

# ***Appendix A: Background Data***

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2009 Comprehensive Transportation Plan

Early Agency Coordination Letters & Responses

Missouri Department of Natural Resources

U.S. Fish and Wildlife Service

Missouri Department of Conservation

Summary of Public Involvement

Steering Committee Meeting Minutes



# Comprehensive Transportation Plan Update

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City of Marshfield, Missouri

NOVEMBER 2009

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## 1. INTRODUCTION

Planning for the City of Marshfield's current and future transportation needs was a major objective behind the Comprehensive Plan update. The following goal was adopted in conjunction with the original plan and public input from the updating process to help address the City's existing and future transportation conditions:

*The City shall plan and complete a safe, efficient, comprehensive transportation system that provides effective circulation and economic development while maintaining the integrity, security, and privacy of Marshfield's residential neighborhoods and small town character.*

This transportation element of the Comprehensive Plan has focused on evaluating the community's existing conditions and suggesting and prioritizing improvements that are necessary to balance the City's circulation needs with existing and anticipated development and growth. This Plan takes an integrated approach to reviewing the City's transportation needs and takes a comprehensive, systems-planning approach to developing objectives and recommendations to address the City's transportation needs.

This Plan examines transportation issues inside City boundaries. However, because development outside Marshfield affects the City, some focus is given to areas outside the City's legal boundaries.

## 2. FUNCTIONAL ROADWAY CLASSIFICATION

To better review and evaluate the City's road system, the roadways have been classified into functional categories following Federal Highway Administration (FHWA) guidelines. The Functional Classification System (FCS) categorizes the design and operational standards of roadways according to their purpose in moving vehicles. The classification system adheres to a hierarchical structure to describe how roadways operate within a transportation system. A higher functional classification implies higher traffic capacity and speeds and typically longer traveling distances.

The hierarchy of roadway types in descending order includes Interstate/Freeway, Principal Arterial, Minor Arterial, Collector, and Local. This classification, which is based on the FHWA's FCS system, is used throughout this document to establish a functional hierarchy of roadways. The functional roadway classifications are described as follows:

### **Interstate/Freeway**

An interstate or freeway is a major roadway designed for relatively uninterrupted, high-volume, high-speed traffic movement between urban centers and across the region. No traffic stops are available on this level of roadway, and access is limited to only grade-separated interchanges. Interstates are not intended to provide direct access to land.

**Principal Arterial**

Principal Arterials are intended for high-volume, moderate- to high-speed traffic across a metropolitan area with minimal access to adjacent land, allowing long-distance trips at relatively high speeds. Their primary purpose is to provide access between Collector Streets and roadways of higher functional classification while offering local mobility and some access to land. Although Principal Arterials are limited-access highways, they have some at-grade crossings and signals at major intersections.

**Minor Arterial**

Minor Arterials are primarily intended for medium- to high volume, moderate speed traffic between major activity centers. Access to abutting property is subordinate to major traffic movements and is subject to necessary control of entrances and exits. Minor Arterials provide alternative routes to and from freeways and interstates and usually link to cities, towns, and villages.

**Collector Street**

This level of roadway collects and distributes traffic to/from Principal Arterial and Minor Arterial streets. They are intended for low- to moderate-volume, low-speed, and short-length trips, while providing access to abutting properties. Commercial/Industrial Collector Streets may be constructed to higher standards to serve truck traffic.

**Local Roads**

A roadway used for low-volume, low-speed, and short-length trips to and from abutting properties is generally classified as a Local Road. Its primary purpose is to provide access between abutting properties and roads of higher functional classifications.

Differentiating between roadway classifications is generally based upon through-traffic movement and access to adjacent land. Lower functional classes, such as Local Roads and Collectors, provide greater access to adjacent properties as compared to higher functional classifications, such as Arterial or Interstate, which provide greater mobility.

Most of the roadways within the Marshfield Transportation System are route classified as Minor Arterials and Collectors. Minor Arterials and Collectors typically serve mostly local destinations and traffic, and they have a lower level of access control.

**3. CITY OF MARSHFIELD ROADWAY CLASSIFICATIONS**

The City of Marshfield's Classified Roadway Network includes an Interstate/Freeway, Principal Arterials, several Minor Arterials, and numerous Collectors and Local Roadways. These street classifications are displayed in Figure 1.

**Interstate/Freeway**

I-44 is an Interstate/Freeway that is included in Marshfield's Transportation System. I-44 is a four-lane Interstate that carries the most diverse and largest volume of traffic along

the western edge of the City of Marshfield. A diamond interchange is located at the intersection of I-44 and Highway 38 (Spur Drive) at mile marker 100, providing access to the City.

**Principal Arterial**

Highway 38 and Hubble Drive/Route CC are Principal Arterials that serve the greater Marshfield area. Highway 38 is a State route that transverses the entire city and includes all of Spur Drive and Commercial Street, and portions of Washington Street, Jackson Street and Crittenden Street. Hubble Drive/Route CC is a State route that moves traffic through the City and to Highway 38. Both Highway 38 and Hubble Drive/Route CC serve an arterial function of moving traffic through the City and to points outside the City. However, within the City limits, the characteristics of both roadways resemble that of city streets with a more Minor Arterial function, as many portions have higher access to adjacent land use than typically found with Principal Arterials.

**Minor Arterial**

Washington Street/Route OO, Route DD, Highway W, and South Marshall Street/Route A are all Minor Arterial roadways that provide alternative routes to and from I-44 and U.S. Highway 60 and provide linkages within the City of Marshfield and to numerous cities including Springfield, Nlangua, Strafford, Seymour, Hartville, Conway, Buffalo, Elkland, and Fair Grove. As these routes move through the City of Marshfield, a high level of direct access exists to adjacent parcels, the number of at grade intersections increases, and the speed limit decreases.

**Collector Street**

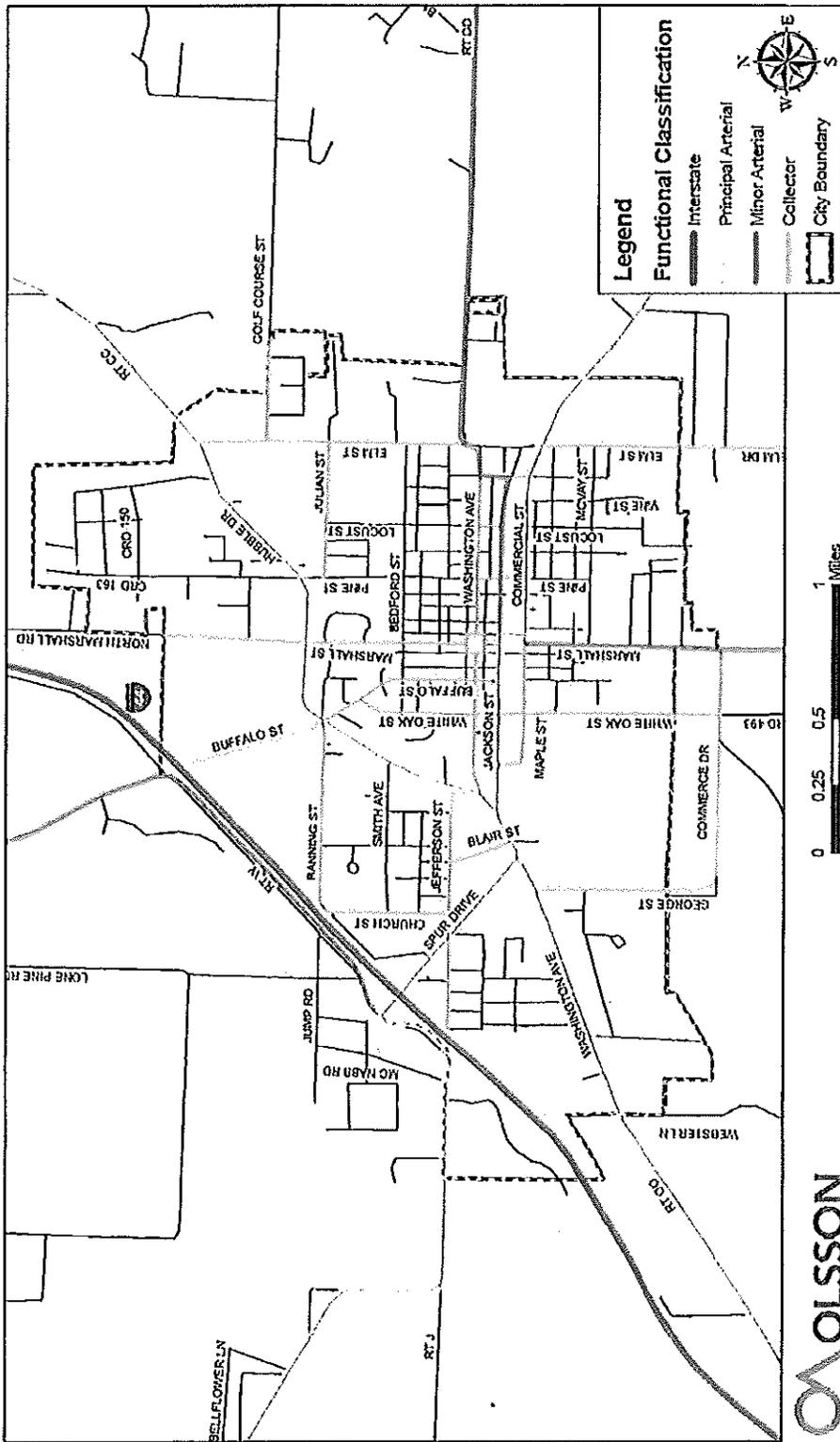
Marshfield's Collector Street Network supports the Arterial Network. These streets are intended to collect and distribute traffic to/from Arterial and Secondary Arterial Streets and are thus classified as Collector Streets. Streets that function as Collectors include a portion of Washington Street, Jefferson Street, Maple Street, Church Street, Banning Street, Buffalo Street, White Oak Street, Bedford Street, Pine Street, Elm Street, Julian Street, Blair Street, McVay Street, Golf Course Road, George Street, and North Marshall Street, as well as a number of county roads, including Rifle Range Road, Commerce Road, McNabb / Jump Road, and Pleasant Pralrie Road.

**Local Roads**

Most other roadways within the City limits accommodate low-volume, low-speed, and short-length trips to and from abutting properties. The primary purpose of these roadways is to provide access between abutting properties and roadways of higher functional classifications.

Marshfield, Missouri

Figure 1: Functional Classification Map



**MOLSSON**  
ASSOCIATES

#### 4. EXISTING TRANSPORTATION OVERVIEW

Many transportation problems in Marshfield result from high population growth rates over the last few decades, in conjunction with several regionally important roadways intersecting at the City's center. Traffic delays frequently occur with the concentration of retail establishments at the City's primary access to I-44 at the Spur Drive/Highway 38 interchange area. This impact has been addressed with the following recent improvements that were cost-share projects with MoDOT using City bond revenue:

- The diamond interchange at the I-44 off-ramp has been improved with signalization and the provision of dual right-turn lanes from Eastbound I-44 onto Highway 38.
- The Jefferson Street and Highway 38/Spur Drive Intersection was recently upgraded with improved paving and a signal added to this intersection. This allows motorists to bypass the Highway 38 & Route OO intersection, and Highway 38 & Route CC intersection, and proceed directly east to Highway CC without first traveling south.

Further improvements, completed in 2008 to improve traffic flow along Spur Drive/Highway 38, including the following:

- Widening the roadway to a four-lane and include a middle left-turn lane and new traffic signals at Banning Street & Highway 38 and Highway CC/Hubble Drive & Highway 38
- Upgrading traffic signals and redesigning the intersection at Highway OO

Most traffic accessing I-44 or the retail developments located east and west of I-44 must use Highway 38/Spur Drive. The improvements to Spur Drive and the existing I-44 interchange serve existing traffic well. The concern is that this sole access point will restrict future growth and will become congested in the future. As the City of Marshfield, in conjunction with other local government agencies, continue to study a second interchange location, the City, Webster County, and the Missouri Department of Transportation (MoDOT) should continue to look at access management along key roadways such as Spur Drive to contribute to the smooth flow of traffic.

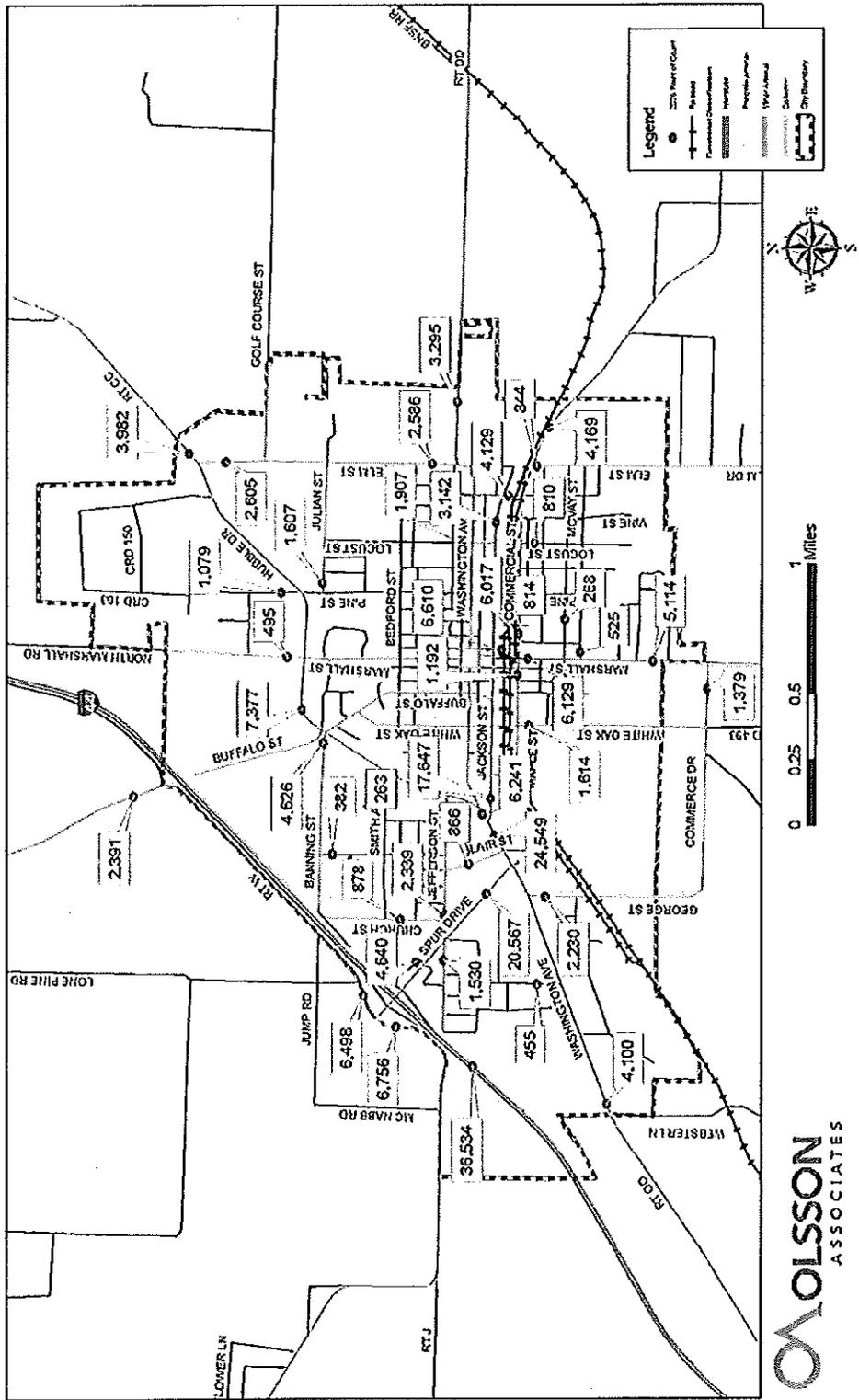
#### 5. TRAFFIC VOLUMES

This section discusses Average Daily Traffic (ADT) counts for the major road systems that serve the City of Marshfield and identifies locations experiencing the highest traffic volumes. Level of Service is not discussed as it utilizes more factors than ADT such as travel time and intersection turning movements. Year 2008 traffic counts were taken but were considered by the City and MoDOT to not reflect recent traffic growth. For that reason, Year 2004 traffic counts were used in deriving Year 2008 traffic volumes, with a three percent applied annual growth rate representing the average growth rate determined for all of the major routes in Marshfield.

In 2004, traffic conditions were unimpeded by recent construction enhancing Spur Drive. As expected, the highest volumes of traffic within Marshfield existed on Highway 38 as it links I-44 to the City of Marshfield via Spur Drive. The heaviest volumes of traffic recorded in the City's 2008 Annual Average Daily Traffic (AADT), derived from the 2004 counts, were recorded at Highway 38 between Highway OO and Highway CC (24,549 ADT), Spur Drive (20,567), and Jackson Street near Highway CC (17,647). The traffic volumes progressively decreased further from the intersection of Highway 38 and Route OO. For example, at Highway 38 west of Highway CC, the ADT was 24,549; as Highway 38 turned off of Jackson Street the ADT was 6,610; and, finally, on Highway 38/Commercial Street on the eastern side of Marshfield the ADT was 4,169. Outside traffic is required to travel through Marshfield to reach Highway 38 east of the City limits, Highway CC northeast of the City, or Route A south of the City. This outside traffic, along with traffic generated within the City of Marshfield, contribute to the high volumes on Spur Drive. **Figure 2** shows the AADT counts for 2008 as a function of the 2004 counts.

As a general rule, a five-lane roadway such as Spur Drive can typically handle a volume of 28,000 cars per day or more, given the current spacing of intersections and driveways. The 2008 derived traffic counts show volumes of 20,567 vehicles north of the Highway OO and Highway 38 intersection. The five-lane roadway on Highway 38/Washington Street between Highway 38/Spur Drive and Highway CC/Hubble Drive has a traffic count of 24,549 ADT for this section. Highway 38/Jackson Street has an ADT of 17,647 east of the intersection of Highway CC/Hubble Drive. These are the three highest areas of traffic in the City.

Figure 2: 2008 AADT Traffic Count using annual growth rates applied to 2004 traffic counts



Marshfield, Missouri

**6. TRAVEL SAFETY**

MoDOT provided accident data for State roadways within the City of Marshfield from 2001 to 2007. The frequency of traffic accidents is a major factor in determining existing conditions and needs, and the frequency generally reflects the physical roadway features and the traffic volumes the road carries. Table 1 indicates State roadways and corresponding cross streets with ten or more accidents from 2001 to 2007.

**Table 1; MoDOT Intersection Accident Data in City of Marshfield**

On Location Street	At Location Street	Accident Count
I 44	MO 38	87
MO 38	RT OO	83
MO 38	I 44	46
MO 38	BANNING	38
MO 38	WHITE OAK	37
RT CC	MO 38	37
MO 38	JEFFERSON	35
RT CC	BANNING	35
RT CC	PINE	20
MO 38	CLAY	19
MO 38	BLAIR	17
MO 38	RT CC	17
MO 38	RT W	14
RT DD	ELM	14
RT DD	PINE	14
MO 38	ALLEN	13
MO 38	RT DD	13
MO 38	CRITTENDEN	12
RT CC	MARSHALL	11
RT OO	MO 38	10

The highest accident locations correspond with high traffic-volume streets. Continued attention should be paid to high accident locations.

**7. ALTERNATIVE TRANSPORTATION MODES**

Alternative transportation modes are necessary to accommodate the diverse needs of the population. The following summarizes some of the limited alternative transportation modes available in Marshfield.

Increasing, but still limited, pedestrian paths and trails provide alternative means for accessing activity centers and neighborhoods without relying on vehicular transportation. Public participants in the original Comprehensive Plan planning process

strongly recommended implementing a citywide system of sidewalks and trail ways. Sidewalks and/or bike paths need to be installed throughout the City to link neighborhoods, schools, parks, churches, businesses, government buildings, and employment centers. All commercial and residential development should be required to provide sidewalks with safe and direct pedestrian accessibility.

Two public transportation programs are available that provide low-cost transportation alternatives to residents:

- The City of Marshfield uses Federal grant money and maintains its own on-demand bus system – the Marshfield Metro. The system uses two buses, and with one operating on weekdays between 8:00 a.m. and 3:30 p.m., excluding holidays.
- The Ozarks Area Transportation System (OATS) provides public transit service from Marshfield to Springfield every other Tuesday and to destinations in designated adjacent counties every other Wednesday. No age, income, or disability-status requirements limit the use of this service.

Two commuter lots exist in the City of Marshfield. MoDOT maintains a designated lot at Highway W next to I-44, and the City maintains a lot available to commuters next to City Hall on Highway A/South Marshall St. These are carpool lots, as no transit service has regularly scheduled service to these lots.

The nearest commercial airport is the Springfield-Branson National Airport, which offers daily service. The airport's longest lighted runway is 8,000 feet long, and the airport features aircraft storage, maintenance, and fuel. The Springfield-Branson National Airport is approximately 30 miles from Marshfield. Reviewing existing airport facilities in the Marshfield region reveals the need for substantial improvements over the next 20 years. No public-owned airports currently exist in Webster County.

A February 2001 community survey of the general public revealed that, of targeted users (pilots and others associated with the industry), 81 percent of respondents think the area does need another airport, with 55 percent of the targeted users stating that a Marshfield airport would attract new business and industry.

## **8. TRANSPORTATION IMPROVEMENT INDICATORS**

The existing conditions of the greater Marshfield area indicate future and anticipated transportation improvement needs. Demographic growth rates such as population, housing, and economic development are measurable conditions that are used in determining the level of service needed to adequately serve the community. This information will help prioritize the type and scope of improvements needed to efficiently

serve the rapidly growing community and its critical infrastructure, as well as nearby dependent communities and larger statewide interests.

Since the 1990s, Marshfield and Webster County experienced an extremely high rate of growth as compared to the State and other cities within the State. Both the City of Marshfield and Webster County demonstrated annual percent growth rates of 3.1 percent from 1990 to 2000. From 2000 to 2007, the County's annual growth rate was 2.3 percent, and the City of Marshfield's annual population growth rate was 3.5 percent. In 1990, 18.4 percent of Webster County residents lived in Marshfield; in 2007 this had increased to 19.8 percent<sup>1</sup>, and was 19.9 percent in 2008<sup>2</sup>. As the population of Webster County continues to remain centered in the City of Marshfield, the County seat, the transportation systems serving this area will serve increasing travel demands.

As new businesses open and existing businesses expand to serve an increasing population, the amount of commercial and truck travel will continue to grow. It is anticipated that more retail, hospitality, and service industries will move into the Marshfield market due to consumer demand, increasing the number of jobs and the number of commuters. This increase in economic development depends upon and requires the implementation of more efficient transportation systems.

Due to the past, present, and anticipated future population, housing, and economic growth within and around the City of Marshfield, the City's transportation system will continue to experience traffic pressure. The City must continue to focus upon achieving efficient use of the local road system and implement key roadway improvements for Marshfield to remain attractive to new residents, businesses, and industries.

## 9. RECOMMENDED TRANSPORTATION IMPROVEMENTS

Throughout the City's Transportation System, several specific locations are experiencing traffic-related problems. In addition, several roadways and intersections are potentially hazardous locations. Following is a list of a few of the traffic concerns, including a brief description of each problem and possible solutions. A list of transportation priorities is provided in Table 2. The proposed recommendations are intended to target transportation investments that are cost-effective and maximize transportation enhancements and economic return.

<sup>1</sup> Source: 1990 and 2000 U.S. Census. 2007 U.S. Census projection. Webster County census: 23,753 (1990); 31,045 (2000); and 35,927 (2007). City of Marshfield census population: 4,374 (1990); 5,720 (2000); 7,118 (2007).

<sup>2</sup> Source: 2008 U.S. Census Projection. Webster County census 36,473 (2008), City of Marshfield census 7,274 (2008)

Table 2: Priority Transportation Improvements as Identified by the community

Priority	Name	From	To	Description
1	Additional I-44 Interchange			New Interchange
2	Buffalo Street/Highway W Intersection Improvements	Banning St	Route CC/Hubble Drive	Improve Intersection geometrics at Intersection
3	Buffalo Street/Highway W Overpass and Road Improvements	Route W	Route CC/Hubble Drive	New overpass spanning I-44 and improvements to N. Buffalo
4	Highway 38 from Route CC to South Crittenden Street	Route CC	South Crittenden	Lane Modification
5	Highway DD Intersection Improvements on east edge of city limits	Elm	Walnut	Intersection Geometrics
6	Commerce Road from George Street to South Prairie Lane	George St	Prairie Lane	New 2-lane road
7	Commerce Road from east of Highway A/Marshall Street to Elm Street	Marshall/Highway A	Elm St	Pave gravel section
8	Jackson Street / Highway 38 downtown Intersection Improvements	Crittenden/East Highway 38	Commercial/East Highway 38	Intersection Improvements
9	Marshall Road Reconstruction	Highway CC/Hubble Dr	I-44	Reconstruction
10	Route CC and North Pine Street Intersection Improvements	Route CC / North Pine Street	Route CC / North Pine Street	Intersection Improvements

**Buffalo Street Intersection Improvements**

The Highway CC-Banning Street-Buffalo Street intersection has limited sight distance and six roadway approaches at the intersection creating undesirable geometrics. Existing traffic problems resulting from poor intersection geometrics would be greatly relieved by the construction of a North Highway W/Buffalo Street overpass (discussed below), and the implementation of Buffalo Street roadway improvements. Several intersection improvement concepts can be considered. Often, when more than four intersection approaches exist, roundabouts are a consideration. Even with the standard four approaches to an intersection, roundabouts generally perform favorably in terms of shorter delays, increased capacity, improved safety, and improved aesthetics. Roundabouts have resulted in reducing the overall number and severity of accidents, despite the initial concern that lack of familiarity with this type of intersection would lead to driver confusion. Springfield, Missouri, the closest large metropolitan area only 19 miles away from Marshfield, already has several roundabouts that many Marshfield residents have used. Intersection improvements at this location should be considered immediately. In exchange for these improvements to Buffalo Street, the City may

consider assuming jurisdiction of this roadway that is currently a non-designated State route.

#### **Highway W/ Buffalo Overpass and Street Improvements**

Before I-44 was constructed, Highway W/North Buffalo Street used to intersect with the current alignment of I-44 at an at-grade intersection, and the street provided north-south circulation for travelers. The City of Marshfield recognizes that a new interchange at this location would be too close to the current interchange at I-44 and Highway 38/Spur Drive. However, an overpass at this location would provide additional north-south circulation to Marshfield, as well as allow citizens and businesses currently separated by I-44 to bypass the congestion at Highway 38/Spur Drive to access Marshfield destinations north and south of I-44. This overpass would also increase the usage of the existing frontage road, Highway W north of I-44. It would provide ideal areas for commercial development between the existing interchange and the proposed overpass on the north side of I-44. Area residents would have increased access options.

Before or while constructing a new overpass, Highway W/ Buffalo Street from I-44 to Banning Street should be reconstructed to better accommodate the resulting increased traffic demands.

#### **Commerce Road from George Street to Prairie Lane**

Much of the traffic congestion inside Marshfield originates from through-traffic using Highway 38/Spur Drive accessing I-44. A new loop road would connect the northern portion of the City and I-44 with the southern and eastern portions of the City, providing the key connection to distribute traffic to and from the south part of Marshfield and outlying areas. This will allow State highway through-traffic and portions of local traffic accessing I-44 to avoid increasing congestion in Marshfield on Highway 38 at Spur Drive, Washington Street, and Jackson Street. The Industrial Park area located on the western edge of Marshfield would also benefit from this alternative. The loop connection is also shown in Figure 3 to extend on the west side of I-44 in a northward direction connecting to the intersection of Highway 38 and Route J.

This portion of the loop road would extend Commerce Road from George Street to Prairie Lane. Completing the connection of Prairie Lane from Highway 00/West Washington Street to Commerce Road would allow large portions of the loop road system to be served by the existing portions of Highway 00/West Washington Street, Prairie Lane, and Commerce Road.

#### **Commerce Road from East of Highway A/South Marshall Street to Highway 38**

As mentioned previously, a loop system will assist traffic circulation in Marshfield and add access to I-44. After Commerce Road is connected to/from George Street to Prairie Lane, the next phase would be to extend Commerce Road, paving from east of Marshall Street to connect to Elm Street. This roadway section is currently a county gravel road. If public support and funding is limited, phasing the project and implementing the

improvements incrementally, as applicable to the community and county needs and financial capabilities, should be considered.

#### **Jackson Street/Highway 38 Downtown Intersection Improvements**

In the downtown/inter-city area, Highway 38 operates through three different streets (Jackson, Crittenden, and Commercial) and makes two right angle turns, forcing traffic to stop at three- and four-way stops and requiring tight turns. This is also the business route many trucks use. The small radii make it difficult for trucks to make turns. The roadway should be modified to provide better traffic flow through the City center. These modifications would need to be complete on Crittenden Street between Jackson Street and Commercial Street. These three streets are all designated as Highway 38.

#### **Highway DD on the East Edge of City Limits**

Jackson Street, at various points on the eastern side of the City is designated as Highway 38, Walnut Street, Washington Street, and Highway DD. There is an "S" curve as Highway DD comes out of Marshfield, with several roads intersecting Highway DD on the curves. Marshfield High School, Shook Elementary School, and Marshfield Schools Administrative Office are located just off of Highway DD after the "S" curves. This is recognized as a traffic concern; however, existing land use and limited right-of-way limit possible solutions. A more detailed traffic engineering study is recommended to study alternatives at this location.

#### **Highway 38 from Route CC to South Crittenden Street**

This section of roadway experiences traffic congestion and high number of accidents as shown by MoDOT data. It should be examined for lane modification, including the possibility of expanding to three-lanes with a center two-way left turn lane. Any lane modifications will need to take into account limited and constraining right-of-way. As traffic volumes increase in the future, utilizing a five-lane system with a center two-way left turn lane on this roadway portion may be evaluated. The affected intersections with Highway 38 include White Oak Street, North Clay Street, North Mill Street, and North Marshall Street.

#### **Route CC and North Pine Street Intersection Improvements**

The intersection of Route CC and North Pine Street Road has a high number of accidents according to MoDOT data. This intersection should be further examined for possible improvements.

#### **Interchange Options**

To effectively provide access to and from the City's businesses, nursing homes, industrial park, government offices, medical facilities, neighborhoods, parks, roads and employment centers, the City must plan for the implementation of an additional point of access to I-44. Better accessibility to I-44 will ultimately reduce costs and delay in the movement of people and goods. This will provide consumers increased accessibility to

businesses and industries in important economic clusters, enabling ongoing economic development.

In Marshfield's transportation system, some areas experience high peak traffic volumes while other segments are underutilized. This is a result of one primary access point to I-44, which is compounded by the location of the most significant traffic generators being located near the existing I-44 interchange. It is the only north-south access across I-44. It is recommended that a second connection to I-44 be provided to help alleviate the City's existing traffic congestion while spurring economic growth.

Additional connections to I-44 will have to serve several needs. Several activity centers and services are located west of the City towards and in Springfield, Missouri, while existing and proposed development north of I-44 could become a highly desirable commercial corridor linked by highway interchanges. The industrial area located adjacent to Prairie Lane has access to daily railroad service provided by Burlington Northern Santa Fe (BNSF) Railway with freight stops on demand. A large freight company, Con-Way Trucking, is located north of I-44 on west Highway 38 at Highway J. The freight activity in this area adds to the traffic pressure on Spur Drive and other arterial routes in the City of Marshfield that could be bypassed through an additional access point to I-44.

In addition to the freight and development opportunities on the west edge of Marshfield, there is land in the eastern portion of Marshfield that would be suitable for future commercial, residential, and industrial development with easy access to City schools. Any development in this area would increase cross-town traffic without additional access to I-44. Two interchange options are described below.

- **West Interchange/Connection to Route 00**

Through the public involvement process, community members expressed a need for an interchange west of the current existing interchange that would offer an additional departure/destination point from Marshfield to activity centers and services location west of the City and in Springfield, Missouri. This location supports current and future development opportunities north of I-44 and provides direct and uninterrupted access to the City's Industrial Park. Adding a further extension north of I-44 from the new interchange to connect Highway 38 could connect the existing and proposed development to the north, providing a highly desirable commercial corridor linked by highway interchanges. This location would also benefit any freight traffic using the industrial area located adjacent to Prairie Lane. The Industrial Park has access to daily railroad service provided by BNSF Railway with freight stops on demand. A new interchange would support extensive, diversified economic development, and would allow truck traffic delivering to businesses and the industrial area on the north side of Marshfield to bypass Spur Drive and the other arterial routes already experiencing congestion. To further complete a loop road system, this connection would take advantage of

existing portions of Route OO, Prairie Lane, Commerce Road, and designated land on Highway 38 for a new wastewater treatment facility.

An interchange west of the current location would be located outside the Marshfield City limits, in an area with no existing City services or zoning authority. Land annexation and infrastructure expansion would be required to handle planned growth.

- **East Interchange/Connection to Marshall Road**

Through the public involvement process, community members also expressed a need for an I-44 interchange east of the current location at Marshall Road. This interchange would reduce traffic across the City; provide access to property suitable for future commercial, residential, and industrial development; and provide access to Marshfield School District R-1 Schools. Much of this property, which has previously been offered to be donated for the purpose of constructing an interchange, provides open pasture land adjacent to I-44 suitable for construction.

As with the west location, an access point east of the current interchange would be located outside the Marshfield city limits, in an area with no City services or zoning authority. Land annexation may be required to handle planned growth, as well as infrastructure expansion.

**North Marshall Street Reconstruction**

North Marshall Street is a local roadway (City/County), rural in nature, with increasing traffic demand. It should be reconstructed to standards adequate to serve as a collector street between Highway CC/Hubble Drive and as a future east Interchange to better accommodate development and traffic growth. North Marshall Street will have to be upgraded in conjunction with or before constructing the East I-44 interchange.

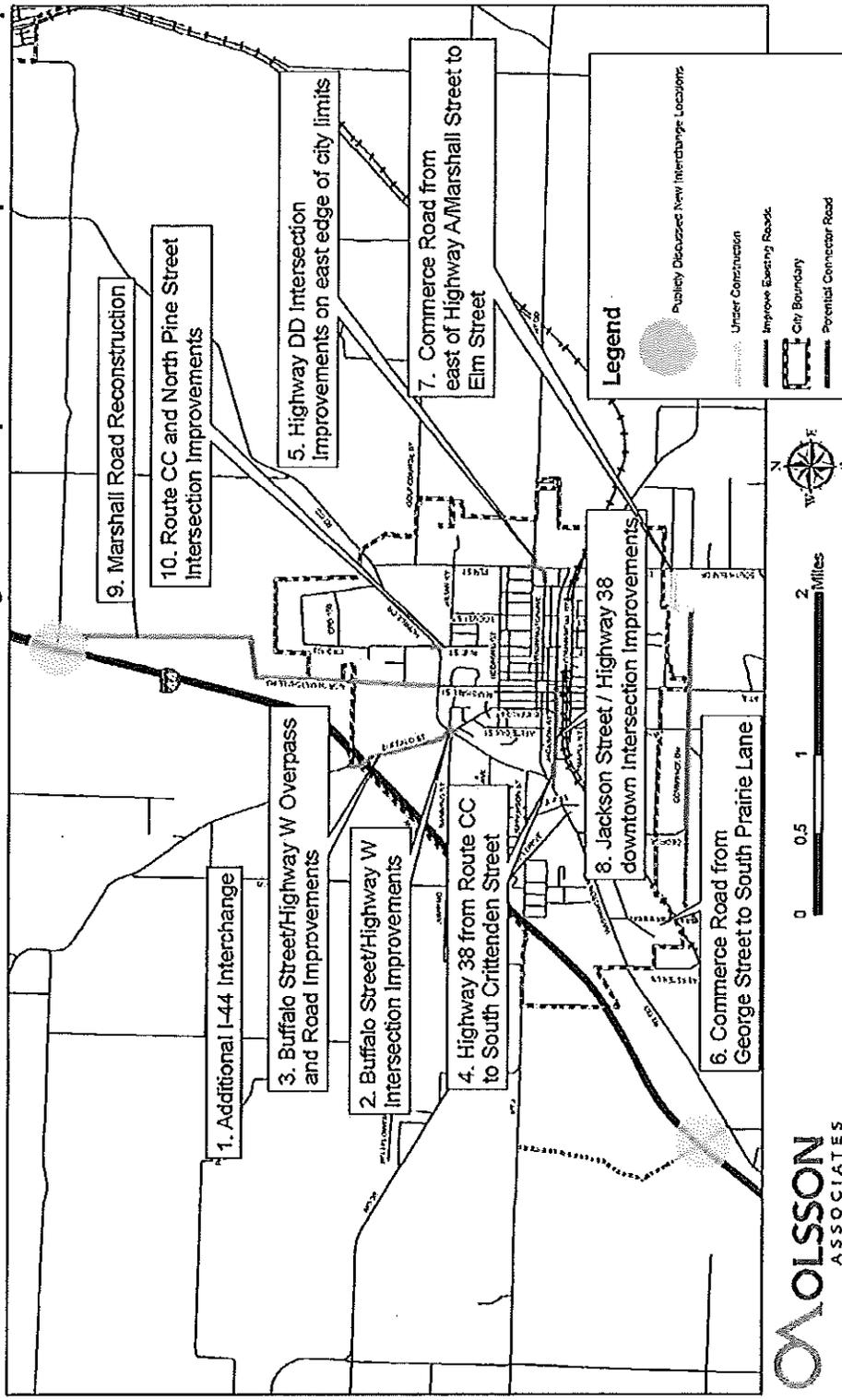
Other than at the Highway 38 intersection, traffic volumes along Route CC indicated the highest volumes at North Marshall Street (7,377) followed by Elm Street (3,982), North Marshall Street runs directly into the Downtown Square and is centrally located between the City's parks, schools, churches, and major east/west and north/south corridors (I-44, Highway 38, Route CC, and Route A).

**Annexation**

Several of the improvements discussed in this section concern making transportation improvements outside of Marshfield City limits, which may lead to discussions concerning annexation; this could then result in residential and commercial growth for the City of Marshfield. It is critical that annexation be viewed in the context of how it will affect, and how well it can be integrated into, the existing transportation system.

Figure 3 represents the aforementioned recommended transportation improvements.

Figure 3: Conceptual Potential Improvements Map



## 10. SUMMARY

The City should consider funding mechanisms to facilitate the transportation improvements outlined in this chapter. Although the recent improvements to Highway 38/Spur Drive and to dangerous intersections within the City of Marshfield were necessary, they represent short-term solutions to the City's increasing traffic problems. The recent improvements will help sustain the City's internal traffic circulation patterns for a short time, but they will not resolve the bottleneck situation created at Highway 38/Spur Drive. Ultimately, the City needs to implement additional traffic circulation means for motorists to access I-44 and to circulate throughout the City and to points beyond. Adding access points onto I-44 and implementing a loop road system are some improvements that can help achieve these goals.

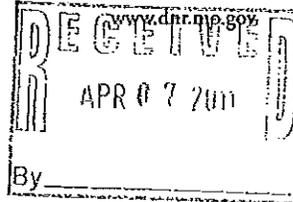
The Transportation Chapter of the Comprehensive Plan identifies the existing conditions and recommends improvements needed to facilitate efficient traffic movements and future growth. The most pressing issues facing the City's Transportation System include managing traffic along Highway 38/Spur Drive and the adjacent intersections, which are currently operating over capacity, and investigating opportunities for a second interchange on I-44.

The planning process for the Comprehensive Plan revealed the highly anticipated need for a second interchange. The Comprehensive Plan provides a needs assessment, a land use map, and a conceptual roadway improvement plan that supports the City's transportation improvement needs. The City should concentrate on the short-term and most attainable improvements recommended in this plan. A possible funding mechanism for these improvements could be cost-share agreements using City bond revenue with other government or private entities. This mechanism has been successfully used by the City for past transportation improvements.



Jeremiah W. (Jay) Nixon, Governor • Sara Parker Pauley, Director

## DEPARTMENT OF NATURAL RESOURCES



April 1, 2011

Laura Sakach, P.E.  
Crawford, Murphy & Tilly, Inc.  
Gateway Tower  
One Memorial Drive, Suite 500  
ST. Louis, Missouri 63102

Re: I-44 Interchange Location Study, Marshfield (FHWA) Webster County, Missouri

Dear Ms. Sakach:

Thank you for submitting information on the above referenced project for our review pursuant to Section 106 of the National Historic Preservation Act (P.L. 89-665, as amended) and the Advisory Council on Historic Preservation's regulation 36 CFR part 800, which require identification and evaluation of cultural resources.

We have reviewed the information provided concerning the above referenced project. We have determined that there is a moderate to high potential for the presence of archaeological sites and for historic architecture near and within the area of the proposed project. We recommend that a comprehensive historic properties survey should be completed prior to the initiation of project-related construction activities.

A list of independent architectural historians and archaeological contractors who can perform such services is available through the Department of Natural Resources, Division of Administrative Support. The list can be obtained by calling (573) 751-0958 and requesting the "architectural historians contractors list" and the "archaeological contractors list." Note that any 36 CFR Part 61 qualified professional may perform surveys. If you choose a contractor not on the lists, please be certain to include his or her curriculum vitae in the report. We would appreciate one (1) hard copy and one (1) pdf copy of the survey report when it is finished so we may complete the review and comment process.

If you have any questions, please write Judith Deel at State Historic Preservation Office, P.O. Box 176, Jefferson City, Missouri 65102 or call Ms. Deel at 573/751-7862. Please be sure to include the SHPO Log Number (020-WB-11) on all future correspondence or inquiries relating to this project.

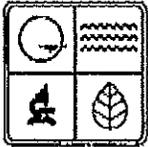
Sincerely,

STATE HISTORIC PRESERVATION OFFICE

Mark A. Miles  
Director and Deputy  
State Historic Preservation Officer

c Peggy Casey, FHWA  
Bob Reeder, MoDOT  
Jane Beeter, DNR/OD





**MISSOURI DEPARTMENT OF NATURAL RESOURCES  
FAX Transmittal Cover Sheet**

Date of Fax: 4/25/11

<input type="checkbox"/>	URGENT
<input type="checkbox"/>	Priority
<input type="checkbox"/>	Routine
<input type="checkbox"/>	As Requested
<input type="checkbox"/>	FYI

To: Laura Sakach

From: Robert Stout

FAX: 314-436-0723 Phone: \_\_\_\_\_

FAX: \_\_\_\_\_ Phone: \_\_\_\_\_

SUBJECT: MDNR Comments on Location Study for I-44 Interchange near Marshfield, MO

COMMENTS: Attachments - Originals including color map  
will be sent via mail.

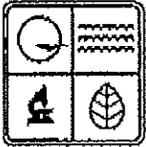
RESPONSE EXPECTED: \_\_\_\_\_

Total # of pages sent (including transmittal sheet): 3 If problems with FAX call: Janie 573-751-3195



Marshfield Interchange

STID	DATE	TYPE	NAME	ADDRESS	CITY	STATE	ZIP	OWNER	STATUS	USE	DATE	STATUS	USE	DATE	STATUS	USE	DATE	STATUS	USE		
ST0002640	No		SOUTHWESTERN BELL		MARSHFIELD	MO	64501														
ST0002857	No		MARSHFIELD R1 SCHOOL DISTRICT		MARSHFIELD	MO	64501														
ST0002916	Yes		CASEY'S GENERAL STORE #1408		MARSHFIELD	MO	64501														
ST0002947	Yes		KAY'S COUNTRY STORE		MARSHFIELD	MO	64501														
ST0003478	No		M-57 MARSHFIELD		MARSHFIELD	MO	64501														
ST0004363	No		YOUNG'S CONOCO		MARSHFIELD	MO	64501														
ST0004366	No		HOOVER CASE CO CASE REAL ESTATE		MARSHFIELD	MO	64501														
ST0004567	No		COUNTRY VILLAGE		MARSHFIELD	MO	64501														
ST0004569	Yes		RAPID ROBERT S #119 (CONOCO)		MARSHFIELD	MO	64501														
ST0004570	Yes		CODY'S EAGLE STOP		MARSHFIELD	MO	64501														
ST0004571	No		SHO-ME POWER ELECTRIC CORP EQUIP YD		MARSHFIELD	MO	64501														
ST0004572	No		JOY'S MARKET PROPERTY		MARSHFIELD	MO	64501														
ST0007259	No		MARSHFIELD MAINTENANCE SHED		MARSHFIELD	MO	64501														
ST0007260	No		CITY OF MARSHFIELD		MARSHFIELD	MO	64501														
ST0007356	No		MARSHFIELD-C.O.		MARSHFIELD	MO	64501														
ST0007601	No		WAL-MART STORE #78		MARSHFIELD	MO	64501														
ST0007630	No		CAR CORRAL MOTOR COMPANY		MARSHFIELD	MO	64501														
ST0007721	Yes		GIER OIL CO. INCORPORATED		MARSHFIELD	MO	64501														
ST0010112	Yes		FASTRIIP STORE #23		MARSHFIELD	MO	64501														
ST0010433	No		SONIC (FORMER JUMP STOP #17)		MARSHFIELD	MO	64501														
ST0012228	No		MARSHFIELD MAINTENANCE LOT		MARSHFIELD	MO	64501														
ST0013260	Yes		CODY EAGLE STOP LLC		MARSHFIELD	MO	64501														
ST0013390	Yes		BAINS & SINGH		MARSHFIELD	MO	64501														
ST0020552	No		CITY OF MARSHFIELD		MARSHFIELD	MO	64501														
ST0020651	Yes		KUM & GO #457		MARSHFIELD	MO	64501														
ST0020710	No		TONY'S PASTOP		MARSHFIELD	MO	64501														
ST0020990	No		CITY OF MARSHFIELD		MARSHFIELD	MO	64501														
ST0021006	Yes		CCK SERVICE CENTER FACILITY		MARSHFIELD	MO	64501														
ST0021478	Yes		MURPHY USA #7344		MARSHFIELD	MO	64501														
ST0301048	No		MFA OIL		MARSHFIELD	MO	64501														
ST0316617	No		OLD NORTHVIEW GROCERY		MARSHFIELD	MO	64501														
ST0700070	No		MO HIGHWAY & TRANSPORTATION DEPARTM		MARSHFIELD	MO	64501														
ST0700197	No		US POST OFFICE		MARSHFIELD	MO	64501														
ST0700158	No		IE'S CONVENIENCE STORE		MARSHFIELD	MO	64501														



**MISSOURI DEPARTMENT OF NATURAL RESOURCES**  
**FAX Transmittal Cover Sheet**

Date of Fax: 4/25/11

<input type="checkbox"/>	URGENT
<input type="checkbox"/>	Priority
<input type="checkbox"/>	Routine
<input type="checkbox"/>	As Requested
<input type="checkbox"/>	FYI

To: Laura Sakach

From: Robert Stout

FAX: 314-436-0723 Phone: \_\_\_\_\_

FAX: \_\_\_\_\_ Phone: \_\_\_\_\_

SUBJECT: MDNR Comments on Location Study for I-44 Interchange near Marshfield, MO

COMMENTS: \_\_\_\_\_

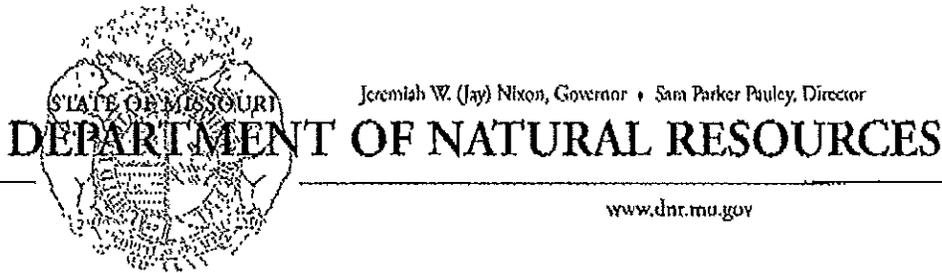
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\_\_\_\_\_

RESPONSE EXPECTED: \_\_\_\_\_

Total # of pages sent (including transmittal sheet): 6 If problems with FAX call: Janie 573-751-3195



Jeremiah W. (Jay) Nixon, Governor • Sam Parker Pauley, Director

**DEPARTMENT OF NATURAL RESOURCES**

www.dnr.mo.gov

April 25, 2011

Ms. Laura Sakach, P.E., AICP  
Environmental Planner  
Crawford, Murphy & Tilly, Inc.  
One Memorial Drive  
St. Louis, MO 63102

Re: Proposed I-44 Interchange at the City of Marshfield in Webster County, Missouri

The Missouri Department of Natural Resources (department) appreciates the opportunity to review the information provided for the proposed I-44 Interchange at the City of Marshfield in Webster County, Missouri. The department offers the following comments for consideration.

***Water Quality***

The proposed project is located in three different watersheds (James, Niangua and Pomme de Terre). The Missouri Department of Transportation has secured a state-wide permit that would cover the project's land disturbance requirements. However, water quality issues in the second two watersheds should be given extra consideration, as the Endangered Niangua Darter lives in these watersheds. Project planners should therefore take extra care in ensuring proper best management practices are used during construction.

***Watersheds:*** Approximately the northern half of the proposed project area is located within the Headwaters of Niangua River Sub-Watershed, Hydrologic Unit Code 10290110 01 01. The southern half is located within the Headwaters of Pomme de Terre River Sub-Watershed, Hydrologic Unit Code 10290107 01 01.

***Ecological Drainage Unit:*** The proposed project area lies within the Ozark/Osage Ecological Drainage Unit. Ecological Drainage Unit and watershed locations may be needed should mitigation be required after avoiding and minimizing impacts to water resources.

***Rapid Watershed Assessment:*** The U.S. Department of Agriculture, Natural Resources Conservation Service, has assessed several watersheds across the country, including the Pomme de Terre Sub-basin. The report and data could provide valuable knowledge of the watershed. Watershed resource information can be found under 'Pomme de Terre Sub-basin, 10290107' at <http://www.mo.nrcs.usda.gov/technical/RWAs.html>.

Ms. Laura Sakach, P.E., AICP  
April 25, 2011  
Page 2

Unclassified Streams: The proposed study area crosses approximately 13 unclassified tributaries to various waters, including the headwaters of West Fork Niangua River. The exact location of these streams can be found in the 1:24,000 National Hydrologic Dataset as part of the department's geospatial data.

Classified Streams:

- East Fork Niangua River, Water Body Identification Number 1177, is classified for 6.3 miles with the designated beneficial uses of protection of warm water aquatic life, protection of human health-fish consumption, livestock and wildlife watering and whole body contact recreation-Category A. I-44 crosses East Fork Niangua River in the northern part of the proposed project area.
- Pomme de Terre River, Water Body Identification Number 1177, is classified for 69.1 miles with the designated beneficial uses of protection of warm water aquatic life, protection of human health-fish consumption, livestock and wildlife watering, secondary contact recreation and whole body contact recreation-Category A. The Pomme de Terre River runs adjacent or nearly adjacent to I-44 for approximately 4 miles along the southern third of the proposed project area.
- Both classified waters, through their designated beneficial uses, shall be protected by numeric water quality criteria contained in 10 CSR 20-7.031(4) and Table A.
- Project planners should ensure proper Best Management Practices are in place to protect the stream's chemical, physical and biological characteristics, especially if a stream is crossed by equipment. Re-establish vegetation as soon as possible on any stream banks and riparian corridors denuded of vegetation. Heavy equipment must stay out of the water as much as possible.

Impaired Waters: The West Fork Niangua River was listed as impaired on the 1994 Clean Water Act Section 303(d) list for seven miles for low dissolved oxygen from unlisted sources. The stream is not meeting water quality standards numeric criteria for the protection of aquatic life. The impaired section is approximately 0.35 mile downstream and northwest of I-44.

Total Maximum Daily Load: On December 23, 2010, the U.S. Environmental Protection Agency developed a Total Maximum Daily Load for low dissolved oxygen in the West Fork Niangua River. Care should be taken to ensure that the impairment is not worsened by this project's construction activities. Department staff may require extra protections when developing permits or certifications in order to comply with the Total Maximum Daily Load. Additional information may be found at the following website: <http://www.dnr.mo.gov/env/wpp/tmdl/1175-w-fk-niangua-r-tmdl.pdf>.

Karst Topography – Losing Streams: According to existing data, one losing stream exists near the southeastern part of the proposed project area. There could possibly be more, as not all streams in the area have been studied. Project planners should check with the department's Division of Geology and Land Survey to determine if they have more recent data and potentially additional sites. They may be reached at 573-368-2100. Should losing streams be found,

Ms. Laura Sakach, P.E., AICP  
April 25, 2011  
Page 3

additional precautions and Best Management Practices should be put in place to protect the area's sensitive water quality and ecology at all times. Losing streams are protected by stringent effluent regulations [10 CSR 20-7.015(1)(A)3 and (4)] and Water Quality Standards [10 CSR 20-7.031(1)(N), (4)(C) and (11)].

Karst Topography – Springs, Sinkholes and Caves: A couple of sinkholes and several springs exist within 0.5 mile of the proposed project area. Thirty caves exist in the Marshfield Quad and two caves exist in the Beach Quad. The department's data does not give specific locations for these caves due to their sensitive manner. Project planners should check with the department's Division of Geology and Land Survey to determine if they have more recent data and potentially additional sites. They may be reached at 573-368-2100. Project planners should be vigilant that activities near these resources do not adversely impact water quality, as Karst features can provide a more direct access to sensitive species and groundwater. Should the construction impact these areas, extra precautions may be necessary to protect these sensitive resources.

Sensitive Waters: According to the department's current water quality standards, there are no other sensitive waters in the proposed project area. Sensitive waters include outstanding state and national resource waters, cold water fisheries, metropolitan no-discharge streams and biocriteria reference locations.

National Wetland Inventory: One mapped potential wetland appears to be within the proposed project area. A 0.15 acre palustrine forested wetland exists in the Northwest Quarter of Section 27, Township 31 North, Range 18 West. Several ponds, which may have wetland fringes, exist near I-44. Should wetlands exist within the proposed project location, project planners should take care to avoid and then minimize any impacts through alternatives analyses before compensatory mitigation is considered. If wetlands are not directly impacted but are near any land disturbance, project planners should take care to protect the water quality, especially due to sedimentation.

Water Quality Certification: A Clean Water Act Section 404 Department of the Army Permit and the Department's Clean Water Act Section 401 Water Quality Certification are needed when placing dredged or fill material into the jurisdictional waters of the United States. Examples are culverts under road crossings, riprap along stream banks and storm water outfall pipes. The term jurisdictional waters refer to lakes (not farm ponds), rivers, streams and wetlands, including those that don't always contain water. Should any jurisdictional waters be impacted, please contact the Army Corps of Engineers' Regulatory Branch in the Kansas City District, Truman Regulatory Satellite Office, at (660) 438-6697 and the department's 401 Certification Unit at (573) 751-1300 for more information.

Public Land: Three separate parcels of Missouri Department of Conservation's Niangua Conservation Area are approximately 1.0 or more miles from I-44 along the upper portion of the proposed project area.

Conservation Opportunity Areas: The northern third of the proposed project area is within the Niangua Conservation Area's Vicinity Terrestrial Conservation Opportunity Area. Areas such as

Ms. Laura Sakach, P.E., AICP  
April 25, 2011  
Page 4

these are priority locations where conservation partners can combine technology, expertise and resources for all wildlife conservation. Should you need additional information, please contact the Missouri Department of Conservation at (573) 751-4115.

#### ***Public Drinking Water Sources***

Several public drinking water wells are near I-44, within Marshfield and directly across the highway. Should project planners have questions, please contact the department's Public Drinking Water Branch at (573) 751-1300.

#### ***Geospatial Data***

Department geospatial data is available upon request, and all published data is available on the Missouri Spatial Data Information Service website at <http://msdis.missouri.edu/>.

#### ***Hazardous Waste***

There may be several underground storage tanks (USTs) located in the project study area. Attached is a map of those UST sites and some brief information about their location and status, whether they are active or inactive gas stations and whether the remediation is active or inactive.

#### ***Solid Waste***

Based on a review of departmental records, there should not be any impact from the proposed project on permitted solid waste facilities within the project area. Should there be discovery of buried debris during road construction activities, or solid waste generated during construction, these wastes should be properly managed.

The following technical bulletin may prove helpful to contractors and subcontractors: "Managing Solid Waste Encountered during Excavation Activities." This bulletin describes the proper methods of compliance with discovery of unexpected buried wastes. The bulletin is PUB2192, dated 12/2006 and can be found on the department's web site at <http://www.dnr.mo.gov/pubs/pub2192.pdf>.

Project planners should ensure that any solid wastes generated during road construction activities are recycled, reused or properly disposed of at a permitted landfill or transfer station.

#### ***Geology***

The shallowest bedrock within the subject area is Ordovician-age Jefferson City Dolomite, which is known for developing minor sinkholes and caves. Therefore, there is a slight sinkhole collapse potential with regard to the project area.

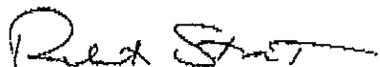
There are no known underground mines or active geologic faults in or near the project area. Therefore, the mine collapse potential is negligible and the earthquake damage potential is low.

Ms. Laura Sakach, P.E., AICP  
April 25, 2011  
Page 5

We appreciate the opportunity to provide comments for the information provided for the proposed I-44 Interchange at the City of Marshfield in Webster County, Missouri. If you have any questions or need clarification, please contact me or Ms. Jane Beetem, phone number (573) 751-3195. The address for correspondence is Department of Natural Resources, P.O. Box 176, Jefferson City, MO 65102. Thank you.

Sincerely,

DEPARTMENT OF NATURAL RESOURCES



Robert Stout  
Senior Policy Coordinator

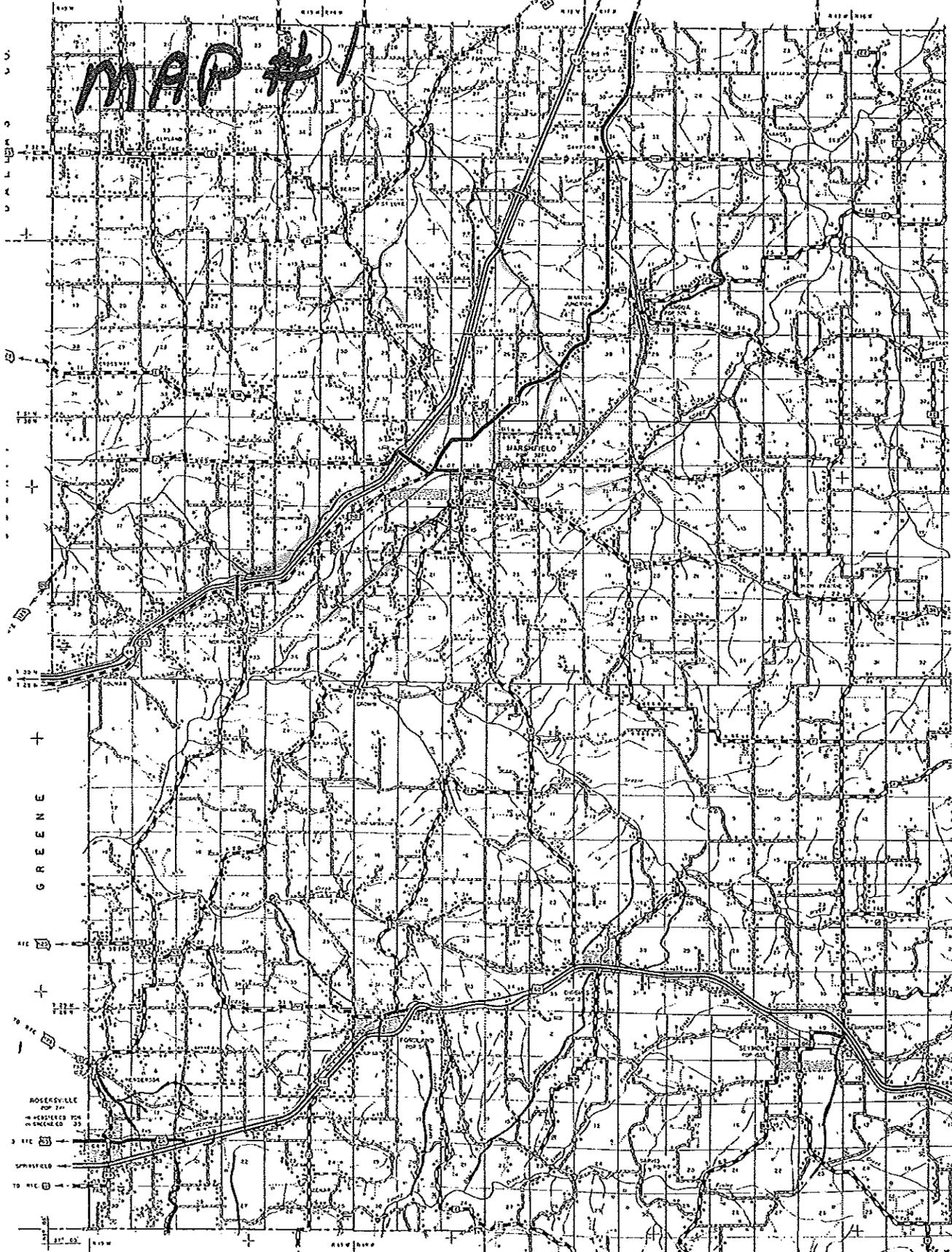
RS:jm

Attachment

c: David Thorne, Missouri Department of Conservation

DALLAS COUNTY LACLEDE COUNTY

MAP #1



ROCKSVILLE  
POP 141  
INCORPORATED 1904  
INCORPORATED 1904  
INCORPORATED 1904

SPRINGFIELD  
TO THE

GAINING  
LOSING

COUNTY

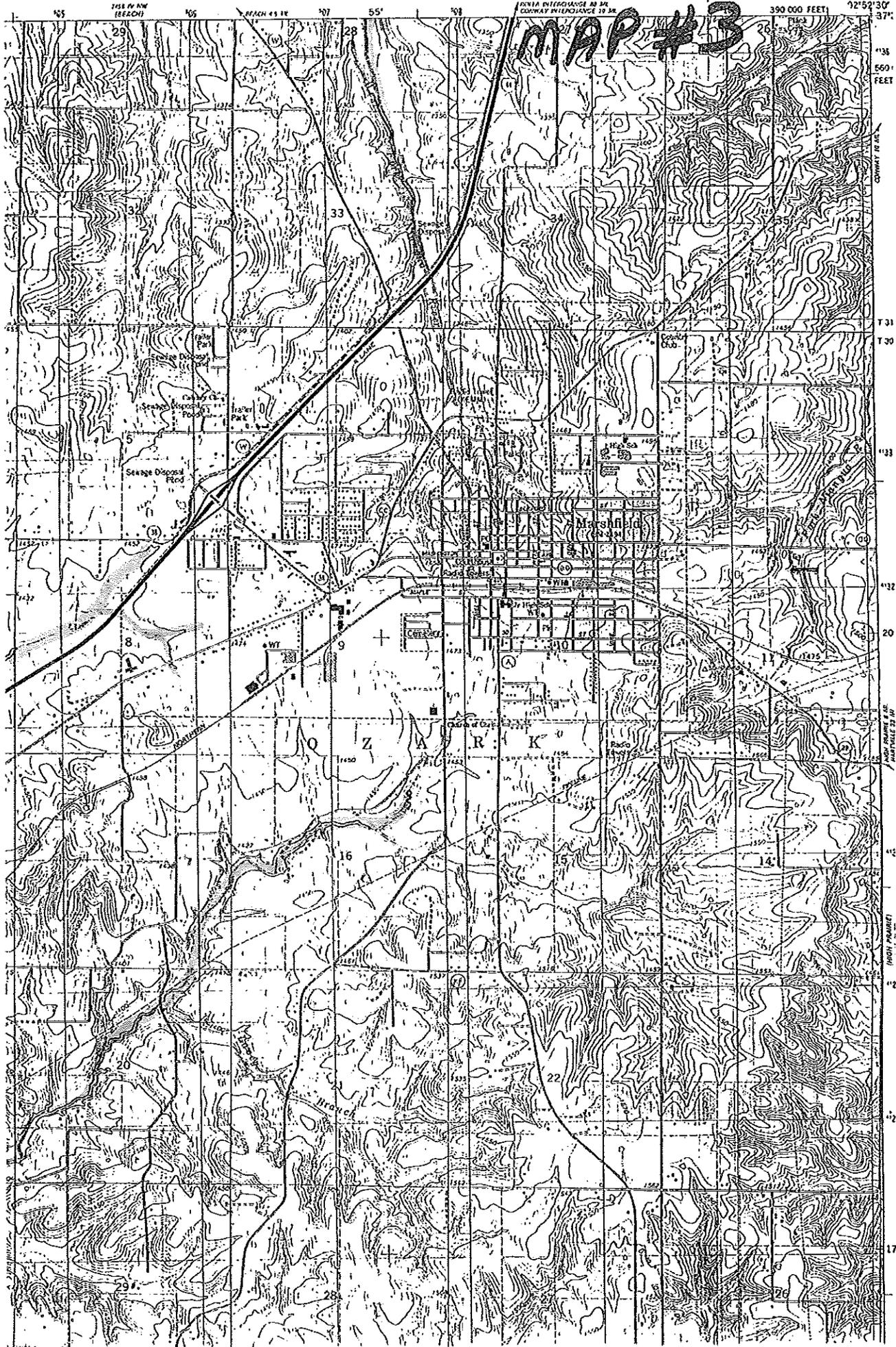
DOUGLAS

CO

MAP #2



MAP #3



37'

560' FEET

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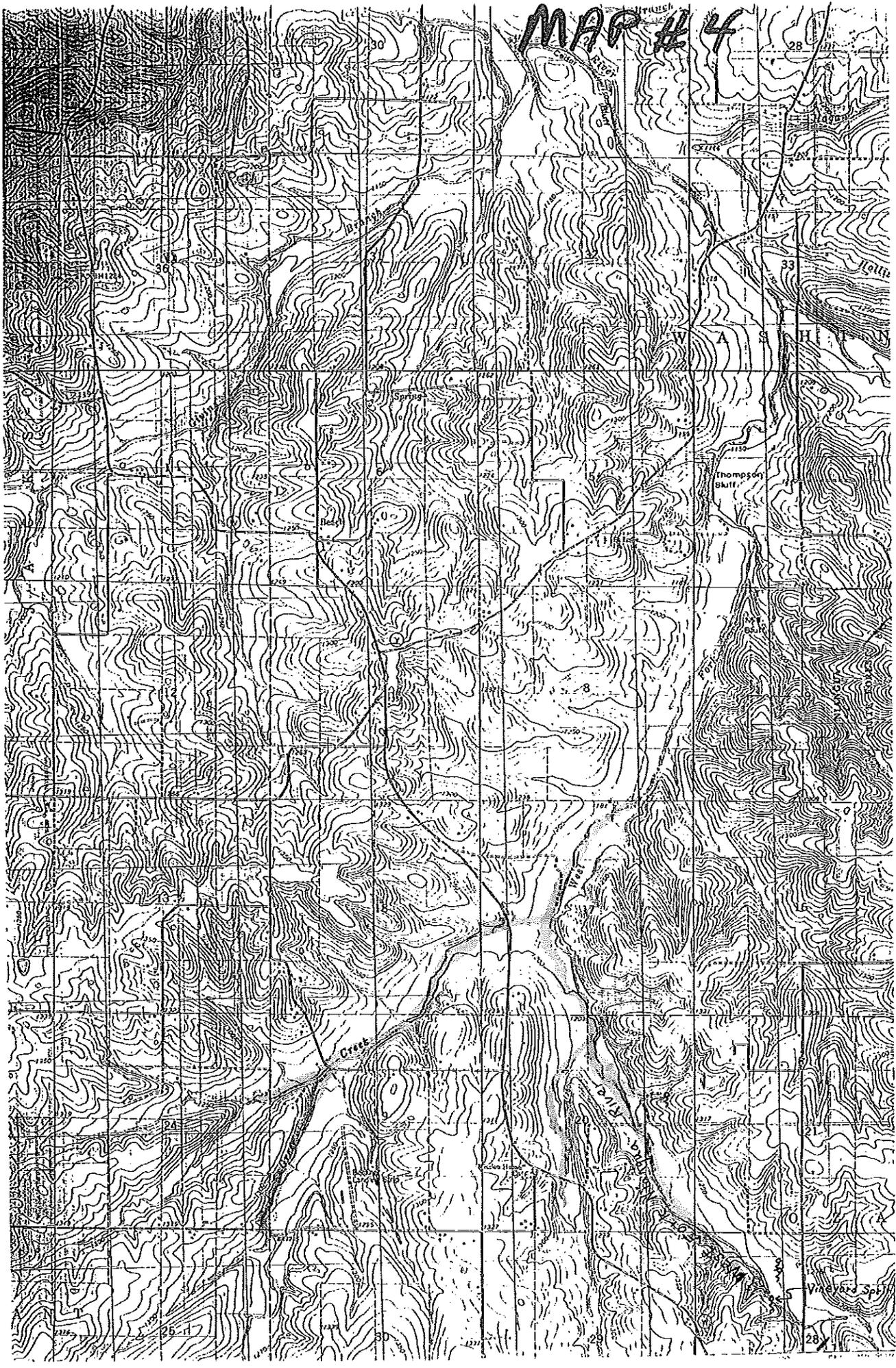
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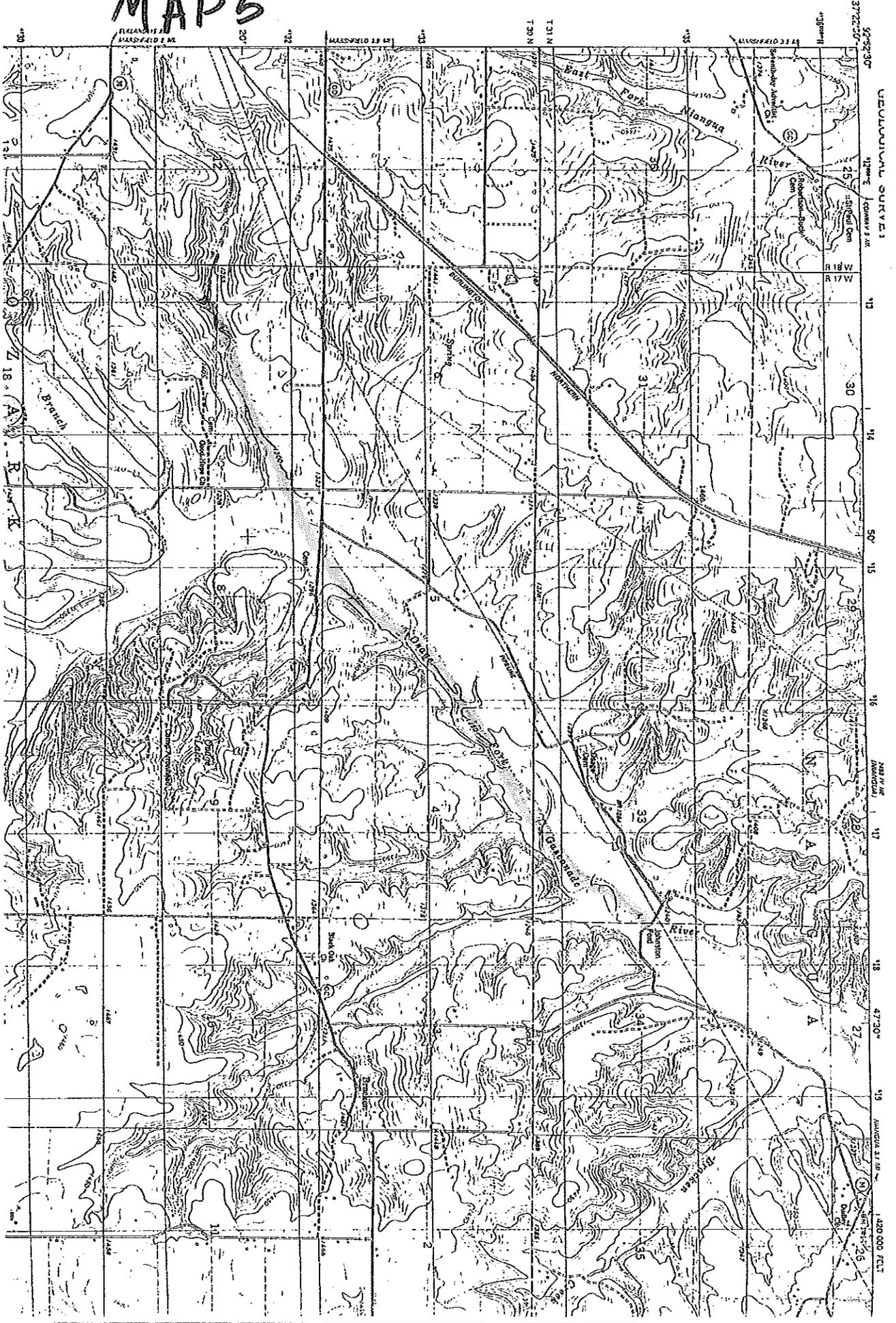
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MAP #4



# MAP 5



SECTIONAL SURVEY

1:250,000

1:250,000

STATE OF MISSOURI  
DEPARTMENT OF NATURAL RESOURCES

MEMORANDUM

RECEIVED

SEP 21 1994

ADDENDUM  
ID#: L119-95  
Date: 09/12/94

TO: Byron Shaw, Water Pollution Control Program, DEQ

MECO ENGINEERING  
JEFFERSON CITY, MO

FROM: JAM Vaughn, DGLS

PROJECT: City of Marshfield COUNTY: Webster  
LOCATION: , Sec. , T. , R. , Quad:

LATITUDE: 0 Deg, 0 Min, 0 Sec LONGITUDE: 0 Deg, 0 Min, 0 Sec  
REQUESTED BY:

PREVIOUS REPORTS: NOT APPLICABLE

Four main receiving streams near Marshfield were evaluated during several days in May, June, and August 1994. The four streams are the East and West Forks of the Niangua River, the Pomme de Terre River, and Turnbo Creek. Field observations were made during an extended period to improve the odds of detecting tricky losing segments, which sometimes experience major observable flow loss only during lower base flows when the potentiometric surface declines.

The attached set of four maps should clearly show the losing and gaining reaches of the four main receiving streams. The following comments should provide additional clarifications.

Pomme de Terre River

Observations of channel and flow characteristics indicate that the Pomme de Terre is gaining from the headwater reach at Highway J in the NE 1/4, NW 1/4, NE 1/4, Sec. 8, T. 30 N., R. 18 W. to at least the west line of Sec. 23, T. 30 N., R. 19 W. This gaining reach is approximately 4.9 stream miles long.

West Fork of the Niangua

The West Fork is gaining from I-44 to a point where major flow loss occurs about 1,000 feet southeast of the north-south gravel road near the north line of the SE 1/4, Sec. 28, T. 31 N., R. 18 W. After about a 1/4 mile long losing reach, West Fork again is gaining between Vineyard Spring in the NW 1/4, SE 1/4, NW 1/4, Sec. 28, T. 31 N., R. 18 W., to at least the north line of Sec. 17, T. 31 N., R. 18 W.

ID #L119-95  
September 12, 1994

This gaining reach between Vineyard Spring and the north line of Sec. 17 is approximately 2.9 stream miles long. West Fork then again becomes losing somewhere between the north line of Sec. 17, T. 31 N., R. 18 W., and the southwest corner of Sec. 4, T. 31 N., R. 18 W. Based on previous work by Jim Vandike of DGLS, much of the water lost in the second losing reach of West Fork probably emerges at two or more springs along the Niangua River, including Bennett Spring.

#### East Fork of Niangua River

The East Fork's channel and flow characteristics observed in June and August, 1994, imply that gaining conditions prevail between Highway DD in the north center of Sec. 11, T. 30 N., R. 18 W., to at least I-44, a flow distance of over 5.0 miles. Spot observations north of I-44 indicate that gaining conditions likely continue farther north to somewhere in Sec. 3, T. 31 N., R. 18 W.

#### Turnbo Creek

Observations of channel and flow characteristics during June and August, 1994, indicate that Turnbo is gaining between a small spring in the SW 1/4, NE 1/4, NE 1/4, Sec. 16, T. 30 N., R. 18 W., and the west line of Sec. 30, T. 30 N., R. 18 W. This gaining reach is approximately 4.6 miles long. Northeast of said spring in Sec. 16, Turnbo is a losing stream. Because of the very low base flow during drier months, some short zones of shallow flow loss occur in riffle areas of the gaining reach; however, these small occurrences of flow loss remain within coarse channel alluvium and do not contribute significant recharge to the underlying bedrock aquifer.

c: SWRO, DEQ  
c: Bob Reed  
MECO Engineering  
P.O. Box 714  
Jefferson City, MO 65102

RECEIVED

NOV 9 1994

ID #: 199-95

WASTE WATER TREATMENT SITE - GEOLOGIC EVALUATION  
MISSOURI DEPARTMENT OF NATURAL RESOURCES  
MECO ENGINEERING DIVISION OF GEOLOGY AND LAND SURVEY  
JEFFERSON CITY, MO. BOX 250, ROLLA, MISSOURI 65401 (314) 368-2160

1. Project: City of Marshfield County: Webster
2. Location: SW1/4, NE1/4, SW1/4, Sec 12, T30N, R18W, Quad: High Prairie
3. Latitude: 37 Deg, 19 Min, 32 Sec Longitude: 92 Deg, 52 Min, 12 Sec
4. Owner: City of Marshfield, Mo
5. Requested by: Robert Reed, MECO Engineering, P.O. Box 714, Jefferson City, MO 65102 (314)893-5558
6. Previous Reports: Not Applicable: Y  
ID # L11995 ID # - ID # - ID # - ID # -  
Date 09/12/94 Date / / Date / / Date / / Date / /
7. A) Were plans submitted? No B) Was site investigated by S.C.S.? \_\_\_
8. Facility Type: Mechanical Plant X, Land Application \_\_\_, Marsh System \_\_\_, Earthen Holding Basin \_\_\_, Earthen Lagoon with Discharge \_\_\_, Other \_\_\_.
9. Waste Type: Animal \_\_\_, Human X, Process/Industrial \_\_\_, Leachate \_\_\_, Other \_\_\_. Funding Source: Construction Grant \_\_\_, IWT \_\_\_, WWT \_\_\_

GENERAL GEOLOGY

10. Date of Field Visit: 10/26/94
11. Overall Geologic Limitations: Slight \_\_\_, Moderate \_\_\_, Severe X.
12. Topography: 0-4% X, 4-8% X, 8-15% \_\_\_, Greater than 15% \_\_\_.  
On: Broad Upland \_\_\_, Ridgetop \_\_\_, Hillslope X, Narrow Ravine \_\_\_, Floodplain \_\_\_, Alluvial Plain \_\_\_, Terrace \_\_\_, Sinkhole \_\_\_.
13. Bedrock: Ordovician Age Jefferson City dolomite which has high permeability in the upper 20 feet of bedrock layers.
14. Overburden (Soil): Alluvial gravelly silt to boulders, which has high permeability.
15. Receiving Stream Classification: Gaining \_\_\_, Losing X, Not Applicable (No Discharge) \_\_\_.
16. Collapse Potential: Not Applicable X, Slight \_\_\_, Moderate \_\_\_, Severe \_\_\_.
17. Recommended Construction Procedures: Installation of Clay Pad \_\_\_, Compaction \_\_\_, Artificial Sealing \_\_\_, Diversion of Subsurface Flow \_\_\_, Rock Excavation \_\_\_, Limit Excavation Depth \_\_\_.

ID #: 199-95

REQUIRED GEOLOGIC EXPLORATION\*

(Missouri Clean Water Commission - 10 CSR 20-8.200 Wastewater Treatment Ponds)

18. Determine Overburden (Soil) Properties: Particle Size Analysis \_\_\_\_, Atterberg Limits \_\_\_\_, Standard Proctor Density \_\_\_\_, Overburden Thickness \_\_\_\_, Permeability Coefficient - Undisturbed \_\_\_\_, Remolded \_\_\_\_.
19. Determine Hydrologic Conditions: Groundwater Elevation \_\_\_\_, Direction of Groundwater Movement \_\_\_\_, 100 Year Flood Level \_\_\_\_.
20. Notify Geologist: Before Exploration \_\_\_\_, During Construction \_\_\_\_, After Construction \_\_\_\_, Not Necessary X.
21. Remarks:

The receiving stream is an unnamed tributary to the Osage Fork of the Gasconade River.

Losing conditions exist from SW 1/4, NE 1/4, SW 1/4, Sec. 12, T. 30 N., R. 10 W. (37 d. 19' 32" Lat., 92 d. 52' 12" Long.), the northern most finger of the tributary to NE 1/4, NW 1/4, SW 1/4, Sec. 7, T. 30 N., R. 17 W. (37 d. 19' 50" Lat., 92 d. 51' 08" Long.).

Losing conditions also exist from the southern most finger from NE 1/4, NW 1/4, NE 1/4, Sec. 13, T. 30 N., R. 10 W. (37 d. 19' 20" Lat., 92 d. 51' 50" Long.), to NE 1/4, NW 1/4, SW 1/4, Sec. 7, T. 30 N., R. 17 W. (37 d. 19' 50" Lat., 92 d. 51' 08" Long.). Both of these fingers are approximately three quarters of a mile in length.

Gaining conditions begin at NE 1/4, NW 1/4, SW 1/4, Sec. 7, T. 30 N., R. 17 W. to at least NE 1/4, NE 1/4, SE 1/4, Sec. 33, T. 31 N., R. 17 W. (37 d. 21' 36" Lat., 92 d. 48' 02" Long.) which is along the Osage Fork.

Losing conditions are present in the upper watershed for approximately three quarters to one mile and gaining conditions exist for the next four miles.

\* THIS DOCUMENT IS A PRELIMINARY GEOLOGIC REPORT. IT IS NOT A PERMIT. ADDITIONAL DATA MAY BE REQUIRED BY THE DEPARTMENT OF NATURAL RESOURCES PRIOR TO ISSUANCE OF A PERMIT. THIS REPORT IS VALID ONLY AT THE ABOVE LOCATION AND BECOMES INVALID ONE YEAR AFTER THE DATE BELOW.

22. Report by: Gary St. Ivany, Date 11/03/94

Gary St. Ivany, Geologist

23. CC: Robert Reed; SWRO-DEQ; Ken Arnold, WPCP

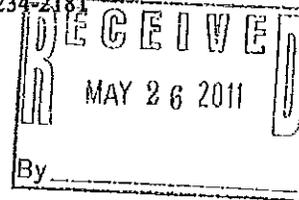


## United States Department of the Interior



FISH AND WILDLIFE SERVICE  
Columbia Ecological Services Field Office  
101 Park DeVille Drive, Suite A  
Columbia, Missouri 65203-0057  
Phone: (573) 234-2132 Fax: (573) 234-2181

May 24, 2011



Laura Sakach  
Crawford, Murphy and Tilly, Inc.  
1 Memorial Drive, Suite 500  
St. Louis, Missouri 63102

Dear Ms. Sakach:

This letter is in reference to your March 25, 2011, letter requesting information regarding the I-44 interchange location study in Webster County, Missouri. This response is provided by the U.S. Fish and Wildlife Service (Service) under the authority of the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.), the National Environmental Policy Act of 1969 (42 U.S.C. 4321-4327), the Endangered Species Act of 1973 (ESA), (16 U.S.C. 1531-1543), and the Migratory Bird Treaty Act (16 U.S.C. 703-712).

### **Federally-listed Species and Candidate Species**

Currently, we have no records of federally threatened or endangered species or critical habitat occurring at the specific project site. However, the following federally listed species may occur in the general project area and could potentially be affected by the proposed action.

Niangua darter (*Etheostoma nianguae*), Threatened - The Niangua darter is known to occur in the Pomme de Terre River just downstream from the project area. Niangua darters inhabit clear, upland creeks and small- to medium-sized rivers with slight to moderate currents and gravel substrates in the Osage River Basin of west-central Missouri. Siltation, stream channel and streambank vegetation removal, and gravel movement caused by substrate disturbance can impact spawning, feeding, and resting habitats. Niangua darters are found most of the year in shallow pools, stream margins or runs. During spawning, they move to riffles as early as mid-March extending to early-June, but most of the breeding occurs in April. If the interchange is proposed near the Pomme de Terre River or its tributaries in the southwest section of your project area or near the East Fork Niangua River in the northeast section of your project area, construction activities may adversely affect the Niangua darter and further consultation with this office will be required. The Service is also interested in coordinating with you to minimize the impacts on any other streams that may be affected.

Indiana bat (*Myotis sodalis*), Endangered - From late fall through winter, Indiana bats in Missouri hibernate in caves in the Ozarks and Ozark Border Natural Divisions. During summer, Indiana bats are concentrated in northern Missouri where they roost in dead or live trees (such as shagbark hickory and oaks) with peeling or exfoliating bark, split tree trunks or branches, and cavities, which may be used as maternity roost areas. Maintaining quality maternity colony roost trees (those trees used by female Indiana bats and their young) is essential to reproductive success and long term recovery goals for this endangered species. Indiana bat roost trees tend to be greater than 9 inches diameter at breast height (dbh) (optimally greater than 20 inches dbh) with loose or exfoliating bark. Most important are structural characteristics that provide adequate space for bats to roost. Preferred roost sites are located in forest openings, at the forest edge, or where the overstory canopy allows some sunlight exposure to the roost tree, which is usually within 0.6 miles of water. Indiana bats forage for flying insects (particularly moths) in and around the tree canopy of stream corridors, riparian areas, and upland woodlots.

The proposed project is within the range of the Indiana bat. From the map you provided, the Service has determined that the proposed project might impact karst areas. Since the federally endangered Indiana bat is known to use caves in this area, we recommend following the enclosed karst Best Management Practices to protect caves during project construction. If a cave or underground void is encountered during any ground disturbance activities, we request that you cease those construction activities and contact our office for further assistance.

The proposed project also might affect forested and riparian areas. Indiana bats are known to use forested and riparian areas for foraging and roosting. Summer habitat requirements for the species are not well defined but the following are considered important:

- 1) dead or live trees and snags with peeling or exfoliating bark, split tree trunk and/or branches, or cavities, which may be used as maternity roost areas;
- 2) live trees (such as shagbark hickory and oaks) that have exfoliating bark;
- 3) stream corridors, riparian areas, and upland woodlots which provide foraging habitat.

Should the proposed project area contain forests or associated habitats exhibiting any of the characteristics named above, we recommend that these areas be avoided wherever possible as this would minimize potential impacts to the Indiana bat. If tree clearing is unavoidable, further coordination with this office is requested in order for the Service to evaluate potential impacts to the Indiana bat. Please provide this office with a habitat assessment that includes the following information:

- 1) a map of the site with all forested areas indicated, including acreage;
- 2) a description of the forested habitat, including dominant species composition, age, density of understory, and canopy cover;
- 3) the location of suitable roost trees (dead or live trees with peeling bark, cracks, or crevices), and describe the species, condition (live or dead), size (diameter breast high), and canopy cover;
- 4) descriptions and the sizes of any forested parcels onsite that will be properly managed – proper management of forested habitat is the most significant way to minimize potential impacts to the Indiana bat and its habitat;

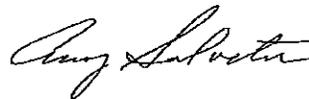
- 5) the location and size of any other forested properties within the vicinity of the project that are properly managed in perpetuity (e.g. parks, conservation easements, etc.);
- 6) the locations of any wetlands, streams, ponds, and cleared roads, paths or trails;
- 7) describe connectivity of the site to other adjacent forested parcels;
- 8) any avoidance and minimization measures necessary to prevent adverse impacts to the bat and its habitat (such as seasonal tree clearing, temporary preservation of suitable habitat, etc.);
- 9) a determination of whether the project is likely or not likely to adversely affect the Indiana bat, using the information above as justification for your position.

Based on the habitat assessment, the Service will evaluate potential impacts to the Indiana bat from the proposed project. Depending on the extent of impacts to suitable Indiana bat habitat, (such an evaluation can be undertaken year round) we might recommend mist net or emergence surveys to determine bat usage of the project area. Bat surveys would need to be designed and conducted in coordination with this office, and can only be completed during the summer months.

If you have not already done so, please contact the Missouri Department of Conservation (Policy Coordination, P. O. Box 180, Jefferson City, MO 65102) for information concerning Missouri Natural Communities and Species of Conservation Concern. Also, with the probability of the project to cross streams and intersect wetlands, please contact the appropriate U.S. Army Corps of Engineers office for 404 permitting.

We appreciate the opportunity to provide comments on the proposed work. Please continue to coordinate with the Service as project plans progress. If you have questions or need additional information, please contact Shauna Marquardt (573-234-2132, extension 174) of my staff.

Sincerely,



*601*  
Charles M. Scott  
Field Supervisor

Enclosure

cc: MDC, Policy Coordination, Jefferson City, MO

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# Management Recommendations for Construction Projects Affecting Missouri Karst Habitat

MISSOURI DEPARTMENT OF CONSERVATION



## Introduction

Karst features range from sinkholes, vertical shafts, losing streams and springs, to complex underground drainage systems and caves. These features are the result of the dissolving action of water on carbonate bedrock. Underground drainage systems can be extensive; as a result, specific karst features can be impacted by disturbances occurring miles from the affected area.

Associated with karst features are unique plants and animals that have at least part, if not all, of their life cycle dependent upon the unique environment of these systems. Even slight alterations or disturbances can have significant impacts upon these plants and animals. It is of utmost importance that construction projects in known karst topography be extremely sensitive to the potential impacts that may occur and that all possible precautions be taken to prevent or reduce those impacts.

## Karst Identification

It is often difficult to clearly delineate the type and extent of karst features in an area due to the complex and varied processes involved in their formation. However, it is important to correctly identify and delineate karst features so that these areas are managed properly for the resident species (e.g., a bat hibernaculum or a bat maternity cave).

→ Initial investigation should include the use of state, federal, and private geotechnical data. Observation by a geotechnical consultant should be considered if existing data indicate the presence of karst features in the vicinity. Initial geological investigation of the immediate and surrounding area of the proposed project site should be conducted to determine the presence and type of karst features.

→ The identification and delineation of karst features should include the following: location, distribution, and dimensions of rock cavities; location, distribution, and dimensions of soil voids; depth and configuration of the rock surface; variation in the physical characteristics of the subsurface soils and rock; groundwater quality and flow patterns.

## Access and Staging Area Management Recommendations

Staging areas are those short- or long-term sites within a construction or development area where most equipment and materials are stored. These areas are often accessed frequently, and when fuel

and oil are stored here, the potential for runoff and erosion in these areas may be high.

→ Erosion and sediment controls should be installed and maintained to prevent discharge from the site.

→ Staging areas for crew, equipment, and materials should be established well away from karst features such as caves, sinkholes, and springs, and highly erodible soils when practical.

→ Stationary fuel and oil storage containers should remain within a staging area or another confined area to avoid accidental introduction into the groundwater.

→ Excess concrete and wash water from trucks and other concrete mixing equipment should be disposed of well away from karst features, streams, and wetlands.

→ If temporary roadways must be built, ensure that roadways are of low gradient with sufficient roadbed and storm water runoff drains and outlets.

Appropriate containment basins, silt fences, filter strips, etc. should be included for retention of storm water runoff as a means for reducing sedimentation introduction into karst features and groundwater.

## Buffer Zone Management Recommendations

The buffer zone is the vegetated area immediately surrounding the karst feature, which helps slow runoff and filter out pollutants that might enter karst systems. A buffer zone of at least a 100-foot radius should be maintained on all sides around caves, sinkholes, and springs.

→ Buffer zones located down slope of construction areas should be physically screened with sediment controls, such as silt fences or filter strips. Sediment controls should be monitored after rain and maintained for the duration of the project.

→ General application of pesticides, herbicides, or fertilizers within the buffer zone should be prohibited to avoid contamination due to overspraying or runoff. Fertilizer use or spot application of pesticides and herbicides is acceptable if appropriate non-restricted chemicals are used.

→ All buffer zones disturbed by the project should be revegetated immediately following or concurrent with project implementation. Native trees, shrubs, and grasses should be planted to ensure long-term stability in areas where the soil erosion threat is not critical. Annual non-native grasses such as rye or wheat may be planted in conjunction with native species to provide short-term erosion control. Areas judged to be subject to immediate soil loss due to steep slopes or other factors causing critical erosion

conditions may be planted with non-native mixtures to assure rapid establishment and erosion control. → Post-construction evaluation of vegetation establishment should be conducted at one month intervals for at least three months after completion of the project. Any recommended sediment controls should be inspected at these times. If determined beneficial to soil stability and not adversely impacting site function and/or aesthetics, recommended sediment controls should remain permanent.

### **Karst Area Management Recommendations**

Karst areas provide habitat for a diversity of highly specialized and sensitive vertebrate and invertebrate animals. These areas also provide an important filtration system for the underground water humans use and drink. For this reason, it is important to avoid rerouting waterways and drainage patterns in karst areas.

→ All construction debris, refuse, discarded containers, and any other waste materials should be stored away from karst areas. Take care to contain this material to prevent its accidental introduction into caves, sinkholes, or springs as a result of clean-up activities, runoff, flooding, wind, or other natural forces.

→ Sedimentation and erosion controls appropriate to soil type, water flows, exposure, and other site specific factors should be implemented during all phases of construction.

→ Sediment and erosion controls should be monitored periodically. Clean, repair, and replace controls as necessary.

→ Final revegetation of disturbed areas should use native plant species. Grasses, such as rye or wheat, may be used with non-native mixtures initially to maintain soil stability until establishment of native vegetation can be completed. A monitoring program should be included in the project proposal to ensure successful revegetation efforts.

→ All temporary erosion and sediment controls should be removed (unless removal would cause further disturbance) and disposed of within 30 days after final site stabilization is achieved or after temporary practices are no longer needed.

→ All debris and excess materials should be removed and properly disposed of upon completion of project.

### **Information Contacts**

For further information regarding regulations for development in karst areas, contact:

Missouri Department of Conservation  
Policy Coordination Section  
P.O. Box 180  
2901 W. Truman Blvd.  
Jefferson City, MO 65102-0180  
Telephone: 573/751-4115

Missouri Department of Natural Resources  
Division of Environmental Quality  
P.O. Box 176  
Jefferson City, MO 65102-0176  
Telephone: 573/526-3315

U.S. Army Corps of Engineers  
Regulatory Branch  
700 Federal Building  
Kansas City, MO 64106-2896  
Telephone: 816/983-3990

U.S. Environmental Protection Agency  
Water, Wetlands, and Pesticides Division  
901 North 5th Street  
Kansas City, KS 66101  
Telephone: 913/551-7307

U.S. Fish and Wildlife Service  
Ecological Services Field Office  
101 Park DeVillie Dr., Suite A  
Columbia, MO 65203  
Telephone: 573/234-2132

### **Disclaimer**

These Best Management Practices were prepared by the Missouri Department of Conservation with assistance from other state agencies, contractors, and others to provide guidance to those people who wish to voluntarily act to protect wildlife and habitat. Compliance with Best Management Practices is not required by the Missouri wildlife and forestry law nor by any regulation of the Missouri Conservation Commission. Other federal, state or local laws may affect construction practices.



# Missouri Department of Conservation Heritage Review Report

April 6, 2011 – Page 1 of 2

Policy Coordination Unit  
P. O. Box 180  
Jefferson City, MO 65102  
heritage.review@mdc.mo.gov  
573-522-4115 X 3367

<p>Laura Sakach Crawford, Murphy &amp; Tilly, Inc. Gateway Tower One Memorial Drive, Suite 500 St. Louis, Mo 63102</p>	<p><b>Project type:</b> Road or Highway <b>Location/Scope:</b> Township 30N, Range 18W and 19W ; T31N, Range 18W <b>County:</b> Webster <b>Query reference:</b> I-44 Interchange <b>Query received:</b> March 28, 2011</p>
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*This NATURAL HERITAGE REVIEW is not a site clearance letter. Rather, it identifies public lands and sensitive resources known to have been located close to and/or potentially affected by the proposed project. On-site verification is the responsibility of the project. Heritage records were identified at some date and location. This report considers records near but not necessarily at the project site. Animals move and, over time, so do plant communities. To say "there is a record" does not mean the species/habitat is still there. To say that "there is no record" does not mean a protected species will not be encountered. These records only provide one reference and other information (e.g. wetland or soils maps, on-site inspections or surveys) should be considered. Look for additional information about the biological and habitat needs of records listed in order to avoid or minimize impacts. More information may be found at <http://mdc.mo.gov/discover-nature/places-go/natural-areas> and [mdc4.mdc.mo.gov/applications/mohwis/mohwis\\_search1.aspx](http://mdc.mo.gov/applications/mohwis/mohwis_search1.aspx). Contact information for the department's Natural History Biologist is online at <http://mdc.mo.gov/contact-us>.*

*Jan Syrigos*  
4-6-2011  
Prepared by: Jan Syrigos

## Level 3 (federal-listed) and Level 2 (state listed) issues: Records of listed species or critical habitats:

Heritage records identify no wildlife preserves, no designated wilderness areas or critical habitats, no state or federal endangered-list species records within one mile of the site, or in the public land survey section listed above or sections adjacent.

Road projects typically change the plants and animals that live on the right-of-way or in the vicinity. Minimize erosion and sedimentation/runoff to nearby streams and lakes by carefully adhering to any "Clean Water Permit" conditions; and include design elements to manage stormwater so that present water discharge rates from the site to streams during heavy rain events are not increased. Revegetate disturbed areas to minimize erosion using native plant species compatible with the local landscape and wildlife needs. Use silt fences and/or vegetative filter strips to buffer streams and drainages, and monitor those after rain events and until a well-rooted ground cover is reestablished.

*FEDERAL LIST species/habitats are protected under the Federal Endangered Species Act. Consult with U.S. Fish and Wildlife Service, 101 Park Deville Drive Suite A, Columbia, Missouri 65203-0007; 573-234-2132*

## General recommendations related to this project or site, or based on information about the historic range of species (unrelated to any specific heritage records):

- The project site is near Niangua River East Fork, one of 138 state-designated spawning stream segments. Activities that alter, destabilize or destroy stream bottoms or banks should be avoided from March 15 to June 15 in order not to disrupt spawning (laying and fertilizing fish eggs). At all times, avoid habitat destruction or introducing heavy sediment loads, chemical or organic pollutants. Spawning stream segments were designated because they are important to maintaining, restoring, or avoiding future listing of species of conservation concern.

- Gray bats (*Myotis grisescens*, federally and state listed "endangered") are likely to occur in the project area, as they forage over streams, rivers, and reservoirs in this part of Missouri. Avoid entry or disturbance of any cave inhabited by gray bats and when possible retain forest vegetation along the stream and from the gray bat cave opening to the stream. See <http://mdc.mo.gov/104> for best management recommendations.
- Webster County has known karst geologic features (e.g. caves, springs, and sinkholes, all characterized by subterranean water movement). Few karst features are recorded in heritage records, and ones not noted here may be encountered at the project site or affected by the project. Cave fauna (many of which are species of conservation concern) are influenced by changes to water quality, so check your project site for any karst features and make every effort to protect groundwater in the project area. See [http://mdc.mo.gov/nathis/caves/manag\\_construc.htm](http://mdc.mo.gov/nathis/caves/manag_construc.htm) for best management information.
- Streams in the area should be protected from soil erosion, water pollution and in-stream activities that modify or diminish aquatic habitats. Best management recommendations relating to streams and rivers may be found at <http://mdc.mo.gov/79>. The project should be managed to minimize erosion and sedimentation/runoff to nearby streams and lakes, including adherence to any "Clean Water Permit" conditions. Revegetate areas in which the natural cover is disturbed to minimize erosion using native plant species compatible with the local landscape and wildlife needs. Pollutants, including sediment, can have significant impacts far downstream. Use silt fences and/or vegetative filter strips to buffer streams and drainages, and monitor those after rain events and until a well-rooted ground cover is reestablished.
- Invasive exotic species are a significant issue for fish, wildlife and agriculture in Missouri. Seeds, eggs, and larvae may be moved to new sites on boats or construction equipment, so inspect and clean equipment thoroughly before moving between project sites.
  - ◆ Remove any mud, soil, trash, plants or animals from equipment before leaving any water body or work area.
  - ◆ Drain water from boats and machinery that has operated in water, checking motor cavities, live-well, bilge and transom wells, tracks, buckets, and any other water reservoirs.
  - ◆ When possible, wash and rinse equipment thoroughly with hard spray or HOT water ( $\geq 104^{\circ}$  F, typically available at do-it-yourself carwash sites), and dry in the hot sun before using again.

*These recommendations are ones project managers might prudently consider based on a general understanding of species needs and landscape conditions. Heritage records largely reflect only sites visited by specialists in the last 30 years. This means that many privately owned tracts could host unknown remnants of species once but no longer common.*

*Pre-screen heritage review requests at <http://tinyurl.com/heritagereview>. A "level 1 response" will make further submission to MDC or USFWS unnecessary.*

# **Interstate 44 Location Study**

## **Open House Summary**

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### **PROJECT BACKGROUND**

The City of Marshfield, Missouri, in cooperation with Webster County and the Missouri Department of Transportation (MoDOT) is conducting a transportation study known as the I-44 Interchange Location Study. The I-44 Interchange Location Study aims to improve connectivity, decrease congestion, enhance safety and foster economic growth in Marshfield. Secondary aims of the study are to maintain consistency with regional planning and to improve emergency response capabilities across Interstate 44. The project study area includes portions of Marshfield and unincorporated Webster County.

### **PUBLIC OPEN HOUSE**

As part of its public engagement activities, the study team held an open house meeting on August 9, 2011 in the Marshfield High School cafeteria. The purpose of these meetings was to:

- Present Purpose and Need;
- Present preliminary corridors;
- Describe the pros and cons of each corridor; and
- Get the public's input.

Citizens were encouraged to provide input about the issues and factors to be considered in the corridor evaluation and to suggest alternative corridors or routes for the interchange. The four preliminary corridors presented to the public were: West Corridor; North Buffalo Street Corridor; North Marshall Street Corridor; and Plank School Road Corridor.

The signed-in attendance for the open house meeting was 72 citizens. Display stations were manned by the study's consultant team, City of Marshfield and Webster County staff and members of the steering committee. Each of the corridor stations showed a map of the proposed corridor together with its pros and cons. Other stations featured information about the study's history, purpose and need, environmental considerations, and the location study process. Attendees were given the opportunity to fill out comment forms, including a map for each citizen to indicate other options for corridors they felt should be considered.

Citizens had until August 23, 2011 to submit their comments regarding the preliminary corridors.

### **SUMMARY OF PUBLIC COMMENTS**

The study team received 26 open house comment forms at the open house and an additional 46 comment forms during the comment period. Additionally, citizens submitted emails, phone calls, and letters in response to the proposed alternatives. The following summarizes the input received during the comment period.

### **COMMENT FORM RESULTS**

Comments were divided into 3 sections; Study Purpose & Need, Corridor Alternatives and Public Involvement. Each section will be summarized separately.

## Study Purpose & Need Comments

**Question 1:** Listed below are the needs/goals that the Location Study proposes to address. Please rank them in order of importance to you, with 1 being the most important.

The table below shows the ranking of each need. Please note a few characteristics of the responses:

- Not everyone who completed a comment form answered this question;
- Some respondents did not rank all of the alternatives; and
- Several respondents added their own alternative in the "other" category and ranked it.

	Improve Connectivity	Economic Development	Emergency Response	Roadway Congestion	Improve Traffic Safety	Other
1 <sup>st</sup> Choice	11	27	7	21	4	0
2 <sup>nd</sup> Choice	18	15	12	14	10	0
3 <sup>rd</sup> Choice	9	11	14	17	17	0
4 <sup>th</sup> Choice	10	7	14	6	20	1
5 <sup>th</sup> Choice	20	7	12	8	9	1
6 <sup>th</sup> Choice	0	0	0	2	0	1

Of the five needs, *Economic Development* ranked #1 by the most people, earning 39% of responses for first choice. *Roadway Congestion* received the second highest ranking. There were several responses in the *Other* category, including "Easier Access to Schools" and concerns about what would happen if the existing overpass was damaged or blocked.

When taking the weighted average of these responses, the final ranking is as follows:

- #1: Economic Development (2.28)
- #2: Roadway Congestion (2.59)
- #3: Improve Connectivity (3.15)
- #4: Emergency Response (3.20)
- #5: Improve Traffic Safety (3.33)
- #6: Other (5.00)

**Question 2:** How might you benefit from an additional I-44 Interchange?

The top four benefits respondents saw in an additional interchange were:

- Connectivity (35)
- Reduce Congestion (24)
- Economic Development (12)
- Improve Traffic Safety (7)

Other responses included no benefit, emergency response and property value concerns.

**Question 3:** *The study team will be considering a number of factors, including (but not limited to) social and economic impacts, land use, noise impacts, ecological and natural resources, cultural resources, and parks and recreation. Are there any specific factors that you know of that the study team should consider?*

The most popular answers to this prompt included concerns about truck routes (7), environmental protection (8) and increased urbanization / city growth (6). The remaining 16 responses were varied. Responses tended to reiterate what was stated in response to Question 2.

**Question 4:** *What, if any, concerns do you have about the I-44 Interchange project?*

The most common response to this question was concerns about the timeline. Seventeen respondents commented that the process is taking too long.

The top five factors respondents considered in choosing their first choice for an alternative were:

- Length of Process (17)
- Cost / Funding (11)
- Special interest involvement or Unequal Benefit / Impacts to Residents (11)
- Won't provide economic value (4)
- Corridor won't address congestion in town (3)

The respondents that were concerned about unequal impacts to residents of Marshfield were primarily concerned with the interchange being used to for financial gain for some residents or the new interchange not helping the majority of residents in the community.

**Question 5:** *Additional Comments?*

Respondents provided additional comments on 17 of the comment forms. There was a wide range of content in this section, from suggestions to concerns. Concerns included drainage issues, intersection counting methods and whether the study is needed. Several alternative solutions were suggested, including an overpass over Interstate 44 at Route W, presumably near the North Buffalo Street Corridor and connecting the West Corridor to an extension of Commerce Drive. The most common response (3) indicated that an interchange west of town will not help traffic congestion in the existing parts of Marshfield.

## Corridor Alternatives Comments

**Question 1:** Please rank the four preliminary corridors based on the alternatives' ability to meet the study's goals of improving connectivity and roadway capacity, decreasing congestion, and enhancing safety. Your first choice is #1, your second choice is #2, your third choice is #3 and your final choice is #4.

The table below shows the ranking of each alternative. Please note a few characteristics of the responses:

- Not everyone who completed a comment form answered this question;
- Some respondents did not rank all of the alternatives; and
- Several respondents added their own alternative and ranked it.

	West Corridor	North Marshall Street Corridor	North Buffalo Street Corridor	Plank School Road Corridor
1 <sup>st</sup> Choice	21	14	23	9
2 <sup>nd</sup> Choice	9	31	10	16
3 <sup>rd</sup> Choice	12	12	30	11
4 <sup>th</sup> Choice	23	9	4	29

Of the four alternatives, the North Buffalo Street Corridor was ranked #1 by the most people, earning 34% of responses for first choice. The North Marshall Street Corridor received the most responses for second choice. Three respondents wrote in "Highway W" and marked it was their only choice. Another respondent drew in a corridor that connected Route W at Wildflower Road to Route CC near Rifle Range Road. Another resident proposed a loop road system that would incorporate three of the proposed corridors.

When taking the weighted average of these responses, the final ranking is as follows:

- #1: North Buffalo Street Corridor (2.22)
- #2: North Marshall Street Corridor (2.24)
- #3: West Corridor (2.57)
- #4: Plank School Road Corridor (2.92)

**Question 2:** Considering your #1 choice of corridor that best meets the study's goals, please put an X next to the top three factors you considered in choosing this alternative.

Respondents indicated that improved access and connectivity was their chief concern in choosing a corridor. It should be noted that several respondents indicated more or less than 3 factors that influenced their decision. The table below shows which factors were most influential to the respondents.

Number of Responses	Factor
57	Improves connectivity / access
43	Reduces congestion / traffic on local streets
23	Creates opportunities for land use improvements
20	Improves emergency response times
17	Lower costs
14	Fewer residential impacts
14	Enhances traffic safety
8	Minimal community impacts
6	Minimal impacts to water resources (creeks and floodplains)
5	Other
4	Fewer impacts to green space, parks and recreation areas
3	Less effect on commercial/industrial properties
0	Enhances bicycle / pedestrian connectivity

The most common response in the *Other* category was Economic Development (3).

**Question 3:** *Considering the pros and cons outlined for the alternative you selected as #1 in the first question, what do you think is most advantageous about this alternative?*

Citizens that chose the North Buffalo Street Corridor indicated that they did so largely for the reason of increased connectivity and available existing right-of-way. The North Marshall Street Corridor's appeal lay mainly in connectivity and relief of congestion. The West Corridor's supporters indicated the economic development opportunities, connectivity and congestion were the main reasons they chose the corridor. The Plank School Road Corridor's appeal lay mostly in the existing right-of-way and lower environmental impacts. A summary of the responses is shown below:

Advantage of Alternative	West Corridor	North Marshall Street Corridor	North Buffalo Street Corridor	Plank School Road Corridor
Connectivity	10	8	9	2
Congestion	9	5	4	
Economic Development	11	2	1	1
Safety			1	
Existing R/W Available			6	3
Environmental Impacts				1
Help most people			1	
Cost			2	1
Emergency Response		2	1	

**Question 4:** Considering the pros and cons outlined for the alternative you selected as #1 in the first question, what do you think is least favorable about this alternative?

The response to this question was mixed with no reason standing out from the rest. A summary is shown below:

Disadvantage of Alternative	West Corridor	North Marshall Street Corridor	North Buffalo Street Corridor	Plank School Road Corridor
Bike / Ped Connectivity	1		1	
Too Far East		1	1	2
Cost	4	1		
Other Improvements Required	3		3	1
Economic Development		1	1	1
Too Close to Existing Interchange			5	
Environmental Impacts	1	1	1	
Doesn't serve entire town			1	
Residential Impacts	1	3	1	
None	1	3	1	
Safety			1	
Opposition by Special Interests		1		

**Question 5:** Are there other corridors that would satisfy the purpose and need that you would like to see studied?

Several alternatives were suggested at this prompt. The most common was to increase access to the existing Northview interchange, primarily by a north outer road. Six citizens suggested this option. Other responses included:

- Corridor across Interstate 44 between the North Marshall Street Corridor and the Plank School Road Corridor
- A Highway W corridor, presumably near the Buffalo Street Corridor
- A loop road around Marshfield utilizing several corridors
- Connect North Buffalo to North Marshall

**Question 6:** Additional Comments?

This prompt generated fifteen comments. The comments were varied. The most common were the need for action, controlling costs and promoting or disparaging different corridor options.

## Public Involvement Comments

The majority of respondents, 57, identified themselves as residents; 12 considered themselves commuters; 10 were business owners; 3 were elected officials; and 13 identified as other, the most common response (4) being landowner. The following municipalities and zip codes were represented among the respondents to zip code question:

Zip Code	Municipality	# of citizens Residing in Zip Code	# of citizens Working in Zip Code
65706	Marshfield	50	31
65632	Conway	3	0
65803 / 65804 / 65802	Springfield	0	6
65644	Elkland	0	1
65713	Niangua	2	0
65757	Strafford	1	2
65536	Lebanon	0	1
64089	Smithville	0	1
66208	Prairie Village, KS	1	0

Open house attendees were asked how they learned about the open house and responded accordingly:

Notice in Newspaper:	24	Word of mouth:	24
Email message:	19	Facebook:	18
Website:	2	Other:	15

The majority of responses to *Other* were the TV news (11).

In addition, attendees were also asked to evaluate the open house experience and study team, by rating them 1 – 5 (with 1 being the highest value and five being the lowest) in terms of five characteristics. The table below shows the evaluation results according to the percent of people who gave a rating of **one** or **two** in each category.

The study team was:	The open house was:
Informative: 83%	Well-planned: 90%
Helpful: 81%	Worth attending: 84%
Prepared: 89%	

At the end of the comment form there was a space for additional comments. The prompt generated seventeen comments; the majority of which raised concerns about funding of the project, project timeline, congestion relief and suggestion of alternative corridors.

## **ADDITIONAL PUBLIC INPUT – EMAIL, LETTERS, AND FACEBOOK MESSAGES**

The study team also received public comment on the alternatives, and the project in general, from emails, letters, and from Facebook messages. The study team received 15 messages either via direct email, Facebook message or letter.

Most of the comments were to suggest or endorse a particular corridor. Three commenters suggested an overpass without ramps at the North Buffalo Street Corridor.

Other types of comments included, but were not limited to:

- West Option with southern bypass of town connecting back to Route 38;
- Keeping interchange impacts within city limits to capture tax revenue;
- Overpass from West Jefferson to Route 38 near Wal-Mart;
- Concerns about timeline of project;
- Providing better access to schools;
- Concern about business interests on Spur Drive influencing decision; and
- Implementing north outer road to Northview interchange.

## **CONCLUSION**

Public input is one of many factors that will be considered throughout the Location Study process. Public input will inform the study team as they move toward the goal of selecting a preferred alternative that best balances environmental impacts and costs with the ability to fulfill the project's purpose and need. The open house meeting served as an opportunity to obtain public input on key issues and suggested routes. The input and comments received from the meeting will be considered in determining which alternatives will be carried forward for detailed analysis.

**APPENDIX A – COMMENT FORMS**

**Marshfield Board of Aldermen: September 23, 2010**

**I-44 Feasibility Study Steering Committee Appointments**

**Members**

- Bill Tierney (City Alderman)
- Paul Ipock (Presiding County Commissioner)
- Joe Hailey
- Stan Whitehurst (County Clerk)
- John Gentry (citizen)

**Ex-Officio**

- Mayor C.R. (Bob) Clark
- Dan McMillan (City Administrator)
- Deana Fishel (Assistant City Administrator)
- Lyndall Fraker (State Representative)
- Wayne Turner (County Highway Supervisor)
- Sam Rost (City Public Works)

## Marshfield, MO I-44 Interchange Location Study and Environmental Document March 3, 2011

The first Steering Committee meeting was held March 3, 2011 at Marshfield City Hall from 4 – 5:30 pm. The purpose of the meeting was to form the committee and acquaint them with the process the Consultant intends to use for completing the study and document.

Stan Whitehurst was elected Chairman. Joe Hailey was elected Vice Chairman. The membership roster will be maintained by the City. Representatives for the consultant included: Fred Mathews, Gary Ludlam (MAI) and Brian Eads (CMT).

Deana Fishel gave all members a notebook with chronological documentation of all previous events that have transpired relative to obtaining another interchange on I-44. The project limits are from the Northview & I-44 interchange to Sparklebrook Road at the 107 mile marker of I-44.

Chairman Whitehurst stated his goal was to have an objective study examining a number of potential interchange locations, evaluated fairly with pros and cons, after which a preferred location(s) would be selected.

### Items Discussed:

1. Review Project History – Deana gave members the notebook and briefly discussed the contents
2. Review Base Maps
  - a. Aerial Photography – acquired from the County's mapping to be used for exhibits and design of possible interchange locations
  - b. Environmental Constraints – will be placed on the maps by CMT's environmental staff and be presented at the next meeting
3. Purpose and Need Statement – Brian Eads explained the importance of developing a logical statement that clearly demonstrates the need for an interchange. Elements of the statement will include:
  - a. Safety
  - b. Roadway Capacity
  - c. Roadway Deficiencies
  - d. Economic Development
  - e. Other Needs
  - f. Reference I-44 Planning for Progress Report

Brian asked the Committee to think about these issues from a community perspective and determine what is important to the City & County. Their input will be crucial to completing the statement. A draft Purpose & Need Statement will be presented during the next committee meeting and modified as needed.
4. Review Evaluation Criteria – Brian reviewed a matrix of elements relative to an interchange and a method of ranking the importance to each. The matrix will be used to recommend a preferred location and alternate locations. Elements in the matrix include:
  - a. Public Input
  - b. Engineering Considerations
  - c. Right of Way Impacts
  - d. Environmental Impacts
  - e. Cultural Resources Impacts

5. Future Activities – going forward, the consultant team efforts will include:
  - a. Continue Data Collection
  - b. Traffic Studies
  - c. Refine Base Map
  - d. Develop Range of Alternatives
6. Schedule: a schedule was included with the membership packet describing various milestones and important events.
7. Public Input: Brian explained that a “Pre-location Public Hearing” would be held for public input. No site selection would be presented at the meeting; the primary purpose is to gather public input.

A final public meeting would be held late in the project schedule to present the preferred location(s). After further final public input, the report would be finalized.

**Marshfield, MO I-44 Interchange  
Location Study and Environmental Document**  
May 19, 2011

The second Steering Committee meeting was held May 19<sup>th</sup>, 2011 at Marshfield City Hall from 6 – 7:30 pm. The purpose of the meeting was to update the committee on progress completed from the previous meeting.

The role was called and records of attendance will be kept with the City. Representatives for the consultant included: Fred Mathews (MAI) and Brian Eads (CMT).

Items Discussed:

1. Base Maps
  - a. Environmental Constraints – the maps have been updated to indicate responses from agencies requesting input, Additional comments from coordinating agencies will be added when received.
2. Purpose and Need Statement – with Committee participation and input, Brian Eads discussed the elements of the draft statement. The Committee recommended additions and revisions including:
  - a. Expanding the first paragraph to reflect the study is intended to include regional solutions, road connectivity and or other improvements that could accomplish the same purpose of a new interchange.
  - b. Explain that the P&N is a planning document and intended to reflect a range of possible alternative solutions.
  - c. Explain to the public that presently, there is no funding source for construction. However, future funding sources could include: tax increment financing, cost share, dedicated transportation sales tax, and private financing.
  - d. Additional text describing the project background and history will be inserted.
  - e. In the Program Data section; text will be added to explain the study is intended to “result in the information needed to determine the strengths, weaknesses and priorities of a range of transportation solutions at various locations.
  - f. The matrix developed to rank alternative locations will combine “congestion & capacity” into the same category.
  - g. The Committee emphasized the importance of emergency response given the fact that all of the City’s fire and policy resources are south of I-44 and the response time would increase significantly if the present interchange was blocked or unusable. Deana has documented the critical infrastructure needs and this data will be incorporated.
  - h. Updated traffic volume counts will be provided by MoDOT and used in the report.
  - i. A 2% growth rate was used for determining future volumes; Fred & Brian explained this was a conservative number and felt it would add validity to the future projections. If census data is available to alter the projections, the report will be revised to reflect the new information.
  - j. Marshfield has a high morning westbound traffic peak and high evening eastbound traffic peak. The new traffic forecasts should reflect this trend.
  - k. Economic Development: The Committee’s input is very important to this plan component. Issues relating to how transportation could provide opportunities for job growth inside Marshfield and how to foster business growth should be discussed in the plan. The communities input will be vital for completing this element of the plan. The City’s land use plan will also be incorporated into this section.

The Committee will provide written comments and submit them to Deana by **May 27<sup>th</sup>**. The consultant will incorporate the comments into the statement and present the revised document during a **June 16<sup>th</sup>** meeting at 5:30 pm.

3. Schedule: selecting the date for the Pre-location Study Meeting cannot be set until coordination is completed with MoDOT. Jim Hartman stated that FHWA may have to review and approve the Purpose & Need Statement prior to the meeting. Fred & Brian will meet with Jim next week and verify requirements from MoDOT and report to the committee.

The Pre-location Public Meeting is intended to gather public input prior to selecting alternatives for roadway improvement locations.

A final public meeting will also be held later in the project schedule to present the preferred location(s).

4. Future Activities – going forward, the consultant team efforts will include:
  - a. Continue Data Collection from coordinating agencies
  - b. Meet with MoDOT to coordinate FHWA requirement prior to pre-location meeting
  - c. Revise the Purpose & Need Statement to incorporate Committee comments
  - d. Update Base Map
  - e. Prepare for next meeting

## Marshfield, MO I-44 Interchange Location Study and Environmental Document

June 16, 2011

(minutes prepared 6-20-11)

The third Steering Committee meeting was held June 16<sup>th</sup>, 2011 at Marshfield City Hall from 5:30 – 6:30 pm. The purpose of the meeting was to update the committee on progress completed from the previous meeting.

The role was called and records of attendance will be kept with the City. Representatives for the consultant included: Fred Mathews (MAI) and Brian Eads (CMT).

### Items Discussed:

1. Approval of draft Purpose and Need Statement – the Committee agreed the P&N is sufficient to move forward to the next step (Public Prelocation Meeting) and approved the draft statement with modifications as follows:

- Include comments from MoDOT's 6-16-11 e-mail to Jim Hartman & Consultants.
- Add information and background (per an e-mail from Charlie Davis dated 6-16-11) about previous studies relative to an airport and its impacts on transportation.
- Include comments received by e-mail from Stan Whitehurst on 6-17-11.

The document will be considered a draft until after public review and comment and may always be revised.

2. Confirmation of FHWA Approval Process: the consultant team had a conference call with MoDOT on May 24<sup>th</sup>, 2011. A copy of the P&N statement had previously been sent to MoDOT. MoDOT ultimately agreed that FHWA did not need to review and approve the document prior to a Public Prelocation meeting because the P&N is essentially a planning document and not for NEPA environmental purposes.
3. Material to be presented in the Public Meeting: the Consultants material that would be prepared for public viewing at the meeting. Brian gave several examples of displays including: project corridor, blank displays of specific areas of possible improvements where the public could draw & provide comments, map of environmental constraints, flow chart for completing the location study.

The committee reviewed MoDOT's requirements for a Pre-location Study Meeting and understands the meeting is to be general in nature and intended to obtain comments concerning the project's P&N, range of alternatives and impact on local communities environment. Comments and information received at the meeting will be used to refine or expand the P&N prior to its inclusion as a section of the Location Study Report.

**The date for the meeting is August 9, 2011, 4-7 pm, at the Marshfield High School.**

The meeting must be advertised 21-days in advance and the Consultant will require a few weeks to prepare the information and exhibits necessary..

**The next committee meeting will be July 25, 2011 from 5:30-6:30 at Marshfield City Hall**

The committee will review the material to be presented at the public meeting.

4. Discuss Evaluation Matrix & Criteria: the committee reviewed an example of the preferred alternative evaluation matrix & selection criteria. Although the matrix is not complete, many of the elements will be included. The material was presented to allow the Committee to continue considering important criteria to be included in the final matrix.
  
5. Future Activities – the consultant team efforts will include:
  - a. Continue Data Collection from coordinating agencies
  - b. Prepare for Prelocation Study Meeting
  - c. Update the Purpose & Need Statement to incorporate Committee & MoDOT comments
  - d. Prepare for next Committee meeting

## Marshfield, MO I-44 Interchange Location Study and Environmental Document

July 25, 2011

(minutes prepared 7-26-11)

The third Steering Committee meeting was held July 25<sup>th</sup>, 2011 at Marshfield City Hall from 5:30 – 7:00 pm. The purpose of the meeting was to update the committee on progress completed from the previous meeting.

The role was called: John Gentry, Bill Tierny, Joe Hailey, Stan Whitehurst, Paul Ipock, Vicky Montgomery (arrived at 6:16). Representatives for the consultant included: Fred Mathews (MAI) and Brian Eads (CMT).

### Items Discussed:

1. Purpose and Need Statement – the Committee reviewed the changes made since the last meeting. Comments from MoDOT and the Committee were incorporated. The documents will be available at City Hall and at the Public Meeting.
2. Public Meeting: The public meeting will be held August 9<sup>th</sup>, 2011 at the Marshfield High School from 4-7 pm. The Committee reviewed material and exhibits to be presented at the meeting:

Upon entry, a sign-in table will be stationed with handouts for the public review. Exhibits (24"x36") mounted on foam board will be displayed including: welcome, meeting format, project history & background, location study process/schedule, environmental resources, purpose & need statement, map showing roadway connectivity, traffic congestion, safety, emergency response, economic growth, alternative locations for possible interchange/overpass, funding issues.

The Committee requested a board showing the entire corridor to help orient the public, use local road names and not farm road.

3. Open House Comment Form: the Committee reviewed the form and requested several revisions, and word changes. The revisions will be made & sent to all members. The form will be handed to public participants to fill in information. The forms are due back August 23<sup>rd</sup> (10-working days after meeting). The Committee asked that the forms be sent to MAI and not the City.
4. Discussion was held on how the comments forms will be ranked and the information sorted.
5. Meeting Logistics: meeting is from 4-7 pm.
  - Consultants will arrive at 3 pm to set-up the room
  - Consultant will have 4-people present
  - Committee members and City Staff will attend
  - Name tags will be needed for Committee members & Staff
  - 150-copies will be provided of the handouts
  - A flyer will be developed by the Consultant to be placed at City Hall, Court House, Chamber Office, Wal-Mart, School, etc. advertising the meeting.
  - A drop box for completed forms
  - Pencils & easels

## Marshfield, MO I-44 Interchange Location Study and Environmental Document

October 4, 2011

(minutes prepared 10-7-11)

The Steering Committee meeting was held October 4, 2011 at Marshfield City Hall from 6:30 – 7:45 pm. The purpose of the meeting was to update the committee on progress completed from the previous meeting.

The role was called: all committee members present. Deana Fishel kept attendance records. Representatives for the consultant included: Fred Mathews (MAI) and Brian Eads (CMT).

### Items Discussed:

1. The Committee approved the minutes from the July 25, 2011 meeting.
2. Discussion of Public Meeting Results – the Committee reviewed the public comments received from the meeting held in August. Brian presented the summary report and discussed the results.
3. Roadway Alignments & Possible Interchange Locations: Brian & Fred displayed concept sketches of possible roadway improvements and interchange locations for the 4-study areas (West Corridor, N. Buffalo Street, Marshall Road (option A), Marshall Road (option B), Plank School Road).

The MoDOT Standard for the configuration for a diamond Interchange was also reviewed: bridge length, access locations and outer road locations were shown. An exhibit was given to the group.

4. The Committee agreed to review the 4-corridor locations, mark-up maps and provide any comments to the consultants. The Consultants will further develop the corridor options, refine roadway & interchange locations, complete the comparison matrix, prepare construction cost estimates and provide additional input for discussion with the Committee at the November meeting.
5. The next scheduled meeting is November 21, 2011 at 6:30 pm, Marshfield City Hall.

**MINUTES**  
**I-44 Feasibility Study Steering Committee**  
*November 21, 2011*

The I-44 Feasibility Study Steering Committee met November 21, 2011, at Marshfield City Hall. Chair Stan Whitehurst called the meeting to order at 6:00 p.m.

Members present were John Gentry, Joe Hailey, Paul Ipock, Vicki Montgomery, and Stan Whitehurst. Ex-officio members present were Mayor C.R. Clark, Dan McMillan, Sam Rost, Wayne Turner, and Rep. Lyndall Fraker. Also present were Andrew Seiler, P.E. (MoDOT), Mike Cunningham (representing Sen. Jay Wasson), and consultants Fred Mathews, P.E. (Mathews and Associates) and Brian Eads, P.E. (CMT).

**Approval of Minutes:** The Committee unanimously approved the minutes from the October 4, 2011, meeting. Motion to approve made by Hailey, with Ipock seconding the motion.

**Initial Screening of Corridors and Alignments:** Eads and Mathews displayed conceptual sketches of possible roadway improvements and interchange locations, outer roads and connecting roads for the four study areas portraying approximately 9- options within the four corridors including: West Corridor, N. Buffalo Street (interchange & outer road, interchange only, overpass only), North Marshall Road (black & green options and an outer road add-on), and Plank School Road (black and red options).

The consultants included input and comments from the committee and the general public during the examination of the alignments and preparation of the matrix evaluation. The purpose of this meeting was to eliminate, refine, or modify the options or alternates. Input from the committee was:

**West Corridor:** The intention of an interchange at this location (mile marker 99.4) is to connect Route 38 on the north to Route OO on the south. Estimated cost for the interchange and new connecting road from Route OO and on the south and Route 38 on the north is approximately \$9.0 million. The southern connection past Route OO (green and yellow options) show variations of a railroad crossing and ultimate connection to Commerce Road. The Commerce Road connection provides a southern loop around Marshfield's south and west side.

After extensive discussion, the committee requested the green route be eliminated and the yellow route railroad crossing be moved to Prairie Lane. This allows the use of existing Prairie Lane and direct access to Route OO. This provides the most direct route to a new interchange and is least costly. Route OO will likely require upgrading to a 3-lane facility to provide for turning traffic into the multiple driveways accessing Route OO.

The Committee also noted that property owners in this area have expressed a desire to donate right-of-way and to take this into account when estimating property costs.

**N. Buffalo Road:** The intention of an interchange at this location (mile marker 102.2) is to connect Route W on the west to Route CC on the east. The Committee could not reach a consensus for eliminating an interchange at this location. Buffalo Road is only 1.2 miles from the existing Spur Drive interchange and will likely be opposed by MoDOT and FHWA because the current standard for interchange spacing is  $\pm 2$ -miles. However, the group wishes to keep the option under consideration.

Discussion revolved around possibly constructing an overpass as phase 1 and eventually an interchange at Buffalo or a nearby location (Marshall Road or Plank School Road). The location scored high in the public support process.

Costs ranged from \$4.6 - \$8.7 million depending on providing an overpass only or an interchange with connecting and outer roads.

**Marshall Road:** The intention of an interchange at this location (mile marker 103.0) is to connect Route W on the west to Route CC on the east. The Committee agreed to eliminate the black route on the east side of I-44 due to the proximity to existing residential subdivisions and agreed the green option with the red sub-option connection to Route CC was the most desirable.

The Committee also requested that consideration be given to access from Marshall Street as a N-S connection to and from the new interchange to Route CC. Currently, Marshall Street is used as a residential collector but not intended to intercept and re-route future volumes of traffic from I-44.

Cost estimates for the interchange is approximately \$15 million with an add-on cost of \$2.1 million for outer road connections.

**Plank School Road:** The intention of an interchange at this location (mile marker 104.2) is to connect Route W on the west to Route CC on the east. Approximately 6.2-miles of existing and new connecting roads are required.

Due to the extensive mileage of new connecting roads – under a worst case condition of total replacement – the estimated total cost is approximately \$20 million. The Committee expressed an opinion the costs appeared inflated and by utilization of existing facilities, particularly newer bridge structures, the total cost could be reduced. The Consultant will re-examine the costs while refining this option.

West of I-44, the black route will be eliminated and the red alignment will be used along Vineyard Road because new bridge crossings have recently been completed.

Some members expressed concern that; due to the fact westbound traffic to Springfield ranges from 70 - 80% in the morning; the Plank School Road option is too far east (north) and would not be practical for morning commuters going westbound.

The Committee noted that property owners in this area have expressed a desire to donate right-of-way and to take this into account when estimating property costs.

The Consultant will continue to refine the alignments and eliminate options agreed to by the Committee. Construction costs will be refined and right-of-way costs considered. The comparison matrix will also be updated.

**Next Meeting:** The next scheduled meeting is **January 10<sup>th</sup>, 2012, at 6:30 pm.** at Marshfield City Hall.

**Adjournment:** With no other business appearing before the Committee, the meeting adjourned at 8:15 p.m.

# MINUTES

## I-44 Feasibility Study Steering Committee

*January 10, 2012*

The I-44 Feasibility Study Steering Committee met January 10, 2012, at Marshfield City Hall. Chair Stan Whitehurst called the meeting to order at 6:00 p.m.

Members present were: John Gentry, Joe Hailey, Paul Ipock, Vicki Montgomery, and Stan Whitehurst. Ex-officio members present were Mayor C.R. Clark, Wayne Turner, and Rep. Lyndall Fraker. Also present were Andrew Seiler, P.E. (MoDOT), and consultants Fred Mathews, P.E. (Mathews and Associates) and Brian Eads, P.E. (CMT).

**Approval of Minutes:** The Committee unanimously approved the minutes from the November 21, 2011, meeting.

**Review of Alignments:** Eads presented a power point report of the alternative screening summary report. All alternative alignments were discussed. Four corridors under consideration for an interchange location continue to include: West Corridor, N. Buffalo Road, Marshall Road and Plank School Road. Various alignments studied within the corridors were also discussed. These alignments dealt primarily with connectivity to local arterials.

All alignments were evaluated based upon the ability to meet the ***Purpose & Need Statement*** including the following elements:

- Improve roadway connectivity
- Reduce congestion & provide system capacity
- Improve safety & emergency response
- Foster economic growth with the new interstate access

Brian displayed maps and discussed details of the four corridors and all other various alignments within each corridor.

An issue remains with the North Buffalo Corridor and its proximity to the existing Route 38 interchange being less than the 2-mile spacing Federal Guideline.

Construction cost estimates were updated for each corridor. Utilization of existing facilities (roadway & bridge) was incorporated in an effort to minimize costs. Costs for right-of-way were not included, only the amount of acreage needed for each corridor. A summary was included in the handout and power point presentation.

**Traffic Demand Modeling:**

Brian discussed the estimated amount of traffic expected to use each interchange location. Information taken from the 2010 Census Data by Census Block for Webster County was used. Estimated travel time to the Route 38 interchange versus the proposed interchange locations was calculated. Population best served by the existing Route 38 interchange versus the proposed interchanges and travel time (to/from east and west) was calculated.

The demand modeling indicated that the highest percentage of usage for a new interchange was: North Buffalo Street Corridor = 63% and Marshall Road Corridor = 49%. The other two corridors were Plank School Road = 27% and West Corridor = 15%.

Future traffic demands, based on historic population changes, were projected through years 2020, 2030, 2040 and 2050. The results indicated that N. Buffalo and Marshall Road serve faster growing areas of Webster County.

**Updated Evaluation Matrix:**

A handout was distributed with the evaluation matrix updated to reflect the above data and conclusions. Some of the criteria that are subjective (i.e. best meets the Purpose & Need; safety, growth, congestion, connectivity, etc.) and not quantitate were displayed using colors. Green is most favorable; red is least favorable; yellow in between.

The Committee requested additional time to review and consider all of the information and implications of the decisions made. A consensus of opinion was to hold a study session to allow Committee members to give more consideration to the project details.

**Next Meeting:**

The next scheduled meeting is intended to be a study session for the Board to discuss details of each alignment and make recommendations for alignments to be carried forward. The meeting will be on **January 30<sup>th</sup>, 2012, at 6:30 pm.** at Marshfield City Hall.

**Adjournment:** With no other business appearing before the Committee, the meeting adjourned at 8:45 p.m.

**MINUTES**  
**I-44 Feasibility Study Steering Committee**  
*January 30, 2012*

The I-44 Feasibility Study Steering Committee met January 30, 2012, at Marshfield City Hall. Chair Stan Whitehurst called the meeting to order at 6:00 p.m.

Members present were: John Gentry, Joe Hailey, Paul Ipock, Vicki Montgomery, and Stan Whitehurst. Ex-officio members present were Mayor C.R. Clark, Wayne Turner. Also present were Frank Miller, Andrew Seiler (MoDOT), and consultants Fred Mathews, P.E. (Mathews and Associates).

**Approval of Minutes:** The Committee unanimously approved the minutes from the January 10, 2012, meeting. Motion made by Ipock and second by Gentry.

**Public Input:** due to television and print media advertisement prior to the meeting, approximately 30-people attended in the audience. Chairman Whitehurst asked for input from anyone in the audience prior to beginning the agenda items. Remarks included:

- Bill Schroeder- Sho-Me Power has an office facility on Jackson St, at the east part of town. He urged the committee to provide convenient access for employees and attempt to remove any bottlenecks in traffic. He also urged the committee to verify the estimated construction costs particularly for Plank School Road.
- Neva Schroeder- expressed concern for school children safety and providing convenient safe access. She requested the interchange be located in a location fair for everyone. She urged interior roadway connectivity and confirmed the appearance of the predominant traffic use of Route CC
- Ken Richerson – requested information about the 101 mile marker location; MoDOT answered. He also asked about the spacing of interchanges and referred to safety issues if the existing Route 38 interchange was damaged and unusable.
- Ms. Laura Bidding – discussed issues related to a prior zoning issue with the City that did not apply to this project. She expressed concern about safety on Route CC (Hubble) due to school bus routes, excessive speeds and the presence of school children.
- Mr. Stan Sauers – stated he is opposed to the West corridor because it would only serve a limited number of travelers and they would still have to use Spur Drive.
- Mr. Jared Scott – lives east of Niangua and opposes the West corridor because it would only serve a limited number of travelers.

- Mr. George Savis – opposes the Plans School Road location because of the impact on existing residents at the interchange location
- Wayne Turner – suggested constructing Commerce Road up to Prairie Lane as a local project that could serve as an interim solution.
- Karen (???): preferred the Buffalo Road corridor and upgrades to Banning & Route CC.
- Charlie Davis – questioned why new construction standards are required for updating existing facilities. MoDOT responded that FHWA only funded projects meeting the most current standards. Mathews reiterated that construction cost estimates for the Plank School Road corridor assumed that existing facilities (bridge, road bed) would be used and expanded to meet current conditions. This kept the costs lower.
- Frank Miller stated that MoDOT had reviewed the cost estimates for each corridor and concurred with the amounts. Mr. Miller thought the estimates were legitimate and reasonable for each alternative.

Mathews read into the record a letter from MoDOT dated April 3, 2009 responding to the City of Marshfield about a possible interchange located at Plank School Road. The letter confirmed the interchange cost to be \$6-\$8 million. The consultant team estimated the interchange (only) to be \$5.7 million. The letter also confirmed that additional improvements would be required at existing roads Plank School, Brinkely and Marshall. The letter documented the new interchange would require a larger right-of-way footprint, and must meet current federal standards.

Chairman Whitehurst, after hearing all of the public comments urged the public to avoid thinking there is an obvious solution and one best location. He suggested looking at solutions with 3-4 phases with many improvements being made using local funds and forces.

Mr. Whitehurst also noted that the original purpose of this meeting was to be a study session or workshop for the Committee to discuss the engineering data in detail and facilitate group discussions. Given the amount of time spent for tonight's public input, another meeting is needed for the Committee to complete the study session. He also recommended identifying smaller transportation needs that could be funded locally and fix immediate needs having construction in the 3-5 year time frame.

Mr. Gentry asked about a variance to allow the Buffalo Road Corridor and the close proximity (1.2 mi) from the existing Route 38 interchange. When should the variance be requested and would what is the likelihood of approval? Mr. Miller, MoDOT, stated if the Committee identified Buffalo Road as their preferred alternative, the variance request should begin immediately. Also, if another viable alternative is available, an exception would not likely be granted.

Mr. Gentry noted there should be a balance between interchange utilization and economic development.

Mr. Ipock questioned the requirement for having an 80-foot wide right-of-way width for interconnecting arterial roadways. Mr. Miller stated this is a MoDOT Standard and typical per AASHTO Standards and OTO Standards. Mr. Mathews clarified that the costs for right-of-way purchases were **not** included in the construction costs. The acreage for each corridor was calculated and shown in the matrix.

Mr. Whitehurst suggested that ultimately, the Committee should, after review of all the engineering data and study information, make a recommendation for a preferred alternate interchange location.

Mathews reviewed the written report prepared for the meeting. Discussions and summaries included: connectivity, interchange utility, safety, local roads, economic development, local & regional planning, emergency response, environmental, displacements & residential impacts and construction costs

**Next Meeting:**

The next scheduled meeting is intended to be a study session for the Board to discuss details of each alignment and make recommendations for alignments to be carried forward. The meeting will be on **February 16<sup>th</sup>, 2012, beginning at 6:30 pm.** at Marshfield City Hall.

**Adjournment:** With no other business appearing before the Committee, the meeting adjourned at 8:45 p.m.

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## MINUTES

### I-44 Feasibility Study Steering Committee

February 16<sup>th</sup>, 2012

The I-44 Feasibility Study Steering Committee met February 16<sup>th</sup>, 2012, at Marshfield City Hall. Chair Stan Whitehurst called the meeting to order at 7:03 p.m.

Members present were: John Gentry, Joe Hailey, Paul Ipock, Vicki Montgomery, and Stan Whitehurst. Ex-officio members present were Mayor C.R. Clark, Deana Fishel. Also present was Andrew Seiler (MoDOT), and consultant Fred Mathews, P.E. (Mathews and Associates).

**Approval of Minutes:** The Committee unanimously approved the minutes from the January 30, 2012, meeting. Motion made by Ipock and second by Gentry.

**Public Comments:** An agenda item allowed for public comments. Chairman Whitehurst asked for input from anyone in the audience. Remarks included:

- **Charlie Davis-** related information he acquired from MoDOT's website concerning *Practical Design*. He also discussed this I-44 Study Project with a person (unnamed) in the Jefferson City office and discussed practical design issues. Mr. Davis stated that emphasis should be placed on utilizing existing infrastructure (e.g. roads and bridges) during the design of new improvements. Mr. Davis expressed his opinion that the estimated construction costs were inordinately high because of using the current FHWA standard for an interchange that has a larger footprint than existing interchanges in urban areas – thus more costly. He also expressed a concern about impacting existing homes and felt the study was skewed to unfairly portray the Plank School Corridor as having excessive costs and numerous property impacts. He suggested the Consultant (Fred Mathews) had over estimating costs to make the corridor uncompetitive with the other corridors.

In response, Mathews reiterated to Mr. Davis – as in the previous meeting - that the project requirements for a ***Location Study Report*** dictate that the designer use **current standards** for new interchanges (not a retrofit of an existing interchange). Mathews also reconfirmed that existing infrastructure (roads & bridge) were utilized in the cost estimate and that costs for upgrading were included in the estimates; not costs for full replacement. All corridor cost estimates and existing facilities were treated the same

Mathews continued saying that the interchange cost on Plank School was actually estimated to have a **lower** cost than other locations (except West Corridor) due to the existing bridge. The interchange cost estimate agreed with MoDOT's independent evaluation in a letter dated April 3<sup>rd</sup>, 2009. Mathews stated that when the Committee selects a preferred alignment, that all effort will be made to avoid property displacements and disruptions. At this stage of the design, the number of impacted properties does not necessarily indicate the number of homes that would be removed, only the number of individual parcels the corridor touched or fronts. In response to Mr. Davis assertion that costs were excessive, Mathews pointed out that MoDOT had reviewed the costs and concurred with the opinion at this stage of the study. This was confirmed during the last meeting by Frank Miller, MoDOT.

Mr. Davis also noted that the City had purchased property for a wastewater treatment plant, north of I-44 near the West Corridor and implied the City intentionally had motives of constructing an interchange in the West Corridor to benefit adjoining property owners.

Mr. Mathews pointed out that – although MAI was not a part of the selection of the parcel – it was purchased a number of years prior to this study and a committee had been formed to select the location that would be the most suitable for construction of a new wastewater treatment plant

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due to the fact the Pomme De Terre River had less stringent effluent discharge requirements than the current treatment plant location.

- George Savis – expressed concerns about large numbers of residential impacts and stressed the importance of avoiding removal of homes on the Plank School Road corridor. The committee agreed with his assertion.
- Mr. & Mrs. Genetti – questioned why MoDOT was currently removing trees and brush from the I-44 right-of-way near their home on Genetti Lane. No one on the committee or MoDOT representatives had information to answer the question; it was assumed to be routine maintenance. The Genetti's continued to express their opposition to an interchange located in the west corridor. Their view was that eastbound, returning traffic to Marshfield that exited from a new west corridor interchange would still travel to Spur Drive and the interchange would be underutilized.

Mrs. Genetti questioned who decided to consider the west corridor as an option. Chairman Whitehurst stated the area had been on a master plan for a number of years as an option to consider.

- Mayor Clark – reiterated that the City Aldermen purchased property on the N. side of I-44 (West Corridor) for a future wastewater treatment plant. MECO was the engineer and a committee process was used for determining the procedures and location.

Chairman Whitehurst, after hearing all of the public input, turned to the next agenda item "**Comments by County Representatives**".

- Stan Whitehurst – relayed a conversation he had with the City's Attorney concerning the Committees policies and procedures. The group must comply with the Sunshine Law but is not required to follow the City's public speaking policy and that he preferred to continue to allow public input during the general meetings.

Further, Mr. Whitehurst explained to the public that when the City and County entered into the agreement for this study, the County was not included in the engineering selection process and they urged the City to rethink the selection process. However, due to time constraints from MoDOT and an advertised agenda the City proceeded.

Mr. Whitehurst continued, saying that his project goal was to develop a list of pros and cons for each corridor and he didn't initially understand that ultimately a preferred alignment must be selected for inclusion in a completed **Location Study Report**. He also indicated a MoDOT representative told the County/City they could choose to not select a preferred alternative and do anything they please. However, it was pointed out that the nature of the MoDOT/City agreement and advertisement for engineering services stated the study is to "**determine and justify an appropriate location as well as access the environmental impacts**" with the intent of ultimately proceeding with an access justification report and NEPA document at a later date.

Mathews pointed out that each corridor was evaluated in light of the **Purpose & Need Statement** earlier approved by the Committee and the advantages and disadvantages were discussed in the summary report that the Committee received several meetings prior to tonight.

Mr. Whitehurst continued saying, in his opinion the project costs were too high and he was concerned about the total project budget and he did not see the value of the work to date. Approximately 2/3 of the budget is expended and 1/3 remains. Mr. Mathews pointed out that this level of services complied with the contract tasks and schedule and that supplemental, supporting documentation, text, exhibits and information will be included in the final **Location Study Report**.

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The executive summary report (submitted at the previous meeting) was made available to the Committee to simplify decision making and highlight important conclusions of the engineering analysis and evaluations.

- Mr. Ipock stated he felt the costs were double what they were lead to believe by MoDOT prior to the contract negotiation. Mathews responded that typically, a **Location Study Report** begins with one chosen alignment and does not consider 4-5 corridors with 4-5 alternate alignments for each main corridor like this study. Given the extra work to review 4-5 corridors, substantial engineering is needed thereby impacting the costs. Additionally, MoDOT (paying 80% of the costs) had reviewed the engineering tasks, scope and hours and concurred with the fees.
- Mr. Gentry stated that interchange utilization and selecting the most suitable location was more important than cost. Mr. Gentry again discussed the variance issue (being less than 2-miles from an existing interchange) and questioned whether it would be productive to select an option not meeting the 2-mile spacing requirement. He also reiterated that during the public meeting process economic development and traffic congestion were the most important elements to address.
- Mr. Hailey indicated his main objective was to move traffic and given that most traffic, homes and activities are on the east side of Marshfield, an interchange in that location seemed the most logical.
- Vicki Montgomery stated that moving traffic within the urban area of Marshfield was important to her and the further east (north) the interchange moved, the more it serves Niangua not Marshfield.

The Committee conversation turned to the process for selecting a preferred alignment and how best to select a preferred location. Commissioner Ipock stated he felt pressured to select a preferred alignment and didn't want the Committee responsible for making a recommendation.

After further discussion, the Committee agreed to have the Engineer make a recommendation for the Committee to consider. Mr. Gentry stated he initially felt it was the Committee's responsibility to make the recommendation but agreed with the group majority to have the engineer recommend for the Committees consideration.

Mathews agreed to make a recommendation and have it ready for review and discussion at the next meeting, yet to be scheduled.

**Next Meeting:**

To be scheduled.

**Adjournment:** With no other business appearing before the Committee, the meeting adjourned at 8:40 p.m.