is also listed as endangered by the Michigan Department of Natural Resources. The butterfly is found in a series of separated populations in the eastern United States, the majority of which (16) are found in southern Michigan; only eight including the Blue Creek Fen are considered high quality sites. The population decline of the butterfly has coincided with wetland draining and the elimination of, or change in, disturbance regimes such as wild fires or hydrology. During site visits conducted in 2001, Mitchell's satyr butterflies were present and easily encountered at control sites within the Blue Creek Fen. A single male was observed patrolling the sedges north of one of the control sites indicating the population has expanded slightly over the last two years and is patrolling for suitable new habitats within the fen. The remaining wetlands in the study area outside of the fen and west of Benton Center Road have very little potential to support habitat for the Mitchell's satyr butterfly.

The USFWS issued a Biological Opinion in 1994, which addressed the sensitivity and ecological value of the Blue Creek Fen and associated Mitchell's satyr butterfly habitat. A summary of the 1994 Biological Opinion can be found in **Appendix A.5**. It was determined that construction of the 1981 approved alignment (PA-4) would "jeopardize the continued existence of the species", and USFWS recommended several mitigation measures. These included acquisition or easement protection of habitat within the fen areas, acquisition of off-site habitat within the Mitchell's satyr butterfly environment, scientific life history and habitat investigations, and the creation of a management program to monitor on and off-site habitat success.

Past studies have also reported that other state threatened species (prairie trillium, white lady slipper, goldenseal, and spotted turtle) and state species of special concern (Eastern box turtle and *carex savarrosa*) are found in the fen.

Outside of the Blue Creek Fen, field investigations reaffirmed the 1981 FEIS findings that no threatened or endangered plant or animal species appear to exist. Potential areas of concern were assessed at least twice during their optimal time period and no threatened or endangered species were observed. However, habitat that could support these species was identified and 15 Eastern box turtles (SC) were found in the northern half of the study area near Blue Creek.

The wetland complexes and the adjacent uplands associated with Blue and Yellow Creeks are floristically significant from a statewide perspective and represent some of the best remaining native and natural areas within the study area. Although many wetland complexes in the study area are good quality, the Blue and Yellow Creek areas have the highest affinity for supporting threatened or endangered species. This is due to their high floristic quality index values which indicate a plant community more indicative of pre-settlement conditions and a low level of human disturbance.

Although no listed snake species were observed, there is suitable wetland snake habitat found within the study area. During field investigations, snake holes and various food sources including crayfish, anurans voles, and small mammals were observed. These findings along with the type of vegetation present indicate the potential for populations of snakes including the Eastern massasauga rattlesnake (*sistrurus catenatus catenatus*), and the federally endangered Kirtland's snake (*clonophis kirtlandi*) and Northern copperbelly water snake (*nerodia erythrogaster neglecta*).

There is also potential habitat for the federally endangered Indiana bat (*Myotis sodalis*) scattered throughout the study area. There is no record of the Indiana bat in Berrien County but its range includes southern lower Michigan. The results of a biological assessment conducted in September, 2001 indicate that three of the 63 potential sites visited had moderate potential for providing habitat to a maternity colony of Indiana bats. These are shown in **Figure 5.6 of Section 5.12 Wetland Impacts.**

Field investigations and technical evaluations were conducted for threatened and endangered species, including the Indiana bat and the Mitchell's satyr butterfly. These are further discussed in **Section 5.18 Threatened and Endangered Species Impacts.**

4.19 Cultural Resources

To satisfy Section 106 of the National Historic Preservation Act and Section 4(f) of the Department of Transportation Act, MDOT contacted the Michigan State Historic Preservation Office (SHPO) for assistance in identifying study area historic and archaeological sites and conducted historic and archaeological surveys to locate sites potentially eligible for listing on the National Register of Historic Places (NRHP).

4.19.1 Above Ground Resources

A Phase I Reconnaissance Survey of above ground resources was conducted to identify properties within the study area that may potentially meet the minimum criteria of eligibility for listing on the NRHP, as required under Section 106 of the National Historic Preservation Act of 1966, as revised. The NRHP has established criteria for determining historic significance. These criteria require a property to have integrity of location, design, setting, materials, workmanship, feeling, and association. Additionally, properties must be at least 50 years old and meet one or more of the National Register criteria for significance:

- A. Property is associated with events that have made a significant contribution to the broad patterns of our history.
- B. Property is associated with the lives of persons significant in our past.
- C. Property embodies the distinctive characteristics of a type, period, or method of construction or represents the works of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- D. Ability to yield information important in prehistory or history.

The Reconnaissance Survey covered the study area, which encompassed all of the Practical Alternatives. The project study area, shown in **Figure 4.1**, has been determined to be the limits of the Area of Potential Effect (APE). This is a reasonable APE because the study area encompasses all of the Practical Alternatives considered for the US-31 freeway Connection to I-94 and no impacts associated with constructing any of the alternatives will extend beyond the limits of the study area.

Coordination has occurred with the SHPO, the Berrien County Historical Association, and Mary's City of David (Israelite House of David) to assist in the identification of historic resources. The following Native American Tribes were also contacted: Little River Band of Ottawa, Pokagon Band of Potawatomi, Little Traverse Bay Band of Odawa, Huron Band of Potawatomi, Saginaw Chippewa, Grand Traverse Band of Ottawa and Chippewa, Gun Lake Band of Potawatomi, Grand River Bands of Ottawa, Prairie Band of Potawatomi, Citizens Band of Potawatomi, and Miami Tribe of Oklahoma. The Section 106 public involvement process has been conducted in conjunction with the overall public involvement effort for the entire study and is outlined in **Section 6.0 Public Involvement and Agency Coordination**.

Fieldwork resulted in the documentation of 268 total buildings and structures on 156 properties within the proposed US-31 freeway Connection to I-94 study area. Many of these properties failed to meet the NRHP Criteria for Evaluation and/or lacked the integrity needed to convey

their historic significance. Typically these included properties whose structures have undergone extensive unsympathetic renovations including altered building footprints, incompatible additions, reconfigured windows, and application of synthetic siding, as well as the removal or demolition of associated outbuildings. In addition to a lack of architectural integrity, a number of these structures do not represent outstanding representations of a particular architectural type or style. Also, research of historical plat maps and atlases failed to demonstrate an association with a significant historical event or person(s) important in the past. Consequently, only two properties were determined to be eligible for listing on the NRHP. A SHPO letter of concurrence can be found in Appendix E.1 of the Draft Supplemental Environmental Impact Statement (DSEIS). These properties are listed in **Table 4.2** and their locations are depicted in **Figure 4.3**.

Description of Eligible Historic Properties

Site A - Isolated Barn (3893 Territorial Road)

As shown in **Figure 4.2**, this barn is located on the north side of Territorial Road and was reportedly a mail-ordered barn built and owned by the Israelite House of David religious group in the early 1900s. Because the barn may have contributed to local settlement patterns and is reportedly associated with the Israelite House of David, a historically important local religious community, it has been determined eligible for listing on the NRHP.



Figure 4.2 House of David Barn, Site A

Site B - Migrant Workers Cottages (645 Blue Creek Road)

Existing structures on this farm property include a house, barn, garage, and two migrant workers cottages. Alterations to the house, garage, and barn have compromised their integrity and they are not recommended eligible for listing on the NRHP. However, the migrant workers cottages have been determined to be eligible for the NRHP as they are examples of early settlement housing for migrant workers comprised of various ethnic groups.

Table 4.2 Properties Eligible for Inclusion on the NRHP

Site	Property Location	Description	NRHP Criterion
Site A	3893 Territorial Road	Isolated Barn	A
Site B	645 Blue Creek Road	Migrant Workers Cottages	A,C

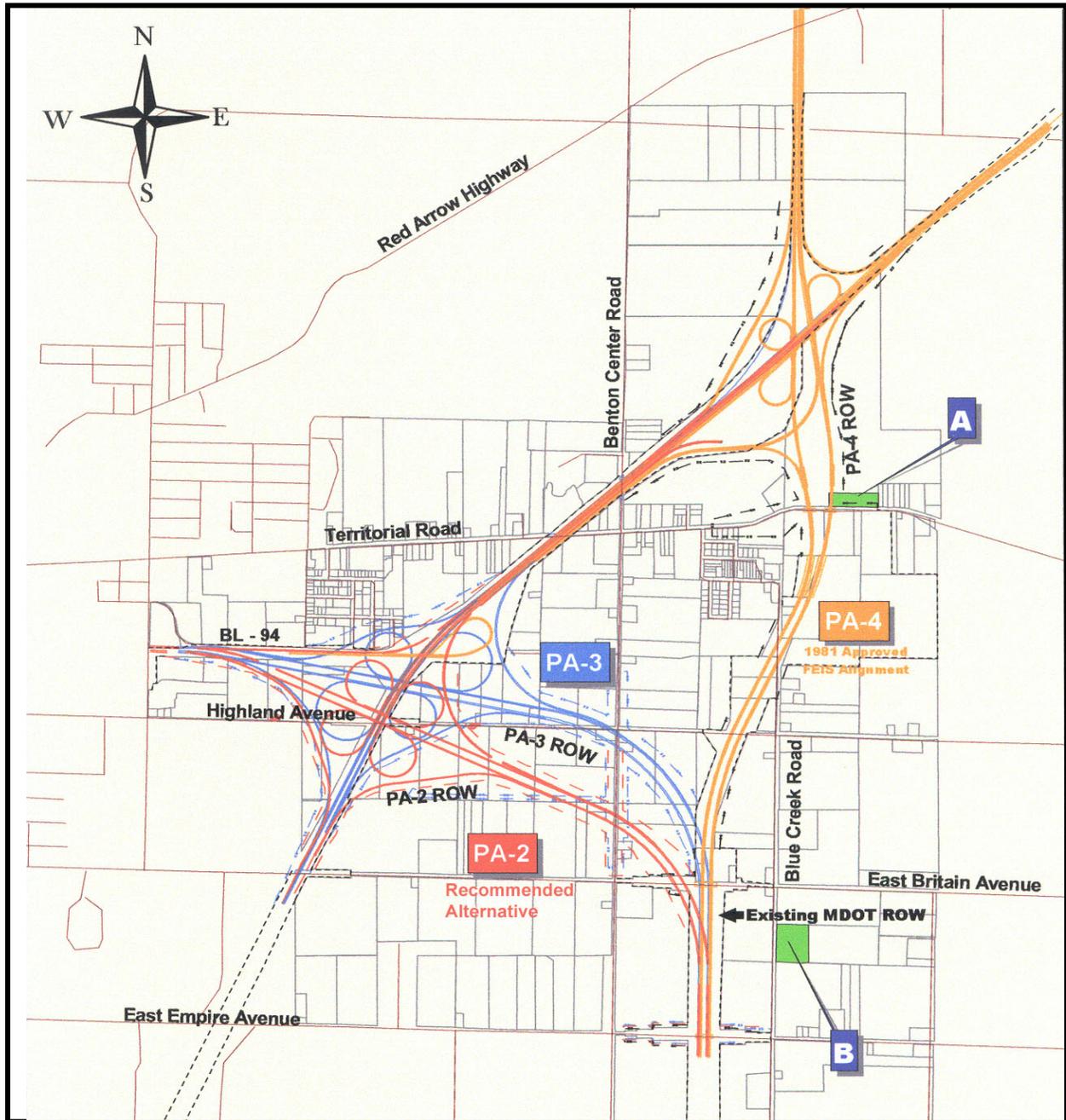


Figure 4.3 Cultural Resource Properties

4.19.2 Archaeological Resources

Of five archaeological sites listed within the study area based on the archaeological site files housed at the Office of the State Archaeologist (OSA) in Lansing, Michigan, 20BE116 was the only site potentially affected by the project. According to the archaeological site files at the OSA, site 20BE116 is a prehistoric Woodland period site (ca. 1000 BC to AD 1500). The OSA site record is based on a private artifact collection. The precise location of the site is not known, but the site is generally plotted on the OSA site atlas in Section 23 within Benton Charter Township.

Professional archaeologists have not located or verified the existence of site 20BE116 as part of archaeological surveys of the Study Area. No evidence of site 20BE116 was noted in Section 23 during the 2001 Phase I archaeological survey of the study area connected with Recommended Alternative PA-2. Western Michigan University (WMU) also conducted a Phase I archaeological survey in 1979 for the 1981 FEIS and no archaeological sites were identified in section 23 as a result of that survey.

As site 20BE116 has not been observed within the study area, the site will not likely be affected by the project and further evaluation of the site is not recommended.

4.20 Potential Contaminated Sites

A search for potential contaminated sites within the study area, including a walkover, a review of regulatory databases, and discussions with local fire and health officials was conducted. The findings of the investigations are discussed in a separate Project Area Contamination Survey Report summarized in **Appendix A.6**. No sites were identified that were deemed to be a probable significant constraint to road construction. For a complete discussion see Section 4.20 Potential Contaminated Sites of the DSEIS.