Appendix C

AGENCY COORDINATION

- Sample Early Coordination Letter
- Agency Coordination

Sample Early Coordination Letter

PARSONS

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August 14, 2012

Mr. Harold Campbell
City of North Vernon
275 Main St.
North Vernon IN 47265

Subject: US 50 North Vernon Bypass–East
Designation # 1173374
Early Coordination Initiation
Jennings County, Indiana

Dear Mr. Campbell:

The Indiana Department of Transportation (INDOT) intends to proceed with the above project in Jennings County, Indiana. This letter is part of the early coordination phase of the environmental review process. We are requesting comments from your area of expertise regarding any possible environmental effects associated with this project. **Please use the above designation number and description in your reply.** We will incorporate your comments into a study of the project's environmental impacts. The western limit of this project is at SR 3 approximately 1,200 feet south of CR 350 N, the eastern terminus of the first phase of the bypass, which is currently under construction. The eastern terminus of this project will depend on the alternative selected during the project development process. Alternatives currently under consideration terminate as far west as the vicinity of the intersection of US 50 and CR 75 E and as far east as the vicinity of US 50 and CR 280 E (See Figure 1).

Since the February 2008 publication of the US 50 North Vernon Corridor Planning and Environmental Assessment Study the scope of the project has been divided into three project elements due to budget constraints. This ability to adapt has allowed INDOT to focus improvements in areas where they were most needed in a timely manner.

The western section of US 50, from US 31 to the east side of North Vernon, was advanced as a series of intersection "spot" improvements, which were evaluated under two Categorical Exclusion (CE) documents. These "spot" improvements included improvements to intersections, signage and guardrail, replacement of three water crossings, and added travel lanes in certain sections.

The western half of the bypass, from CR 400 W to SR 3 on the north side of North Vernon was developed through an Environmental Assessment (EA) document. The EA was published October 25, 2011. The EA document identified Alternative S2-Modified/M2/N6-Modified as the Preferred Alternative. The eastern terminus of this alternative was SR 3 approximately 1,200 feet south of CR 350 N. This project is currently under construction; when complete the new roadway will be designated SR 750 until such time as the bypass is completed and redesignated as US 50.

The eastern, current phase of the bypass will provide a connection from the western half of the bypass back to US 50 on the east side of North Vernon. The objective for completing this project is to improve traffic operation in and around North Vernon and increase accessibility to existing and potential growth areas.

Project Description
Through most of Jennings County, US 50 is a two-lane undivided highway that is classified as a Rural Principal Arterial that runs east-west from the Jackson County line to the Ripley County line. Within the North Vernon Urban Area Boundary, US 50 is also a two-lane undivided highway and is classified as an Urban Principal Arterial.

Project Background
The INDOT 2030 Long Range Transportation Plan lays out a strategy for the future of the state highway system. This extended planning period provides a long range vision of how the state jurisdictional highway system will develop in the future. Because US 50 is identified as a Statewide Mobility Corridor, there is a greater goal to be achieved in the improvement of US 50 (more than just addressing local traffic concerns). Statewide Mobility Corridors serve as the connection between urban areas of 25,000 persons or greater in Indiana and neighboring states, provide macro-level accessibility to cities and regions around the state, and play a vital role in economic development. These roadways carry long distance trips, heavier commercial vehicle flows and warrant high-type design standards, such as multiple travel lanes, railroad and highway grade separations, and bypasses of congested areas.

The INDOT Major Moves highway plan identifies added travel lanes in Jennings County for the portion of US 50 from the west side of North Vernon's urban area boundary to the east side of North Vernon's urban area boundary in the fiscal year 2015. INDOT also has previously programmed projects along the US 50 corridor within the Study Area, including intersection improvements in North Vernon on US 50 at Hayden Pike, Poplar Street and Norris Avenue, on SR 3 at North Madison Street, and on SR 7 at Franklin Street, Washington Street/O & M Avenue and Hayden Pike.

Alternatives
The US 50 North Vernon Bypass Project will evaluate both positive and negative impacts associated with the following alternatives:

- **"No-action"** – For this alternative, the existing US 50 corridor would remain unchanged in its present condition (i.e., no upgrades/improvements, other than "committed" projects already in active development).

- **Build Alternatives** – Adding a bypass northeast of the City of North Vernon connecting SR 3 and the western half of the bypass to US 50 (see Figure 2).

As shown in Figure 2, a number of alternatives have already been developed. The alternatives development process is still underway and additional alternatives are likely to be developed, although all are anticipated to stay within the study area shown in Figure 1.

Once all reasonable alternatives are identified, they will undergo a tiered screening process. Level 1 Screening will evaluate the alternatives against the project's purpose and need, utilizing criteria encompassing the transportation, environmental, economic, and community effects of the project. The screening will be based primarily on secondary source data and input from agencies (via responses to this coordination letter), the project's Community Advisory Committee (CAC), and the general public. The goal of Level 1 Screening will be to reduce the number of alternatives to those that best meet the project's purpose and need while minimizing negative impacts.

Following Level 1 Screening (tentatively in late September), INDOT will hold a meeting with resource agencies to provide the results of the screening and to seek guidance on the field studies to be completed on the remaining alternatives. The alternatives that are advanced through Level 1 Screening will be

subjected to detailed environmental and engineering evaluation, including surveys for wetlands, streams, and archaeological and historical resources. Following these studies, INDOT will conduct Level 2 Screening, which will, in greater detail, evaluate the remaining alternatives on their ability to meet the project's purpose and need and minimize negative impacts. Following that evaluation, INDOT will again host meetings with resource agencies and the project's CAC to discuss its findings and recommended preferred alternative.

Additional meetings with individual agencies will occur throughout the project as appropriate to address specific issues.

Environmental Issues
A combination of a review of existing resources and field investigations will evaluate the impacts of each alternative on the existing environment as well as identifying known environmental issues that may have an impact on the project. Resources identified to date are shown in Figure 3. An evaluation of environmental issues will include investigations of the following:

- Land Use
- Surface/Groundwater Resources
- Wetlands
- Threatened, Endangered, and Rare Species
- Vegetation and Wildlife
- Historic and Archaeological Resources
- Public Parks and Recreational Areas
- Farmland
- Floodplains
- Noise
- Hazardous Materials
- Air Quality
- Residential/Business Displacements
- Visual Impacts

Anticipated Project Schedule
The current estimated schedule for the project is as follows:

- Preferred Alternative — Fall 2012
- Publish Environmental Assessment — Early 2013
- Finding of No Significant Impact — Spring 2013
- Construction Letting — Late 2013

Public Involvement
In addition to coordinating with agencies, INDOT will seek input from the community via both the project's CAC and outreach to the general public. The CAC will be comprised of local elected officials, local agencies including emergency response personnel, business community representatives, and other key stakeholders. This group will serve as an advisory panel and bring together a wide range of interests and responsibilities in a single group. It is anticipated that this group will meet twice during the alternatives development/evaluation phase of the project.

INDOT will also seek input from the general public through a public open house to be held at the beginning of the project (prior to Level 1 Screening) and a public hearing to be held following the

publication of the EA document. INDOT anticipates meeting with individual stakeholders as appropriate throughout the project.

As noted above, we are requesting comments from your area of expertise regarding any possible environmental effects associated with this project. Should we not receive your response **within thirty (30) calendar days** from the date of this letter, it will be assumed that your agency feels that there will be no adverse effects incurred as a result of the proposed project. However, should you find that an extension to the response time is necessary, a reasonable amount may be granted upon request.

If you have any questions or need additional information, please feel free to contact me at (317) 616-1017. Thank you for your time and cooperation.

Sincerely,

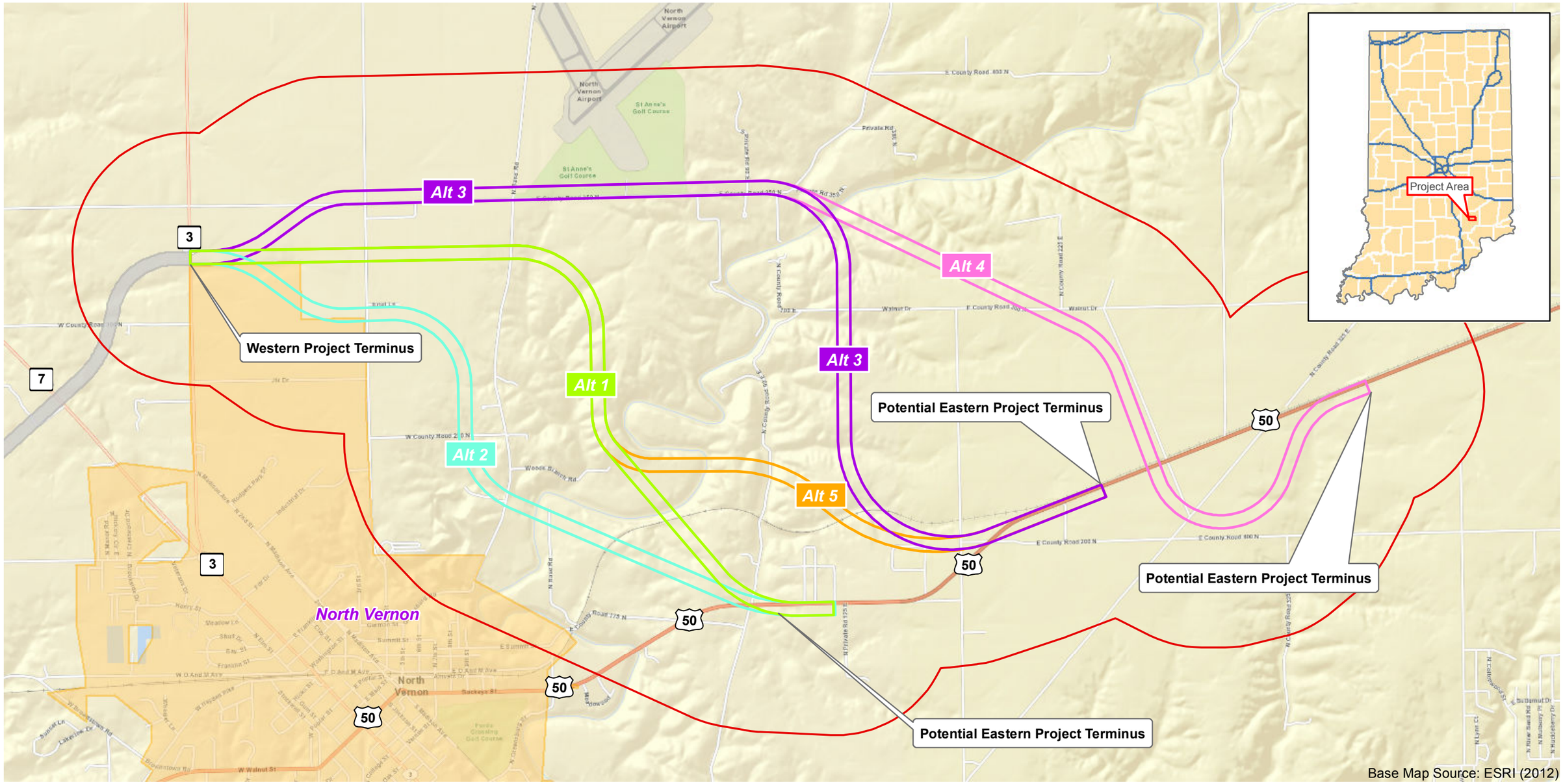
PARSONS

Dan Prevost, AICP CTP
Environmental Lead

Attachment(s)

cc: Michelle Allen, FHWA
Bren George, FHWA
Mayor Harold Campbell, City of North Vernon
Jeff Day, County Commission
Larry Fagersten, Camp Atterbury
Tom Moore, Friends of the Muscatatuck River
Mark Dollase, Indiana Landmarks
Laura Renwick, Indiana Landmarks
Rob Carter, IDNR
John Carr, IDNR-DHPA
Patrick Carpenter, INDOT–Cultural Resources Section
Dave Gerth, Jennings County 911
Scott Hurtle, Area Planning Commission
Cheryl Trisler, Jennings County Area Plan
Richard Schneider, Jennings County Board of Commissioners
Edward Maschino, Jennings County Council
Tim Monaghan, Jennings County E.M.A.
Ralph Manlief, Jennings County Farm Bureau
Chris Asher, Jennings County Historical Society
Lilian Carmer, Jennings County Preservation Association
Thomas J. Rice, Jennings County Historian
Terry Sargeant, Jennings County School Corporation
Sheriff Steve Hoppock, Jennings County Sheriff's Department

Jeff Fish, Jennings NW Regional Utility
Lynn Dennis, Nature Conservancy
Dave Shaw, North Vernon City Council
Chief Rick McGill, North Vernon Fire Department
Ryan Curry, North Vernon Municipal Airport
Chief James Webster, North Vernon Police
Bill Reichenbach, North Vernon Utilities
Robert McGriff, Selmier State Forest
Don Biehle, Southeast Purdue Agricultural Center
Brett Caldwell, Jennings County Historian
Chris Kelsey, MUTC
Scott Pruitt, U.S. Fish and Wildlife Service Bloomington Field Office
Jane Hardisty, Natural Resource Conservation Service
Nancy Hasenmueller, Indiana Geological Survey
Kevin Rector, Indiana Department of Transportation
Earnest Giaquinta, Midwest Regional Office National Park Service
Christie Stanifer, Indiana Department of Natural Resources
Virginia Laszewski, U.S. Environmental Protection Agency, Region 5
Brad Bender, FPBH, Inc
Floyd Leonard, Miami Tribe of Oklahoma
Lawrence Frank Snake, Delaware Tribe of Oklahoma
U.S. Department of Housing & Urban Development
Indiana Department of Environmental Management
Department of the Army Louisville District, Corps of Engineers
Wayne-Hoosier National Forest, U.S. Forest Service
North Vernon Parks & Recreation



Legend

- Alternative 1
- Alternative 2
- Alternative 3
- Alternative 4
- Alternative 5
- SR 750 - Under Construction
- Populated Areas
- Half Mile Radius

N

0 2,250 4,500 9,000 Feet

1 inch = 2,250 feet

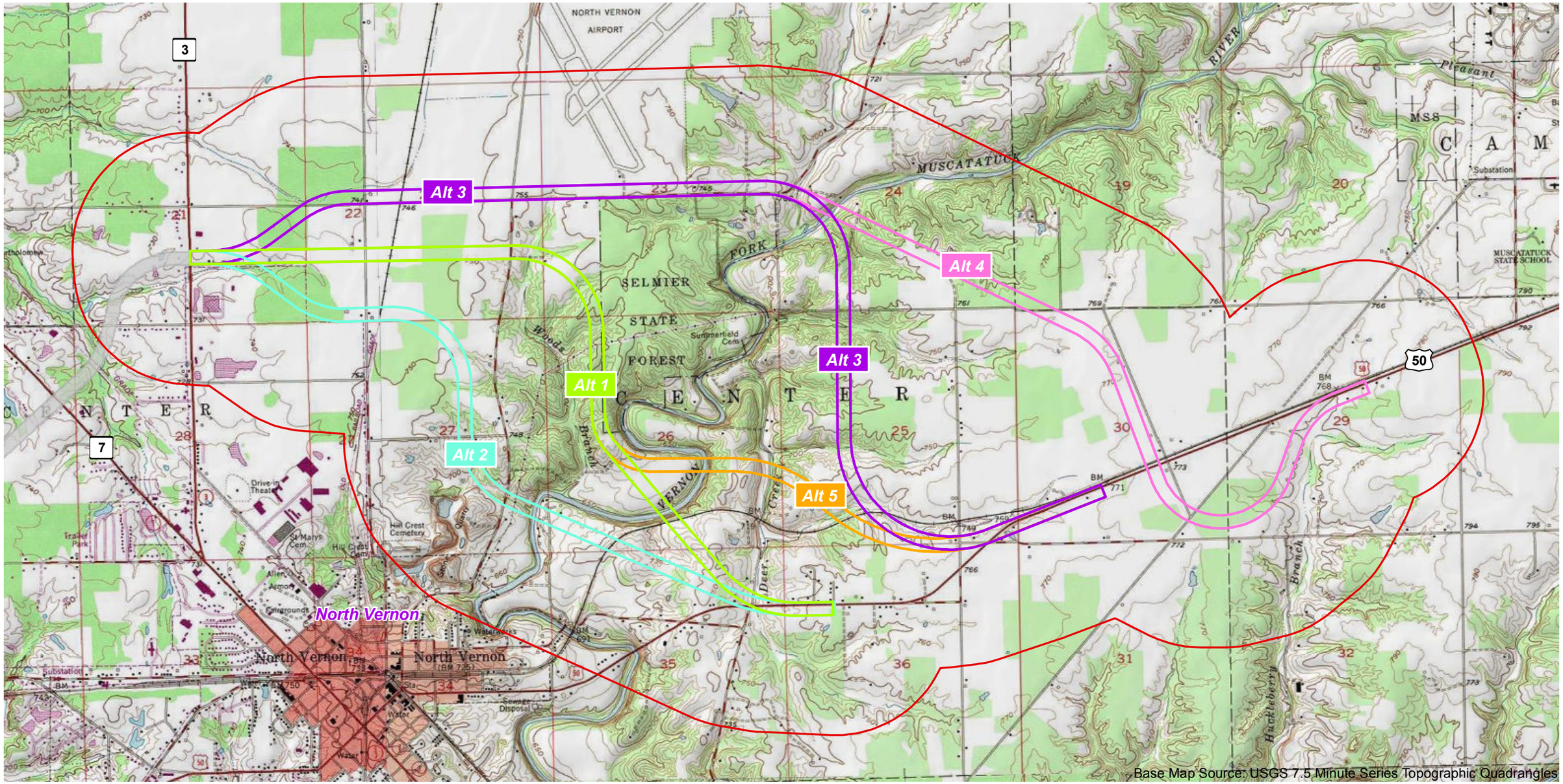
US 50 EAST BYPASS

Figure 1 - Project Location

Early Coordination Letter

Des. No. 1173374	
Date: 08/09/2012	
Created By: RJC	

PARSONS



Base Map Source: USGS 7.5 Minute Series Topographic Quadrangles

Legend

- Alternative 1
- Alternative 2
- Alternative 3
- Alternative 4
- Alternative 5
- SR 750 - Under Construction
- Half Mile Radius

0 2,250 4,500 9,000 Feet

1 inch = 2,250 feet

US 50 EAST BYPASS

Figure 2 - USGS Topographic

Early Coordination Letter

Des. No. 1173374	
Date: 08/09/2012	
Created By: RJC	

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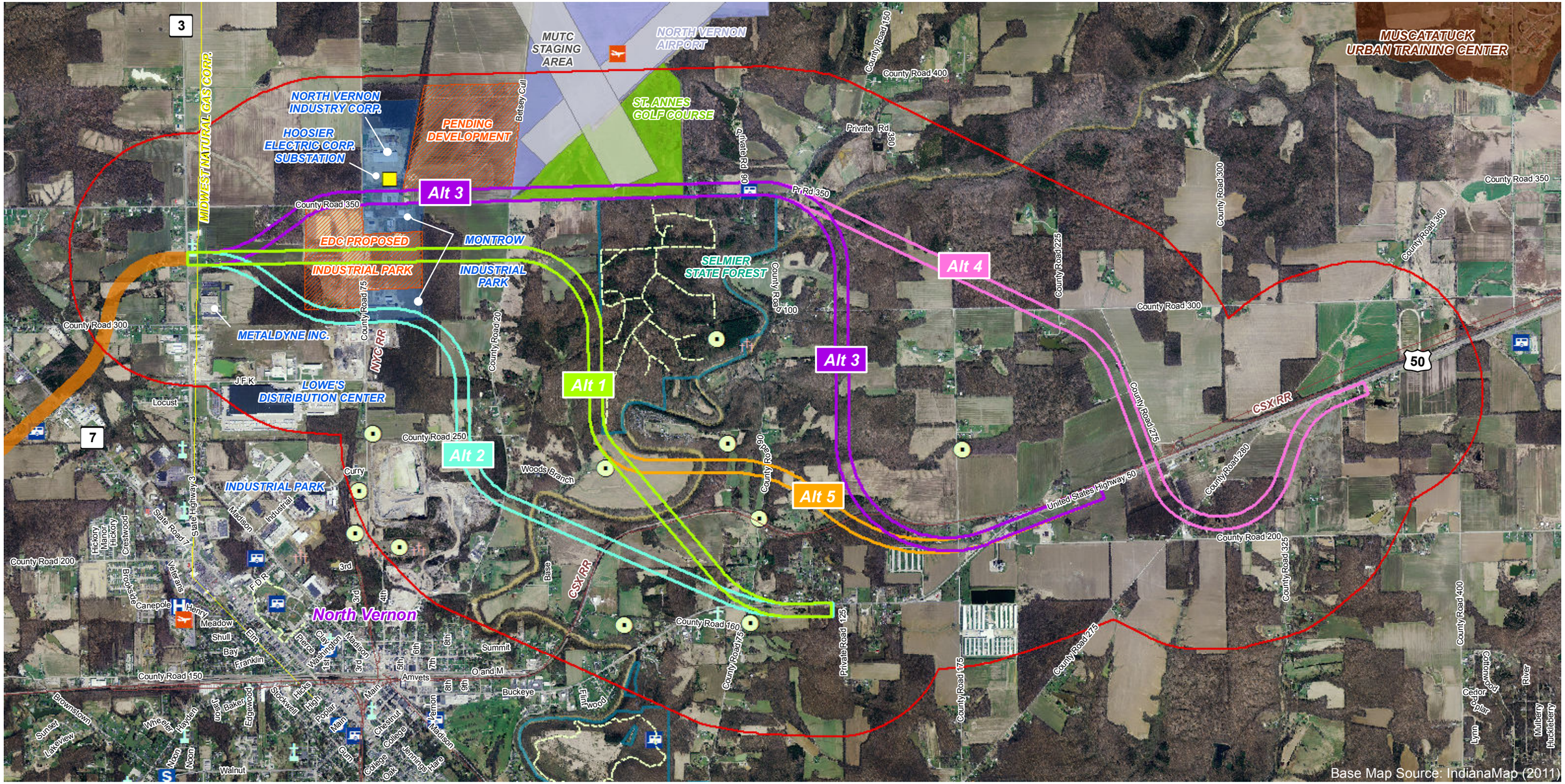

Legend

- SR 750 - Under Construction
- Cemeteries
- Railroads
- Religious Centers
- Trails
- Airports
- Hospitals
- Recreational Facilities
- Schools
- Pipelines
- Golf Course
- Historic Structure
- Managed Lands
- Runways
- Substation
- Half Mile Radius

N

0 2,250 4,500 9,000 Feet

1 inch = 2,250 feet

US 50 EAST BYPASS

Figure 3a - Infrastructure

Early Coordination Letter

Des. No. 1173374	
Date: 08/09/2012	
Created By: RJC	

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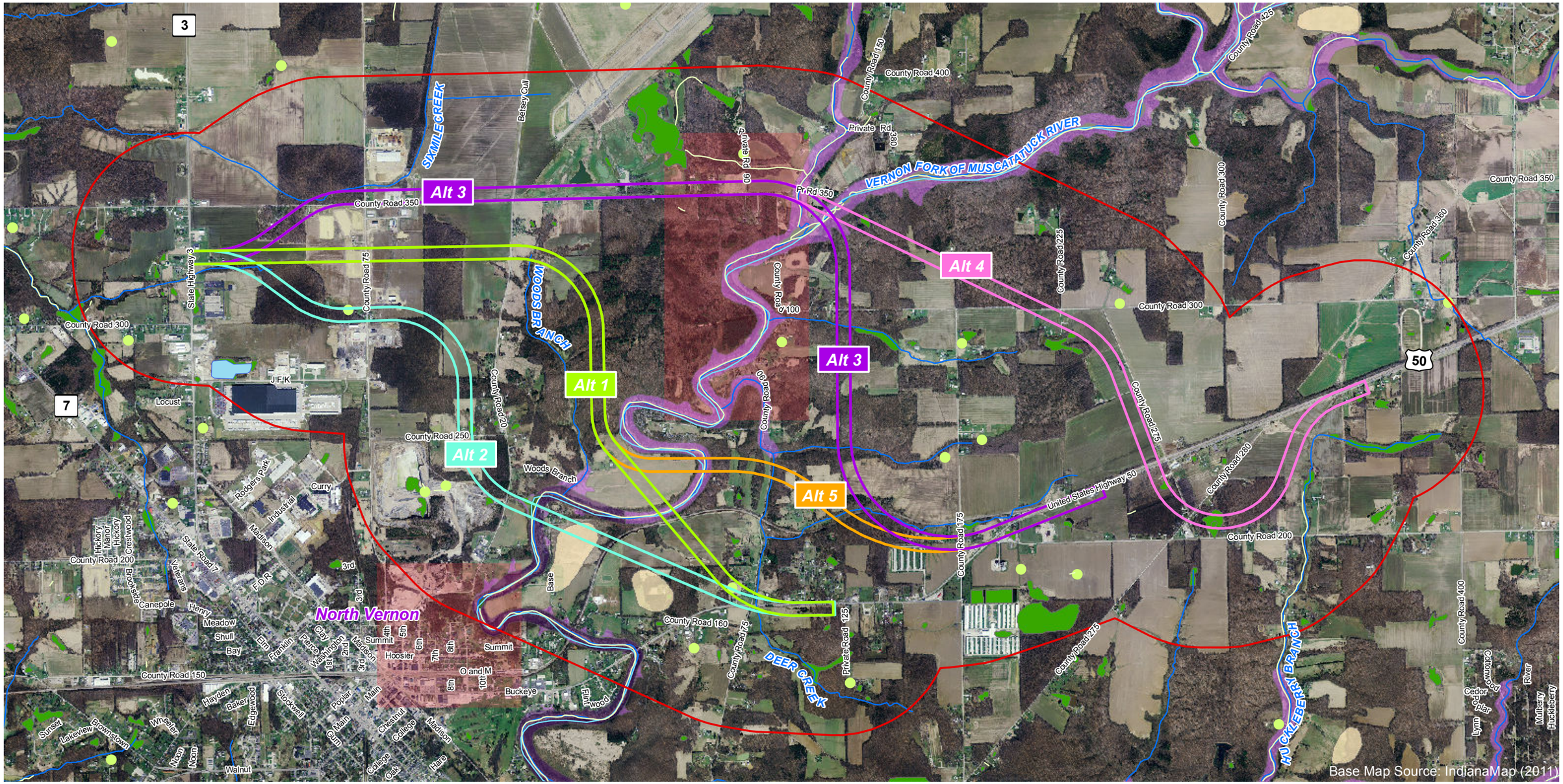

Legend

- Canal Routes Historic
- Wetland Line
- Waters
- Wetland Points
- Impaired Streams
- Streams
- Sinkhole Areas and Sinking Stream Basins
- Canal Structures Historic
- Floodplains
- Floodway
- Wetlands
- Impaired Lakes
- Cave Entrance Density
- Karst Springs
- Half Mile Radius

N

0 2,250 4,500 9,000 Feet

1 inch = 2,250 feet

US 50 EAST BYPASS

Figure 3b - Water Resources

Early Coordination Letter

Des. No. 1173374	
Date: 08/09/2012	
Created By: RJC	

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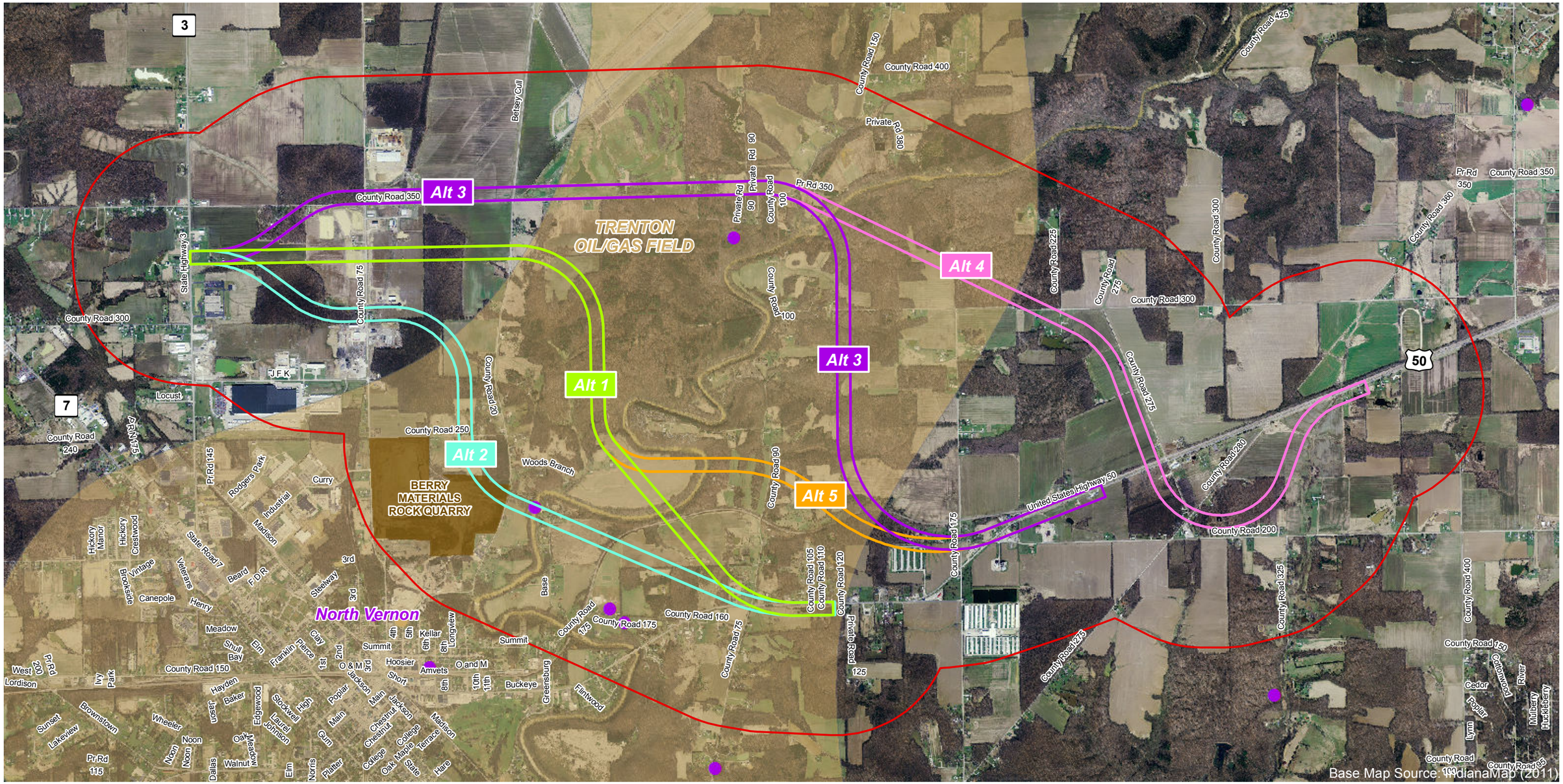

Legend

- Industrial Minerals Sites
- Sand and Gravel Pits Abandoned
- Oil and Gas Fields
- Mines Surface
- Mines Abandoned
- Quarries Abandoned
- Mines Underground
- Half Mile Radius

N

0 2,250 4,500 9,000 Feet

1 inch = 2,250 feet

US 50 EAST BYPASS

Figure 3c - Mining/Mineral Exploration Resources

Early Coordination Letter

Des. No. 1173374	
Date: 08/09/2012	
Created By: RJC	

INDIANA DEPARTMENT OF TRANSPORTATION INDOT

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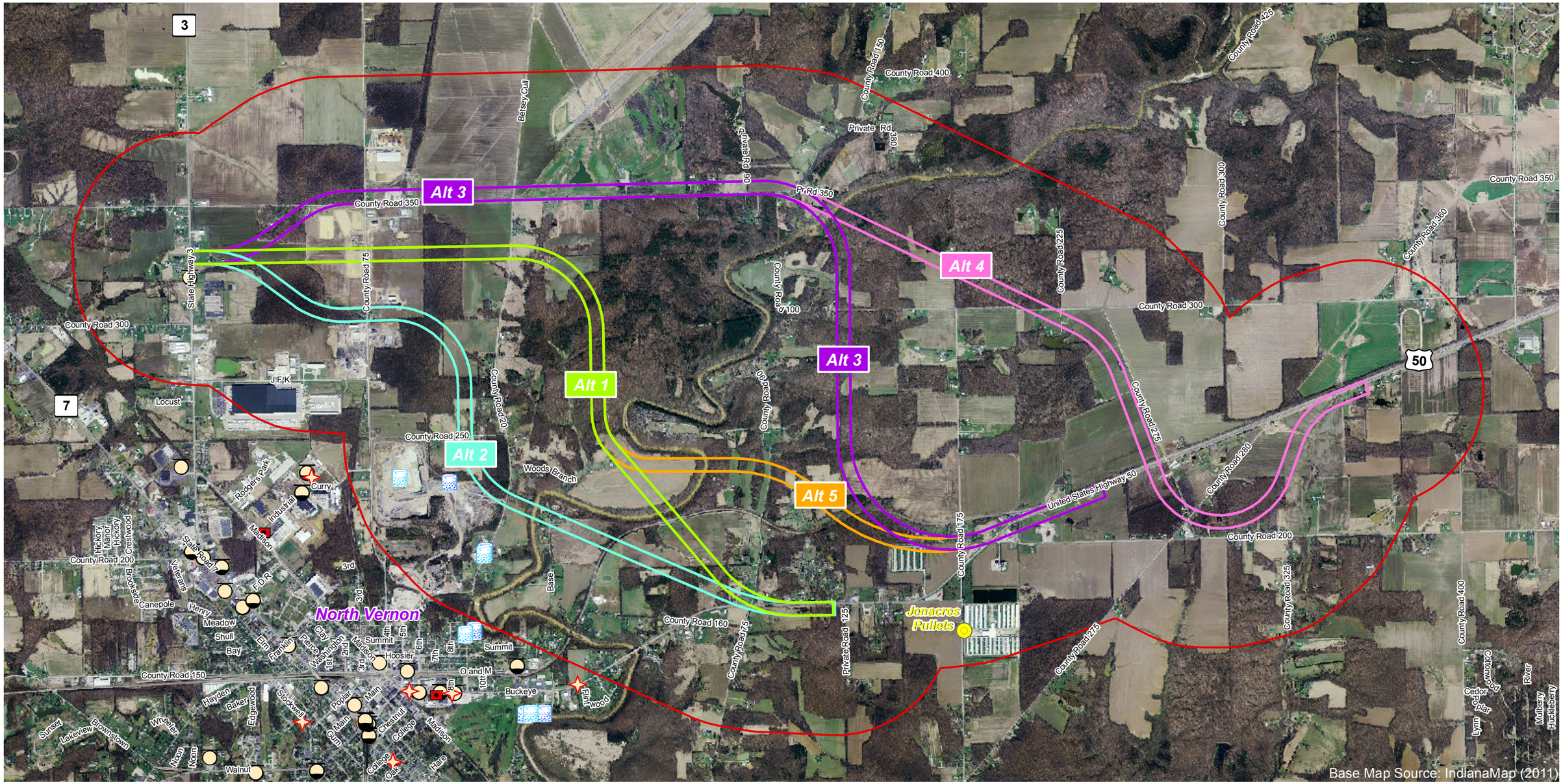

Legend

- Confined Feeding Operations
- Industrial Waste Sites
- Open Dump Waste Sites
- NPDES Facilities Corrective
- Restricted Waste Sites
- Solid Waste Landfills
- Tire Waste Sites
- VRP Sites
- Waste Transfer Stations
- Construction Demolition Waste
- LUST Sites
- NPDES Pipe Locations
- Corrective Action Sites
- Septage Waste Sites
- Superfund Sites
- UST Sites
- Brownfields
- Waste Treatment Storage Disposal
- Half Mile Radius

0 2,250 4,500 9,000 Feet

1 inch = 2,250 feet

US 50 EAST BYPASS

Figure 3d - Hazardous Material Concerns

Early Coordination Letter

Des. No. 1173374	
Date: 08/09/2012	
Created By: RJC	

PARSONS

Agency Coordination

Questionnaire for the Indiana Department of Transportation,
Office of Aviation

Project No: _____ **Des/Bridge No:** 1173374

Project Description:
US 50 North Vernon Bypass – East Designation, North Vernon, Jennings, Indiana

Requested By:

Parsons

Are there any existing or proposed airports within or near the project limits? YES

If yes, describe any potential conflicts with air traffic during or after the construction of the project.

The North Vernon Airport is located approximately 1’300’ North of the project.

If any permanent structures or equipment utilized for the project penetrates the 100:1 slope from the airport FAA Form 7460 (Notice of Proposed contstruction or alteration) must be filed. For assistance contact Marcus Dial, INDOT Office of Aviation, 317-232-1494.

This information was furnished by:

Name: James W. Kinder
Title: Chief Airport Inspector – INDOT Office of Aviation
Date: August 17, 2012

Project No. none Des. No. 1173374

Project Description: US 50 North Vernon Bypass

Name of Organization requesting early coordination:

Parsons

QUESTIONNAIRE FOR THE INDIANA GEOLOGICAL SURVEY

1) Do unusual and/or problem ( ) geographic, ( ) geological, ( ) geophysical, or ( ) topographic features exist within the project limits? Describe:
none

2) Have existing or potential mineral resources been identified in this area? Describe:
The project site is underlain by Devonian and Silurian carbonate rocks which have been mined within and near the project site as a source of crushed-stone products.

3) Are there any active or abandoned mineral resources extraction sites located nearby? Describe: An active quarry is located near the southwest margin of the proposed project. Five abandoned quarries are located within or close to the proposed project area.

This information was furnished by:

Name: Walter A. Hasenmueller Title: Geologist
Address: 611 North Walnut Grove, Bloomington, IN 47405
Phone: 812-855-7428 Date: August 17, 2012

Prevost, Daniel

From: Harold Campbell [mayor@northvernon-in.gov]
Sent: Friday, August 17, 2012 10:50 AM
To: Prevost, Daniel
Subject: Designation # 1173374 - US 50 Bypass - East

Dan,

Thank you for your efforts in project #1173374, US 50 Bypass-East.

In looking at the eastern part of the Bypass and discussing it with my stakeholders, we feel that we cannot accomplish some of our expectations if we build the eastern half so close to the boundary of the city of North Vernon.

In saying this, we would currently support a combination of Alternatives 3 & 4. We do realize there will be financial concerns about this longer route, but this will give us an easier way to accomplish our goals.

I am looking forward to the CAC meeting to discuss this further.

(If you need this response in letter form, please let me know.)

Sincerely,

The Honorable Mayor Harold Campbell
275 E. Main Street
North Vernon, IN 47265

Community Advisory Committee Form

Name Warren Cutshall

Representing St. Anne's Golf Course

Street Address 360 E. CR 350 N

City NORTH VERNON Zip Code 47265

Daytime Phone Number 812-219-7610 Fax Number 812-332-6818

E-mail Address WWCutshall@yahoo.com

Comments about US 50 North Vernon Bypass Project:

St. Anne's Golf Course and its owners recognize the importance of this Bypass and wish to cooperate in finding the best result - even if loss of portions of the course are part of the plan.

Please mail or fax completed form to:

Dan Prevost, AICP CTP
Public Involvement Lead, Parsons
US 50 North Vernon Bypass Project
101 West Ohio Street, Suite 2121
Indianapolis, IN 46204
Fax: (317) 616-1033

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We Protect Hoosiers and Our Environment.

Mitchell E. Daniels Jr.
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
Toll Free (800) 451-6027
www.idem.IN.gov

August 24, 2012

66-33
Mr. Dan Prevost
Parsons
101 West Ohio Street, Suite 2121
Indianapolis, Indiana 46204

Dear Mr. Prevost:

RE: Wellhead Protection Area Proximity Determination
Designation Number 1173374, US 50 Bypass, North Vernon, Indiana, Jennings County

Upon review of the above referenced site, it has been determined that the site **is not located** within a Wellhead Protection Area. This information is accurate to the best of our knowledge. However, there are in some cases, a few factors that could impact the accuracy of this determination. For example, some Wellhead Protection Area Delineations have not been submitted or many have not been approved by this office. In these cases, we use a 3,000 foot fixed radius buffer to make the proximity determination. To find the status of a Public Water Supply System's Wellhead Protection Area Delineation, please visit our tracking database at http://www.in.gov/idem/4289.htm.

Note, the Drinking Water Branch has launched a new self service feature which allows one to determine a wellhead proximity without submitting the application form. Use the following instructions: 1) Go to http://idemmaps.idem.in.gov/apps/whpa/ ; 2) Using the icon/tools in the upper right hand corner of the application, zoom to your site location or address; and 3) Once you have located your site of interest click on the "I" icon, and then using your mouse click on your location. The site wellhead protection area proximity determination will be displayed below the icon tools in the upper right hand corner of tool. In the future, please consider using this self service feature if it is suitable for your needs.

If you have any additional questions, please feel free to contact me at the address above or at (317) 234-7476.

Sincerely,

James Sullivan, Chief
Ground Water Section
Drinking Water Branch
Office of Water Quality

JS:gml

United States Department of the Interior
Fish and Wildlife Service

Bloomington Field Office (ES)
620 South Walker Street
Bloomington, IN 47403-2121
Phone: (812) 334-4261 Fax: (812) 334-4273

September 10, 2012

Mr. Dan Prevost
Parsons
101 West Ohio Street, Suite 2121
Indianapolis, Indiana 46240

Project:	North Vernon Bypass East
Road(s):	US 50
Waterway:	Vernon Fork of Muscatatuck River and tributaries
Work Type:	Highway realignment/new route construction
County(ies):	Jennings

Dear Mr. Prevost:

This responds to your letter dated August 14, 2012 requesting U.S. Fish and Wildlife Service (FWS) comments on the aforementioned project. These comments are consistent with the intent of the National Environmental Policy Act of 1969, the Endangered Species Act of 1973, and the U. S. Fish and Wildlife Service's Mitigation Policy.

Your letter states that the proposed east bypass starts at the eastern terminus of the west leg of the bypass (SR 3) and terminates along the existing US 50 route east of North Vernon. Several preliminary alternatives have been proposed, with multiple eastern termini, and additional alternatives are likely to be developed. Detailed environmental studies will not be conducted until preliminary alternative screening has been completed. We are providing the following general comments on fish and wildlife issues of concern, and will provide more detailed comments as project development progresses.

1. Stream Impacts

All route alternatives will require multiple stream impacts, including a new crossing of the Vernon fork of the Muscatatuck River. The project should be located and designed to minimize stream/riparian impacts, avoid areas of high quality aquatic habitats such as rock riffles and mussel beds, and avoid the need to realign or relocate stream channels. The FWS would oppose realignments of perennial streams and good-quality intermittent streams. The environmental document should provide fish community and stream habitat information from existing data or, as appropriate, from site-specific stream surveys. Stream impacts for each alternative should be

estimated in terms of the number of crossings, quality of the stream at each crossing and extent of impacts at each crossing.

2. Terrestrial Wildlife Habitat

All route alternatives should be designed to minimize forest loss and fragmentation. Bird surveys should be conducted in large forested areas during nesting season.

3. Wetlands

Wetlands are present in the floodplains of the Muscatatuck River and its tributaries, and on Cobbsfork soils in interfluvial areas. The National Wetland Inventory map do not shows wetland impacts for most route alternatives, however the perched interfluvial wetlands are often not mapped correctly. A preliminary wetland survey should be conducted for all routes, using all available mapping and orthophotography resources. A comprehensive wetland delineation should be conducted for alternatives carried forward as soon as access becomes available. Wetland impacts should be avoided to the extent possible, and unavoidable impacts should be mitigated in accordance with the MOU between INDOT, the FWS and the Indiana DNR.

4. Migratory Birds

Executive Order #13186, issued on January 10, 2001, directs each federal agency taking actions having or likely to have a negative effect on migratory bird populations to work with the FWS to develop an agreement to conserve migratory birds. In addition to avoiding or minimizing impacts to migratory bird populations, agencies are expected to take reasonable steps to restore and enhance habitat and incorporate migratory bird conservation into agency planning processes whenever possible. The Environmental Document will need to address this issue.

Although no longer federally listed under the Endangered Species Act, bald eagles and their foraging and winter roosting habitat remain protected under the Bald and Golden Eagle Protection Act (BGEPA) and Migratory Bird Treaty Act (MBTA). Take and/or disturbance of bald and golden eagles is prohibited without a permit. The FWS recommends taking all practical measures to minimize detrimental effects on eagles. Guidelines to avoid disturbance of eagle nests are available at http://www.fws.gov/midwest/eagle/guidelines/index.html. Recent amendments to the BGEPA allow the limited issuance of permits to authorize take of eagles when it is associated with otherwise lawful activities, cannot practicably be avoided, and is compatible with the goal of stable or increasing eagle breeding populations.

There are currently no bald eagle nests within the study area, however the Muscatatuck River corridor provides suitable nesting habitat, and bald eagles are rapidly expanding their nesting range in Indiana.

5. Water Quality

The environmental document should include a discussion of best management practices to be used to avoid erosion and runoff of soil and other pollutants during construction, and to mitigate

the effects of polluted road runoff from traffic on new routes.

6. Karst

Most of the study area is underlain by karst geologic formations. A karst survey should be conducted in accordance with our karst MOU with INDOT. All route alternatives should be designed to avoid adverse physical and water quality/quantity impacts on significant karst resources (e.g. caves, springs, sinkholes).

7. Secondary Impacts

New route alternatives often generate the potential for extensive habitat impacts from secondary development. Secondary impacts should be minimized by not locating new routes near good quality habitats and sensitive areas, and by implementing access control near such areas.

Endangered Species

The proposed project is within the range of the federally endangered Indiana bat (*Myotis sodalis*).

Indiana bats hibernate in caves, then disperse to reproduce and forage in relatively undisturbed forested areas associated with water resources during spring and summer. Research has shown that they will inhabit fragmented landscapes with adequate forest for roosting and foraging. Young are raised in nursery colony roosts in trees, typically near drainageways in undeveloped areas.

There are numerous recent summer records of Indiana bats from the Muscatatuck River watershed in Jennings, Ripley and Jefferson Counties, therefore there are substantial concerns about potential impacts on Indiana bats. INDOT commissioned a mist-net bat survey of the project study area in August of this year. The survey captured a reproductive Indiana bat and attempted to track it to a roost tree using radio telemetry. The transmitter signal could not be detected despite extensive telemetry efforts, thus we do not know the location of any roost trees for that bat.

Because Indiana bats are now known to be present in the study area, the project may adversely affect a federally endangered species. Informal consultation for the US 50 project is ongoing, pursuant to Section 7 of the Endangered Species Act. Because the route alternatives to be carried forward from preliminary screening have not yet been selected, and because the exact route alignments are not known, no determinations can be made at this time. INDOT will eventually need to provide a biological assessment (BA) in order to determine whether formal consultation is necessary. The BA should address alignments carried forward to allow the FWS to determine the alignment(s) that will avoid or minimize adverse effects on the Indiana bat.

This endangered species information is provided for technical assistance only, and does not fulfill the requirements of Section 7 of the Endangered Species Act. Please coordinate with the Indiana Department of Natural Resources for comprehensive information on species listed as endangered or special concern by the State of Indiana.

We appreciate the opportunity to comment at this early stage of project planning. As project plans progress please continue to coordinate with our office concerning measures to minimize impacts on fish and wildlife resources. If you have any questions about our recommendations, please call Mike Litwin at (812) 334-4261 (Ext. 205).

Sincerely yours,

Michael A. Litwin

Scott E. Pruitt
Field Supervisor

cc: Federal Highway Administration, Indianapolis, IN
Christie Stanifer, Indiana Division of Fish and Wildlife, Indianapolis, IN

Prevost, Daniel

From: Litwin, Michael [michael_litwin@fws.gov]
Sent: Thursday, January 17, 2013 11:03 AM
To: Prevost, Daniel
Subject: Re: US 50 North Vernon Bypass - Des No 1173374 - Indiana Bat Habitat Assessment

Dan

Scott Pruitt and I discussed route 6D with regard to Section 7 consultation today. We agreed that it is by far the best route to minimize habitat impacts. It will not directly affect enough habitat to cause take, but the remaining concerns (which would be true for all alternatives) are:

1. Secondary development

2. Connectivity -- it separates the habitat blocks near the west end, including the woodlot where the Indiana bat was captured, from the larger habitat areas to the east.

To address those issues, please make sure that the BA contains adequate information on the width of the cleared highway corridor (barrier effect), the extent of access control to the highway, and the forecast for secondary development impacts on other habitat parcels.

Michael Litwin
US Fish and Wildlife Service
620 South Walker Street
Bloomington, IN 47403
(812) 334-4261 ext. 205

On Wed, Jan 9, 2013 at 2:37 PM, Prevost, Daniel <Daniel.Prevost@parsons.com> wrote:

Mike –

EcoTech will be preparing a biological assessment for INDOT/FHWA's use in making a determination. That will hopefully occur prior to publication of the EA document. I'll keep you posted.

If, as your team reviews the habitat impact analysis, you have any questions/comments, certainly let us know.

Thanks.

- Dan

From: Litwin, Michael [mailto:michael_litwin@fws.gov]
Sent: Wednesday, January 02, 2013 9:38 AM
To: Prevost, Daniel
Subject: Re: US 50 North Vernon Bypass - Des No 1173374 - Indiana Bat Habitat Assessment

I reviewed the assessment last week. I think it is a good report and adequately covers the information needs that we requested. It compared impacts of alignment alternatives but did not attempt to draw an overall conclusion with regard to Section 7 of the Endangered Species Act. I agree with the conclusion that Alternative 6D would have the least impact on Indiana bats. After everyone here returns from the holidays I will discuss the results with our endangered species staff and draw a conclusion as to whether it will result in take and require formal consultation. Has INDOT/FHWA made a Section 7 determination or will that come in the EA?

Michael Litwin

US Fish and Wildlife Service

620 South Walker Street

Bloomington, IN 47403

(812) 334-4261 ext. 205

On Fri, Dec 21, 2012 at 4:15 PM, Prevost, Daniel <Daniel.Prevost@parsons.com> wrote:

Mike and Matt –

Eco-Tech has completed their assessment of the project's potential to impact Indiana bat habitat in the corridor and it is ready for your review. Due to the file's size, we have posted it on our ftp site, accessible here:

Please let us know if you have any comments on the document.

Last week, INDOT selected Alternative 6D as the preferred alternative. Eco-Tech's assessment indicated that this alternative would have the lowest impact on Indiana bat habitat based on each of the metrics they considered.

We look forward to continuing our coordination on the project.

Thank you and have a nice long weekend.

- Dan

Dan Prevost, AICP CTP
Principal Planner/Project Manager

Office – 317.616.1017 ♦ Mobile – 513.368.0514
daniel.prevost@parsons.com ♦ www.parsons.com

DNR
Indiana Department of Natural Resources

Mitchell E. Daniels, Jr., Governor
Robert E. Carter, Jr., Director

Division of Nature Preserves
402 W. Washington St., Rm W267
Indianapolis, IN 46204-2739

September 11, 2012

Richard J. Connolly
Parsons
101 W. Ohio, Suite 2121
Indianapolis, IN 46204

Dear Richard Connolly:

I am responding to your request for information on the endangered, threatened, or rare (ETR) species, high quality natural communities, and natural areas documented from the US 50 bypass study area, North Vernon, Indiana. The Indiana Natural Heritage Data Center has been checked and following you will find information on the ETR species documented within the project study area.

For more information on the animal species mentioned, please contact Christie Stanifer, Environmental Coordinator, Division of Fish and Wildlife, 402 W. Washington Room W273, Indianapolis, Indiana 46204, (317)232-8163.

The information I am providing does not preclude the requirement for further consultation with the U.S. Fish and Wildlife Service as required under Section 7 of the Endangered Species Act of 1973. If you have concerns about potential Endangered Species Act issues you should contact the Service at their Bloomington, Indiana office.

U.S. Fish and Wildlife Service
620 South Walker St.
Bloomington, Indiana 47403-2121
812-334-4261

At some point, you may need to contact the Department of Natural Resources' Environmental Review Coordinator so that other divisions within the department have the opportunity to review your proposal.

For more information, please contact:

Department of Natural Resources
attn: Christie Stanifer
Environmental Coordinator
Division of Fish and Wildlife
402 W. Washington Street, Room W273
Indianapolis, IN 46204
(317)232-8163

Please note that the Indiana Natural Heritage Data Center relies on the observations of many individuals for our data. In most cases, the information is not the result of comprehensive field surveys conducted at particular sites. Therefore, our statement that there are no documented significant natural features at a site should not be interpreted to mean that the site does not support special plants or animals.

Due to the dynamic nature and sensitivity of the data, this information should not be used for any project other than that for which it was originally intended. It may be necessary for you to request updated material from us in order to base your planning decisions on the most current information.

Thank you for contacting the Indiana Natural Heritage Data Center. You may reach me at (317)232-8059 if you have any questions or need additional information.

Sincerely,

Ronald P. Hellmich

Ronald P. Hellmich
Indiana Natural Heritage Data Center

Enclosure: Data sheet

Endangered, Threatened and Rare Species and Significant Natural Areas Documented Within the US 50 Bypass Study Area, North Vernon, Indiana

Type	Species Name	Common Name	Fed	State	Town Range	Date	Comments
Mammal	Mustela nivalis	Least Weasel		SSC	007N009E 30	2002-04-14	
Reptile	Clonophis kirtlandii	Kirtland's Snake		SE	007N009E 30 SEQ	1997-05	
SELMIER STATE FOREST							
High Quality Natural Community	Primary - cliff limestone	Limestone Cliff		SG	007N008E 23 SEQ SEQ	1985?	
VIOLET AND LOUIS J. CALLI SR. NATURE PRESERVE							
Vascular Plant	Poa wolfii	Wolf Bluegrass		SR	007N008E 35 SWQ	1986-05-15	
Vascular Plant	Spiranthes lucida	Shining Ladies'-tresses		SR	007N008E 35	1930-05	
Vascular Plant	Waldsteinia fragarioides	Barren Strawberry		SR	007N008E 35	1933-04	
High Quality Natural Community	Forest - upland dry-mesic	Dry-mesic Upland Forest		SG	007N008E 35 SWQ	1999	
Vascular Plant	Sullivantia sullivantii	Sullivantia		ST	007N008E 35 SEQ NWQ	2011-07-06	
Reptile	Terrapene carolina carolina	Eastern Box Turtle		SSC	007N008E 35	2010-07-13	
High Quality Natural Community	Primary - cliff limestone	Limestone Cliff		SG	007N008E 35 SWQ & SEQ NWQ	1986-05-15	

Fed: LE = listed federal endangered; LT = listed federal threatened; C = federal candidate species

State: SE = state endangered; ST = state threatened; SR = state rare; SSC = state species of special concern; SG = state significant; WL = Watch List; no rank = unlisted species but tracked due to rarity concerns.

THIS IS NOT A PERMIT

State of Indiana
DEPARTMENT OF NATURAL RESOURCES
Division of Fish and Wildlife

Early Coordination/Environmental Assessment

DNR #: ER-16517 **Request Received:** August 16, 2012

Requestor:
Parsons Transportation Group Inc
Richard Connolly
101 West Ohio Street Suite 2121
Indianapolis, IN 46204

Project: US 50 North Vernon bypass - East; Des. # 1173374

County/Site info: Jennings

The Indiana Department of Natural Resources has reviewed the above referenced project per your request. Our agency offers the following comments for your information and in accordance with the National Environmental Policy Act of 1969.

If our agency has regulatory jurisdiction over the project, the recommendations contained in this letter may become requirements of any permit issued. If we do not have permitting authority, all recommendations are voluntary.

Regulatory Assessment: This proposal will require the formal approval for construction in a floodway under the Flood Control Act, IC 14-28-1. Please submit a copy of this letter with the permit application.

Natural Heritage Database: The Natural Heritage Program's data have been checked.
The species and state significant communities below have been recorded within ½ mile of three areas of the project. The Division of Nature Preserves does not anticipate any impacts to the listed plant species or communities as a result of the project.

I) South boundary of project:

A. PLANTS:
1. Sullivantia (Sullivantia sullivantii) - state threatened
3. Shining Ladies'-tresses (Spiranthes lucida) - state rare
2. Barren Strawberry (Waldsteinia fragarioides) - state rare

B. COMMUNITIES:
1. Dry-mesic Upland Forest
2. Limestone Cliff

C. ANIMAL (documented in 2010):
Eastern Box Turtle (Terrapene carolina carolina) - state special concern

II) Alternate Route 3: Limestone Cliff community.

III) Alternate Route 4 (crosses US 50):

ANIMALS:
1. Kirtland's Snake (Clonophis kirtlandii) - state endangered
2. Least Weasel (Mustela nivalis) - state special concern

Fish & Wildlife Comments: Avoid and minimize impacts to fish, wildlife, and botanical resources to the greatest extent possible, and compensate for impacts. The following are recommendations that address potential impacts identified in the proposed project area:

A) Listed Species:
We do not foresee any impacts to the least weasel resulting from the project.

To minimize impacts to the eastern box turtle and kirtland's snake, where any excavation/digging will occur, we recommend that construction only take place from April through October. This will help minimize the threats to hibernating kirtland's snakes and eastern box turtles that would be unable to get away. We also recommend that all logs, trash, or any other type of debris (including riprap) be removed from the construction zone at least one week prior to the start of work to keep these species from hiding underneath the debris. If any vegetation will be removed during work, this should also be done one week prior to construction. After the trash and vegetation are removed, a trenched-in silt fence should be placed around the construction area. Once the silt fence is installed, a walk-through should be conducted to look for any eastern box turtles. Also, any equipment, materials, or debris left overnight in the area should be checked for the presence of kirtland's snakes prior to the start of work the next day.

Any reptiles or amphibians encountered in the project area should be removed, unharmed, and placed outside the construction area. Any turtles encountered should be moved to the nearest forested area. An accredited herpetologist should be hired to translocate state or federally listed herps from current locations within the construction area to an area of suitable habitat. Also, we recommend contacting and coordinating with Sarabeth Klueh, Division of Fish and Wildlife herpetologist, at (812) 334-1137 or sklueh@dnr.in.gov for guidance regarding development of herpetile removal plans. Removal of any state endangered species will require a permit issued by the Division of Fish and Wildlife. Please contact Linnea Petercheff at (317) 233-6527 or lpetercheff@dnr.in.gov regarding this permit, if needed.

B) Alternatives:
For any alternative, we recommend a route which results in the least impacts to fish, wildlife, and botanical resources. Environmentally preferable transportation options should focus on low impact alternatives that minimize road widening and that minimizes the need for new-terrain road construction. New terrain road alignments should be laid out with avoidance and minimization of environmental impacts as a top priority because the environmental impacts from road construction are typically permanent and irreversible. We strongly recommend further study seeking to produce alternatives with lower environmental impacts.

Alternative 1 is not recommended due to the large-scale impacts to forested areas adjacent to Selmier State Forest and potential impacts to rare and unique eastern hemlock relict populations. Moving the north-south segment of Alternative 1 west of Woods Branch and then joining with Alternative 2 at the river crossing (if no eastern hemlock relict populations are found at the location) could make Alternative 1 more environmentally acceptable.

Alternative 2 crosses several large forested areas on the southwest and southeast side of the EDC Proposed Industrial Park after which it proceeds south through several more forested tracts of substantial size. This alternative crosses the river at a point where some substantial wetlands are located on the west banks and, although the river does not have north-facing bluffs at this location, it is unknown (due to a lack of surveys) whether or not relict eastern hemlock populations could be impacted.

Alternative 2 is not recommended as it will impact large amounts of forested habitat and potentially eastern hemlock relict populations. However, modifying Alternative 2 by following Alternative 1 from SR 3 to CR 75, then proceeding south along this path to near CR 250 before resuming the proposed Alternative 2 alignment could substantially reduce this alternative's impacts, and result in a viable alternative.

Alternatives 3 and 4 follow an existing road on the north side of Selmier State Forest and cross the Vernon Fork Muscatatuck Forest east of the state forest. This alignment then will impact deep forested valleys southeast of the river. The forested areas along the southeast side of the river generally follow the top of the tributary valleys resulting in large areas of entirely forested stream valleys. The expanse of forested habitat as measured from the river banks is about 1000' wide at the narrowest point near the potential road crossing.

The Alternative 3 segment east of the river proceeds south after the river crossing through five (5) separate steep-sloped forested valleys and would result in unreasonable impacts to fish, wildlife, and botanical resources.

Alternative 4 will impact large areas of forested habitat in steep forested river valleys. Significant modifications could make this alternative environmentally acceptable, such as an elevated roadway over the forested valley linking elevation 700' on the northwest side of the river to elevation 725' on the southeast side of the river. This will avoid causing significant environmental harm from placing an at-grade road through a 1000' wide forested valley environment.

Alternative 5 splits off from Alternative 1 west of the Muscatatuck River crossing, proceeds due east to cross the river close to the upstream end of the north-facing bluffs (where eastern hemlock relict populations may still be present), then crosses several more large forested areas before rejoining US 50. This alternative is not recommended due to the impacts to large forested areas west of the state forest and possible impacts to eastern hemlock relict populations.

C) Habitat Mitigation:
Impacts to non-wetland forest under one (1) acre should be mitigated at a 1:1 ratio, while impacts to non-wetland forest over one (1) acre should be mitigated at a minimum 2:1 ratio. Impacts to wetlands should be mitigated at the appropriate ratio as well, in accordance with the DNR's new Floodway Habitat Mitigation guidelines (see http://www.in.gov/legislative/iac/20120801-IR-312120434NRA.xml.pdf).

D) Stream Crossings:
Any new, replacement, or rehabbed structure should not create conditions that are less favorable for wildlife passage under the structure compared to current conditions. Design plans for new bridges should include a level area of natural ground under the structure with a minimum 8' tall by 24' wide opening (that does not include the size of the opening over the channel). This opening under the bridge with unsubmerged, dry land is essential for wildlife passage. If riprap is planned under the bridge, only dry land unarmored with riprap should be considered in the opening dimensions.

Considerations can be made if alternative armoring materials are used. Because part of the area above the ohwm on the banks is typically used by wildlife, we recommend that a smooth-surfaced material such as articulated concrete mats be placed on the side-slopes instead of part or all of the proposed riprap (or riprap at the toe and turf reinforcement mats above the riprap toe protection). Such materials will not impair wildlife movement along the banks under the bridge.

E) Bank Stabilization:
Minimize the use of riprap and use alternative erosion protection materials whenever possible. Where riprap must be used, we recommend placing only enough riprap to provide stream bank toe protection, such as from the toe of the bank up to the ordinary high water mark (ohwm). From the ohwm to the top of the bank, we recommend using erosion control blankets or turf reinforcement mats instead of riprap as these are compatible with vegetation growth and provide equal or better erosion control protection than riprap. The use of erosion control blankets, turf reinforcement mats, and other similar materials seeded with a native plant seed mix will allow a natural, vegetated stream bank to develop.

We recommend bioengineered bank stabilization materials and methods. Information about bioengineering techniques can be found at http://www.in.gov/legislative/iac/20120404-IR-312120154NRA.xml.pdf. Also, the following is a USDA/NRCS document that outlines many different bioengineering techniques for streambank stabilization: http://directives.sc.egov.usda.gov/17553.wba (Choose Handbooks; Title 210 Engineering; National Engineering Handbook; Part 650 Engineering Field Handbook. Choose Chapter 16 from next window).

The additional measures listed below should be implemented to avoid, minimize, or compensate for impacts to fish, wildlife, and botanical resources:
1. Revegetate all bare and disturbed areas in the floodway with a mixture of native grasses, sedges, wildflowers, and also native hardwood trees and shrubs as soon as possible upon completion. Do not use any varieties of Tall Fescue or other non-native plants (e.g. crown-vetch).
2. Minimize and contain within the project limits inchannel disturbance and the clearing of trees and brush.
3. Do not work in the waterway from April 1 through June 30 without the prior written approval of the Division of Fish and Wildlife.
4. Do not cut any trees suitable for Indiana bat roosting (greater than 3 inches dbh, living or dead, with loose hanging bark) from April 1 through September 30.
5. Do not excavate in the low flow area except for the placement of piers, foundations, and riprap, or removal of the old structure.
6. Do not construct any temporary runarounds or causeways.
7. Use minimum average 6 inch graded riprap stone extended below the normal water level to provide habitat for aquatic organisms in the voids.
8. Plant native hardwood trees along the top of the bank and right-of-way to replace the vegetation destroyed during construction.
9. Post "Do Not Mow or Spray" signs along the right-of-way.
10. Appropriately designed measures for controlling erosion and sediment must be implemented to prevent sediment from entering the stream or leaving the construction site; maintain these measures until construction is complete and all disturbed areas are stabilized.
11. Seed and protect all disturbed streambanks and slopes that are 3:1 or steeper with erosion control blankets (follow manufacturer's recommendation for installation); seed and apply mulch on all other disturbed areas.
12. Plant five native trees, at least 2 inches in diameter-at-breast height, for each tree

Contact Staff: Christie L. Stanifer, Environ. Coordinator, Fish & Wildlife
Our agency appreciates this opportunity to be of service. Please contact the above staff member at (317) 232-4080 if we can be of further assistance.

for _____ **Date:** September 14, 2012
Christie L. Stanifer
Environ. Coordinator
Division of Fish and Wildlife

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

SEP 21 2012

REPLY TO THE ATTENTION OF:

E-19J

Michelle Allen, Project Manager
Federal Highway Administration - Indiana Division
575 North Pennsylvania Street, Room 254
Indianapolis, Indiana 46204

James Earl, Project Manager
Indiana Department of Transportation
100 North Senate Avenue, Room N642
Indianapolis, Indiana 46204

RE: Early Coordination – Preparation of an Environmental Assessment for a Proposed US 50 North Vernon Bypass – East, Jennings County, Indiana.
(Designation # 1173374)

Dear Ms. Allen and Mr. Earl:

The U.S. Environmental Protection Agency (EPA) received a letter from Mr. Daniel Prevost of Parsons (Parsons) with enclosures (Figures 1, 2, 3a through 3d), dated August 14, 2012. That letter requested EPA's comments regarding any possible environmental effects associated with the above-referenced project. EPA understands that Parsons is assisting the Federal Highway Administration (FHWA) and the Indiana Department of Transportation (INDOT) prepare an Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA) for the east half of a full-bypass around North Vernon, Indiana. Based on the limited information provided, we offer the following early coordination comments for consideration when preparing the NEPA documentation and for discussion during the next FHWA/INDOT/Consultant and resources agencies meeting/conference call.

FHWA/INDOT propose to construct the east half of a proposed full bypass around the north side of North Vernon from Route 3 east to US 50. The west half of the North Vernon bypass (from Route 3 west to US 50) is currently under construction. FHWA/INDOT completed an EA for the west half of the North Vernon bypass in November 2011. FHWA/INDOT did not notify EPA nor solicit EPA input regarding the west bypass EA.

The east bypass is being proposed less than one year since FHWA/INDOT finalized the west bypass EA. Consequently, it is not clear why FHWA/INDOT did not undertake the preparation of one Environmental Impact Statement (EIS) to assess the alternatives and impacts associated

with a full bypass around North Vernon as previously agreed to by FHWA/INDOT and the resource agencies, including EPA (see our enclosed letter), at the conclusion of the FHWA/INDOT *US 50 North Vernon Corridor Planning and Environmental Assessment Study – Jennings and Jackson Counties and the City of North Vernon, Indiana (Des. No. 0401401, 0401402)* in 2008 (2008 study). We recommend that if the 2008 study is identified as the basis for this current NEPA study, then the upcoming NEPA document should explain why FHWA/INDOT did not undertake the preparation of an EIS for the full North Vernon Bypass.

Purpose and Need: We recommend that the upcoming NEPA document present a purpose and need statement based on the needs documented/substantiated since the 2008 study and the west bypass EA. The purpose and need statement drives the identification of potential feasible alternatives. We recommend needs be prioritized, and quantitative criteria developed and used to determine how well each preliminary alternative meets purpose and need.

Alternatives: The five preliminary build/action alternatives (Alternatives 1, 2, 3, 4 and 5) currently identified in the figures for the east bypass appear to be route alignment alternatives that, for the most part, cross new terrain. A new terrain bypass would likely have a substantial impact on the environment. The 2008 study recommended that two full-bypass route alternatives (Alternatives A and B) around the north side of North Vernon be carried forward for detailed analysis in an EIS. Alternatives A and B were also substantially new terrain route alternatives, one of the main reasons that the parties involved in the 2008 study agreed that an EIS be undertaken, when and if, INDOT decided to move the project forward.

During the next resources agency meeting/conference call, please provide a figure that depicts the currently proposed preliminary alternatives routes and the 2008 routes of Alternatives A and B. Also, please explain why five preliminary route alternatives are currently identified, instead of two.

Number of Lanes/Potential Future Lanes: Please clarify the number of lanes and the right-of-way width proposed for each preliminary alternative. If the proposed right-of-way width would accommodate the addition of reasonably foreseeable future travel lanes, then impacts associated with future lane additions should also be assessed and disclosed in the NEPA document.

Intersections/Interchanges: Please identify the number and proposed locations for intersections and/or interchanges proposed for each preliminary alternative. The NEPA documentation should disclose the criteria used to assess need for any proposed intersection/interchange location. Direct, secondary (induced development), and cumulative impacts associated with an alternative's proposed intersections/interchanges will need to be assessed and disclosed in the NEPA document.

Preliminary Alternatives and Resources Figure: We appreciate the six figures that the consultant provided to depict the preliminary alternatives in relation to resources, utilities and other information in the study area. However, several of the figures include information that is hard to distinguish due to their small size and/or due to resources that overlap (floodplains and wetlands) inadvertently covering a resource (wetland) from view.

Prior to the next resource agency meeting, please provide the resource agencies with one figure that clearly depicts and accurately identifies/labels all resources in the North Vernon Bypass – West and East Study Areas, and all prior and currently proposed preliminary alternatives routes.

Please include proposed interchange/intersection locations and the preferred 2011 EA west bypass preferred alternative. Resource information should include but not be limited to forests, core forests, state forests, karst features, wetlands, streams, floodplains, drinking water supply wells/intakes, ponds, et al). In areas where resources overlap (e.g., wetlands and floodplains) please clearly distinguish the presence of each resource on the figure. This figure will be useful for discussions regarding alternatives to eliminate during the next resource agency conference call/meeting. The figure will also serve to help inform the rigorous secondary/induced development and cumulative impacts analyses that should be undertaken and included in the NEPA document.

Preliminary Alternatives and Potential Impacts Table: In order to help expedite initial resource agencies' reviews of the preliminary alternatives, we recommend that a table be developed that compares the type and amount of impacts between the preliminary alternatives. The table would list each specific resource and provide best estimated amount of potential direct impacts to that resource [e.g., forested wetland (4 acres), core forest (10 acres), upland hardwood forest (25 acres), cave openings (1), wildlife corridors disrupted (3), segmented forest (5), impaired perennial streams (500 linear feet/20 acres), private drinking water wells (5), etc.] for each preliminary alternative in a comparative format. We recommend a copy of the preliminary alternatives potential impacts table be given to the resource agencies prior to the next resource agencies meeting/conference call.

Environmental Issues/Resources: For the most part, EPA agrees with the list of 14 environmental issues and resources identified by the consultant. The current list includes: Land Use; Surface/Groundwater; Wetlands; Threatened, Endangered, and Rare Species; Vegetation and Wildlife; Historic, and Archeological Resources; Public Parks and Recreational Areas; Farmland; Noise; Hazardous Materials; Air Quality; Residential/Business Displacements; and Visual Impacts.

However, we also identify the following additional resources/issues, and provide comments and recommendations regarding the proposal and the proposal's NEPA documentation. EPA will provide additional information during the next resources agencies meeting/conference call.

Karst: *Figure 3b – Water Resources*, identifies, in part, the location of karst features (cave entrances, sink hole areas and sinking stream basins) in the east bypass study area and the preliminary route alternatives. It appears that portions of all five preliminary alternatives are located in karst terrain and have the potential to impact resources associated with karst topography. Have karst investigation studies been undertaken in the east bypass study area since the 2008 study? Do you have adequate information to confidently identify the preliminary alternative routes that will have the lowest potential to impact resources associated with karst geology? We recommend the NEPA documentation include an assessment of each preliminary alternative to impact the surface water and groundwater quality and quantity (including public and private drinking water supply), and the wildlife associated with karst features in the study area.

Wetlands/Streams: *Figure 3b – Water Resources*, also shows the location of wetlands and streams in the study area. Are these field delineated wetlands? The U.S. Fish and Wildlife Service's National Wetland Inventory show at least four forested wetlands that might be impacted by the five action alternatives, some of which do not appear in Figure 3b or may have

been covered over by floodplain information. The proposal will most likely need a U.S. Army Corps of Engineers (Corps), Clean Water Act (CWA) Section 404 permit for impacts to waters of the United States. We recommend the NEPA document:

- identify and label all study area resources, including wetlands and streams, on aerial photos/figures;
- identify and discuss the type and quality of wetlands, lakes, and streams, and the potential impacts to these water resources;
- present direct, indirect and cumulative wetland, stream, and lake impacts information in a comparative format, such as a table;
- discuss how the proposal complies with mitigation sequencing requirements (first avoid, then minimize, and then compensate for impacts that could not be avoided and minimized) and the CWA Section 404(b)(1) guidelines;
- identify potential mitigation ratios and potential mitigation compensation locations;
- discuss how proposed mitigation relates to water quality in the impacted watershed; and,
- identify and discuss the differences between Federal and State wetland jurisdiction.

If wetland impacts are unavoidable, the NEPA document must demonstrate that there are no practicable alternatives available that would avoid or have fewer wetlands impacts. With respect to the compensation of impacted wetland areas, we recommend compensatory wetlands be provided to adequately offset the naturally-occurring wetland functions that are lost due to project implementation activities. Wetland compensation should take place in the same watershed where the impacts occur.

Prior to the next resource agency meeting, please provide the resource agencies with additional wetland and stream information for the east bypass study area. Please provide the information in table and figure formats that clearly identify wetland and stream types, amounts, quality and locations in relation to the preliminary alternatives.

Drinking Water Supply - Surface Water/Groundwater Quality: Please inform the resource agencies where public and/or private drinking water supply wells and/or intakes are located in the study area. The NEPA analysis should assess the vulnerability of surface and ground water resources, especially in karst environments, to accidental fuel or other hazardous materials spills during project construction and bypass operation. Mitigation measures should be identified in the NEPA document.

Construction Impacts - Surface Water/Groundwater Quality: The NEPA document should identify the specific measures INDOT will undertake to insure that construction contractors identify, implement and maintain adequate sediment and erosion control measures to protect surface and ground water quality in a timely fashion.

Air Quality/Greenhouse Gas Emissions/Climate Change: The NEPA document should include a discussion of existing air quality in the study area, identifying whether the project area is in attainment with the National Ambient Air Quality Standards (NAAQs). Sensitive receptors should be identified. Impacts to air quality from construction and operation of the project should be assessed and impacts disclosed in the NEPA document. A discussion regarding conformity with the State Implementation Plan for air quality should also be included if

applicable. EPA recommends that the specific measures (best management practices) that can be undertaken to minimize construction impacts to air quality be identified in the NEPA document. We recommend the NEPA document identify how INDOT will insure that construction contractors use equipment with clean diesel engines and use clean diesel fuel.

We recommend INDOT attempt to quantify the greenhouse gas (GHG) emissions associated with project construction and project operation, and include this information in the NEPA document.

We also recommend the NEPA document identify and address how climate change might impact the alternatives over their operable life time. For example, would changes in the timing, intensity, and duration of rainfall and snowfall events due to climate change affect the stability and consequently the safety of the public on or near the proposed bypass? How would such precipitation events impact the design and placement of stormwater management facilities and an alternative's abilities to adequately channel and treat stormwater runoff? We recommend the NEPA document include feasible mitigation measures to ameliorate any potential adverse impacts due to climate change. For example, the increase in intensity and duration of precipitation events should inform the location, size/number and design of stormwater handling facilities.

Environmental Justice (EJ) / Public Involvement: It is not clear that FHWA/INDOT included representatives from low income and/or minority populations when consulting with community members regarding a North Vernon bypass project. We recommend the future NEPA document identify any environmental justice (EJ) populations in the area and determine whether there may be a potential for disproportionate impacts to EJ communities. Of particular interest would be the identification of disproportionate economic impact, air quality/human health impacts, community cohesion, and noise impacts.

Forest/Forest Fragmentation/Core Forest (Vegetation and Wildlife): The NEPA document should disclose the type and amount of vegetation that would need to be cleared for both construction and operation of the bypass and associated interchanges or intersections. The NEPA document should identify the specific number or acreage and types of trees that will be lost. The EA should also identify forest fragmentation areas and whether or not core forest habitat will be lost.

EPA recommends voluntary mitigation for any tree loss and core forest lost associated with the proposal. Mitigation might include, but need not be limited to, assisting local, county or state agencies with any on-going or planned forest reclamation projects in the watershed or planting native tree saplings in areas outside the safety areas, if feasible. We recommend the NEPA document disclose whether or not the applicants will undertake voluntary mitigation for the loss of any trees associated with their proposal.

Prior to the next resources agencies meeting/conference call, we recommend that additional information be provided regarding the preliminary alternatives and forest resources. Please provide information regarding forest quality, forest fragmentation and core forest. Please include estimated impacts information for each preliminary alternative in the potential impacts table discussed earlier.

Secondary (Induced Development) Impacts / Cumulative Impacts Analyses: The NEPA document should include a robust secondary (induced development) impacts assessment for this new terrain roadway project. Proposed locations for intersection/interchange areas will be an important consideration for this analysis. In addition, a cumulative impacts assessment will need to be undertaken in order to determine whether or not impacts to a particular resource by the proposal in conjunction with past, present (e.g., North Vernon – West Bypass), and future project impacts will have a significant impact on that resource. The information derived from the induced development analysis and the cumulative impact analyses will add in identifying the adequacy of local and regional zoning regulations and other requirements to protect resources of concern and help identify potential mitigation measures the local or regional community might take to better protect their resources. For example, cumulative impacts analyses might include wetlands, surface and ground water quality and quantity, air quality and wildlife. In part, the analyses will help to inform the amount and type of mitigation to undertake in order to maintain and/or enhance the quality of the environment in the project area.

Thank you for giving us the opportunity to provide early coordination comments regarding the proposed North Vernon – East Bypass Project. We look forward to participating in future discussions regarding the proposal and the upcoming NEPA documentation as staff time and resources allow. Please keep us apprised well in advance of all future resource agency meetings/conference calls. If you have any questions, please contact Virginia Laszewski at (312) 886-7501 or at laszewski.virginia@epa.gov.

Sincerely,

Kenneth A. Westlake, Chief
NEPA Implementation Section
Office of Enforcement and Compliance Assurance

Enclosure: EPA letter to FHWA-Indiana Division, dated April 2, 2008.

cc: Daniel Prevost, Parsons, 101 West Ohio Street, Suite 2121, Indianapolis, Indiana 46204
Scott Pruitt/Mike Litwin, U.S. Fish and Wildlife Service, Bloomington Field Office, 620 South Walker Street, Bloomington, Indiana 47403-2121
Greg McKay, U.S. Army Corps of Engineers – Louisville District, Attention: CELRL-OP-F, P.O. Box 59, Louisville, Kentucky 404-1-0059
Janson Randolf, Indiana Department of Environmental Management, Office of Water Quality, 100 N. Senate Avenue (MC 65-40), Indianapolis, Indiana 46204-2251

ENCLOSURE
[for EPA early coordination letter dated 09/21/2012, re: FHWA/INDOT NorthVernon-East Bypass)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

APR 02 2008

REPLY TO THE ATTENTION OF:
E-19J

Larry Heil, P.E.
FHWA – Indiana Division
575 North Pennsylvania St.
Room 254
Indianapolis, Indiana 46204

Re: Preliminary Alternatives Screening Report / [Draft] Final Report – US 50 Corridor from I-65 near Seymour, Indiana to near the Jennings/Ripley County Line.

Dear Mr. Heil:

The U.S. Environmental Protection Agency (U.S. EPA) received your February 26, 2008, letter and copy of the February 2008, *Final Report* for the Federal Highway Administration (FHWA) and the Indiana Department of Transportation (INDOT) Environmental Assessment (EA)/Corridor Study of the above referenced US 50 corridor. Your letter invited us to review and comment on the *Preliminary Alternatives Screening Report* and invited us to participate in the March 20, 2008, Agency Review Meeting to discuss the findings of the screening report.

As you know, Ms. Virginia Laszewski of my staff participated in the March 20th Agency Review Meeting via telephone conference call and provided U.S. EPA's comments on the documentation sent for our review. This letter serves to reiterate U.S. EPA's comments during the meeting and regarding the February 2008, *Preliminary Alternatives Screening Report / [Draft] Final Report*.

We appreciate the clarification provided during the meeting that the February 2008, *Final Report* we received for our review should have been titled a *Draft Final Report* and that the *Preliminary Alternatives Screening Report* is contained within the *Draft Final Report*. U.S. EPA understands that a future *Final Report* documenting the agencies' comments on the *Preliminary Alternatives Screening Report / [Draft] Final Report* and the decisions made during the March 20th Agency Review Meeting will not be published. Instead, FHWA/INDOT intend that a report addendum be developed and circulated that summarizes major changes that have resulted from comments received on the February 2008, *Preliminary Alternatives Screening Report / [Draft] Final Report*.

Please send us a copy of FHWA/INDOT's decision addendum as soon as it is available.

March 20, 2008, Meeting - *Preliminary Alternatives Screening Report / [Draft] Final Report*
U.S. EPA agrees that an Environmental Impact Statement (EIS) should be undertaken if the project moves forward.

We agree that the *[Draft] Final Report* be amended to recommend that only the following alternatives are carried forward for detailed analysis in the future EIS:

- western alternatives: upgrade existing US 50 with TSM, W1, W2, and W3, and
- eastern alternatives A and B.

We agree that the *[Draft] Final Report* be amended to recommend that the following alternatives be eliminated from further consideration:

- all through town alternatives, and
- eastern alternatives C, D and E.

We recommend that the incorrect reference to Sixmile Creek be changed to Storm Creek in the discussions regarding wetland and forest impacts associated with western alternative W2 (pages 6-21 and 6-53).

The *[Draft] Final Report* contains contradictory sentences regarding the ability of the eastern alternative E to relieve truck traffic through the city. We recommend that the second and fifth sentences in the Alternative E discussion in Chapter 6 (page 6-51) be rewritten, as appropriate, to clarify the meaning intended.

To date, we believe a good effort has been made to avoid resource impacts including wetland impacts in the development and identification of the route alternatives to carry forward for detailed analysis in the EIS. Please continue to emulate this good work as the project progresses.

Keep in mind for the future EIS that it may be difficult to present western alternative W2 as the least environmentally damaging practicable alternative (LEDPA) for Clean Water Act, Section 404 permitting. There are other western alternative routes that satisfy purpose and need but have relatively far fewer direct wetland impacts. A particular concern for this alternative is the potential for relatively large forested wetland loss and the difficulty of successfully compensating for forested wetland loss.

We also advise that careful consideration be given to how each eastern route alternative may impact the direction of any future airport expansion and consequently, contribute to cumulative impacts. The future EIS will need to address this issue.

Future FHWA/INDOT EA/Corridor Study Reports

An EA/Corridor Study *Final Report* documents FHWA/INDOT's final decisions, including but not limited to, the alternatives to be carried forward for detailed consideration in a future Environmental Impact Statement (EIS) in compliance with the National Environmental Policy Act (NEPA). For FHWA/INDOT's future EA/Corridor studies, we continue to advise FHWA/INDOT consider the resource agencies comments on the *Preliminary Alternatives Screening Report* prior to publishing the FHWA/INDOT EA/Corridor Study *Final Report*. We believe the final documentation of the final decisions made for an EA/Corridor Study be contained in the Final Report to better inform the start of the EIS for a proposal by eliminating any confusion that could occur due to inadequate EA/Corridor Study documentation. This is particularly true when an EIS is not started soon after the conclusion of an EA/Corridor Study. The knowledge behind the final decisions made that are different from those contained in a prematurely published EA/Corridor Study "Final Report" may get lost if they are only memorialized in an addendum and/or errata sheet.

In addition, for future EA/Corridor Studies, we recommend that the titles given to various reports be consistently used by FHWA, INDOT and the consultants. In order to avoid confusion and expedite the agency review process, we also advise that report titles accurately reflect the nature of what the reports actually contain and the title names are correctly used in the cover letters accompanying the reports sent for agency review and comment.

We appreciate the opportunity to provide these U.S. 50 EA/Corridor Study comments. If you have any questions, please contact Ms. Laszewski, at 312/886-7501 or email at laszewski.virginia@epa.gov.

Sincerely,

Kenneth A. Westlake, Supervisor
NEPA Implementation
Office of Enforcement and Compliance Assurance

cc: Steve Smith, Long-Range Transportation Planning Section, Indiana Department of Transportation, 100 North Senate Ave., Indianapolis, Indiana 46204-2219

Carl Camacho, P.E., Bernardin, Lochmueller & Assoc., Inc., 6125 South East Street, Indianapolis, Indiana 46227-2128

Mike Litwin, USFWS, Bloomington Field Office, 620 South Walker Street, Bloomington, Indiana 47403-2121

Doug Shelton, U.S. Army Corps of Engineers, Attention: CELRL-OP-FN, P.O. Box 59, Louisville, Kentucky 40201-0059

Indiana Department of Environmental Management

We make Indiana a cleaner, healthier place to live.

Mitchell E. Daniels, Jr.
Governor

Thomas W. Easterly
Commissioner

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Indianapolis , Indiana 46206

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INDOT

100 N Senate Ave
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Parsons
Richard Connolly
101 West Ohio Street Suite 2121
Indianapolis , IN 46204

Tuesday, September 25, 2012

To Engineers and Consultants Proposing Roadway Construction Projects:

RE: US 50 Bypass Project Designation # 1173374 The Indiana Department of Transportation (INDOT) intends to proceed with the above project in Jennings County, Indiana. This letter is part of the early coordination phase of the environmental review process. We are requesting comments from your area of expertise regarding any possible environmental effects associated with this project. Please use the above designation number and description in your reply. We will incorporate your comments into a study of the projectâ€™s environmental impacts. The western limit of this project is at SR 3 approximately 1,200 feet south of CR 350 N, the eastern terminus of the first phase of the bypass, which is currently under construction. The eastern terminus of this project will depend on the alternative selected during the project development process. Alternatives currently under consideration terminate as far west as the vicinity of the intersection of US 50 and CR 75 E and as far east as the vicinity of US 50 and CR 280 E

This letter from the Indiana Department of Environmental Management (IDEM) serves as a standardized response to enquiries inviting IDEM comments on roadway construction, reconstruction, or other improvement projects within existing roadway corridors when the proposed scope of the project is beneath the threshold requiring a formal National Environmental Policy Act-mandated Environmental Assessment or Environmental Impact Statement. As the letter attempts to address all roadway-related environmental topics of potential concern, it is possible that not every topic addressed in the letter will be applicable to your particular roadway project.

For additional information on specific roadway-related topics of interest, please visit the appropriate Web pages cited below, many of which provide contact information for persons within the various program areas who can answer questions not fully addressed in this letter. Also please be mindful that some environmental requirements may be subject to change and so each person intending to include a copy of this letter in their project documentation packet is advised to download the most recently revised version of the letter; found at: http://www.in.gov/idem/5283.htm.

To ensure that all environmentally-related issues are adequately addressed, IDEM recommends that you read this letter

in its entirety, and consider each of the following issues as you move forward with the planning of your proposed roadway construction, reconstruction, or improvement project:

WATER AND BIOTIC QUALITY

1. Section 404 of the Clean Water Act requires that you obtain a permit from the U.S. Army Corps of Engineers (USACE) before discharging dredged or fill materials into any wetlands or other waters, such as rivers, lakes, streams, and ditches. Other activities regulated include the relocation, channelization, widening, or other such alteration of a stream, and the mechanical clearing (use of heavy construction equipment) of wetlands. Thus, as a project owner or sponsor, it is your responsibility to ensure that no wetlands are disturbed without the proper permit. Although you may initially refer to the U.S. Fish and Wildlife Service National Wetland Inventory maps as a means of identifying potential areas of concern, please be mindful that those maps do not depict jurisdictional wetlands regulated by the USACE or the Department of Environmental Management. A valid jurisdictional wetlands determination can only be made by the USACE, using the 1987 Wetland Delineation Manual.

   USACE recommends that you have a consultant check to determine whether your project will abut, or lie within, a wetland area. To view a list of consultants that have requested to be included on a list posted by the USACE on their Web site, see USACE Permits and Public Notices (http://www.lrl.usace.army.mil/orf /default.asp) and then click on "Information" from the menu on the right-hand side of that page. Their "Consultant List" is the fourth entry down on the "Information" page. Please note that the USACE posts all consultants that request to appear on the list, and that inclusion of any particular consultant on the list does not represent an endorsement of that consultant by the USACE, or by IDEM.

   Much of northern Indiana (Newton, Lake, Porter, LaPorte, St. Joseph, Elkhart, LaGrange, Steuben, and Dekalb counties; large portions of Jasper, Starke, Marshall, Noble, Allen, and Adams counties; and lesser portions of Benton, White, Pulaski, Kosciusko, and Wells counties) is served by the USACE District Office in Detroit (313-226-6812). The central and southern portions of the state (large portions of Benton, White, Pulaski, Kosciosko, and Wells counties; smaller portions of Jasper, Starke, Marshall , Noble, Allen, and Adams counties; and all other Indiana counties located in north-central, central, and southern Indiana) are served by the USACE Louisville District Office (502-315-6733).

   Additional information on contacting these U.S. Army Corps of Engineers (USACE) District Offices, government agencies with jurisdiction over wetlands, and other water quality issues, can be found at http://www.in.gov/idem/4396.htm. IDEM recommends that impacts to wetlands and other water resources be avoided to the fullest extent.

2. In the event a Section 404 wetlands permit is required from the USACE, you also must obtain a Section 401 Water Quality Certification from the IDEM Office of Water Quality Wetlands Program. To learn more about the Wetlands Program, visit: http://www.in.gov/idem/4384.htm.

3. If the USACE determines that a wetland or other water body is isolated and not subject to Clean Water Act regulation, it is still regulated by the state of Indiana . A State Isolated Wetland permit from IDEM's Office of Water Quality (OWQ) is required for any activity that results in the discharge of dredged or fill materials into isolated wetlands. To learn more about isolated wetlands, contact the OWQ Wetlands Program at 317-233-8488.

4. If your project will involve over a 0.5 acre of wetland impact, stream relocation, or other large-scale alterations to water bodies such as the creation of a dam or a water diversion, you should seek additional input from the OWQ Wetlands Program staff. Consult the Web at: http://www.in.gov/idem/4384.htm for the appropriate staff contact to further discuss your project.

5. Work within the one-hundred year floodway of a given water body is regulated by the Department of Natural Resources, Division of Water. The Division issues permits for activities regulated under the follow statutes:
   - IC 14-26-2 Lakes Preservation Act 312 IAC 11

- IC 14-26-5 Lowering of Ten Acre Lakes Act No related code
- IC 14-28-1 Flood Control Act 310 IAC 6-1
- IC 14-29-1 Navigable Waterways Act 312 IAC 6
- IC 14-29-3 Sand and Gravel Permits Act 312 IAC 6
- IC 14-29-4 Construction of Channels Act No related code

For information on these Indiana (statutory) Code and Indiana Administrative Code citations, see the DNR Web site at: http://www.in.gov/dnr/water/9451.htm . Contact the DNR Division of Water at 317-232-4160 for further information.

The physical disturbance of the stream and riparian vegetation, especially large trees overhanging any affected water bodies should be limited to only that which is absolutely necessary to complete the project. The shade provided by the large overhanging trees helps maintain proper stream temperatures and dissolved oxygen for aquatic life.

6. For projects involving construction activity (which includes clearing, grading, excavation and other land disturbing activities) that result in the disturbance of one (1), or more, acres of total land area, contact the Office of Water Quality – Watershed Planning Branch (317/233-1864) regarding the need for of a Rule 5 Storm Water Runoff Permit. Visit the following Web page
   - http://www.in.gov/idem/4902.htm

   To obtain, and operate under, a Rule 5 permit you will first need to develop a Construction Plan (http://www.in.gov/idem/4917.htm#constreq), and as described in 327 IAC 15-5-6.5 (http://www.in.gov/legislative/iac/T03270/A00150 [PDF], pages 16 through 19). Before you may apply for a Rule 5 Permit, or begin construction, you must submit your Construction Plan to your county Soil and Water Conservation District (SWCD) (http://www.in.gov/isda/soil/contacts/map.html).

   Upon receipt of the construction plan, personnel of the SWCD or the Indiana Department of Environmental Management will review the plan to determine if it meets the requirements of 327 IAC 15-5. Plans that are deemed deficient will require re-submittal. If the plan is sufficient you will be notified and instructed to submit the verification to IDEM as part of the Rule 5 Notice of Intent (NOI) submittal. Once construction begins, staff of the SWCD or Indiana Department of Environmental Management will perform inspections of activities at the site for compliance with the regulation.

   Please be mindful that approximately 149 Municipal Separate Storm Sewer System (MS4) areas are now being established by various local governmental entities throughout the state as part of the implementation of Phase II federal storm water requirements. All of these MS4 areas will eventually take responsibility for Construction Plan review, inspection, and enforcement. As these MS4 areas obtain program approval from IDEM, they will be added to a list of MS4 areas posted on the IDEM Website at: http://www.in.gov/idem/4900.htm.

   If your project is located in an IDEM-approved MS4 area, please contact the local MS4 program about meeting their storm water requirements. Once the MS4 approves the plan, the NOI can be submitted to IDEM.

   Regardless of the size of your project, or which agency you work with to meet storm water requirements, IDEM recommends that appropriate structures and techniques be utilized both during the construction phase, and after completion of the project, to minimize the impacts associated with storm water runoff. The use of appropriate planning and site development and appropriate storm water quality measures are recommended to prevent soil from leaving the construction site during active land disturbance and for post construction water quality concerns. Information and assistance regarding storm water related to construction activities are available from the Soil and Water Conservation District (SWCD) offices in each county or from IDEM.

7. For projects involving impacts to fish and botanical resources, contact the Department of Natural Resources - Division of Fish and Wildlife (317/232-4080) for addition project input.

8. For projects involving water main construction, water main extensions, and new public water supplies, contact

the Office of Water Quality - Drinking Water Branch (317-308-3299) regarding the need for permits.

9. For projects involving effluent discharges to waters of the State of Indiana , contact the Office of Water Quality - Permits Branch (317-233-0468) regarding the need for a National Pollutant Discharge Elimination System (NPDES) permit.

10. For projects involving the construction of wastewater facilities and sewer lines, contact the Office of Water Quality - Permits Branch (317-232-8675) regarding the need for permits.

AIR QUALITY

The above-noted project should be designed to minimize any impact on ambient air quality in, or near, the project area. The project must comply with all federal and state air pollution regulations. Consideration should be given to the following:

1. Regarding open burning, and disposing of organic debris generated by land clearing activities; some types of open burning are allowed (http://www.in.gov/idem/4148.htm) under specific conditions. You also can seek an open burning variance from IDEM.

   However, IDEM generally recommends that you take vegetative wastes to a registered yard waste composting facility or that the waste be chipped or shredded with composting on site (you must register with IDEM if more than 2,000 pounds is to be composted; contact 317/232-0066). The finished compost can then be used as a mulch or soil amendment. You also may bury any vegetative wastes (such as leaves, twigs, branches, limbs, tree trunks and stumps) onsite, although burying large quantities of such material can lead to subsidence problems, later on.

   Reasonable precautions must be taken to minimize fugitive dust emissions from construction and demolition activities. For example, wetting the area with water, constructing wind barriers, or treating dusty areas with chemical stabilizers (such as calcium chloride or several other commercial products). Dirt tracked onto paved roads from unpaved areas should be minimized.

   Additionally, if construction or demolition is conducted in a wooded area where blackbirds have roosted or abandoned buildings or building sections in which pigeons or bats have roosted for 3-5 years precautionary measures should be taken to avoid an outbreak of histoplasmosis. This disease is caused by the fungus Histoplasma capsulatum, which stems from bird or bat droppings that have accumulated in one area for 3-5 years. The spores from this fungus become airborne when the area is disturbed and can cause infections over an entire community downwind of the site. The area should be wetted down prior to cleanup or demolition of the project site. For more detailed information on histoplasmosis prevention and control, please contact the Acute Disease Control Division of the Indiana State Department of Health at (317) 233-7272.

2. The U.S. EPA and the Surgeon General recommend that people not have long-term exposure to radon at levels above 4 pCi/L. (For a county-by-county map of predicted radon levels in Indiana, visit: http://www.in.gov/idem/4145.htm.)

   The U.S. EPA further recommends that all homes (and apartments within three stories of ground level) be tested for radon. If in-home radon levels are determined to be 4 pCi/L, or higher, EPA recommends a follow-up test. If the second test confirms that radon levels are 4 pCi/L, or higher, EPA recommends the installation of radon-reduction measures. (For a list of qualified radon testers and radon mitigation (or reduction) specialists visit: http://www.in.gov/isdh/regsvcs/radhealth/pdfs/radon_testers_mitigators_list.pdf.) It also is recommended that radon reduction measures be built into all new homes, particularly in areas like Indiana that have moderate to high predicted radon levels.

   To learn more about radon, radon risks, and ways to reduce exposure visit: http://www.in.gov/isdh/regsvcs/radhealth/radon.htm, http://www.in.gov/idem/4145.htm, or

http://www.epa.gov/radon/index.html.

3. With respect to asbestos removal: all facilities slated for renovation or demolition (except residential buildings that have (4) four or fewer dwelling units and which will not be used for commercial purposes) must be inspected by an Indiana-licensed asbestos inspector prior to the commencement of any renovation or demolition activities. If regulated asbestos-containing material (RACM) that may become airborne is found, any subsequent demolition, renovation, or asbestos removal activities must be performed in accordance with the proper notification and emission control requirements.

   If no asbestos is found where a renovation activity will occur, or if the renovation involves removal of less than 260 linear feet of RACM off of pipes, less than 160 square feet of RACM off of other facility components, or less than 35 cubic feet of RACM off of all facility components, the owner or operator of the project does not need to notify IDEM before beginning the renovation activity.

   For questions on asbestos demolition and renovation activities, you can also call IDEM's Lead/Asbestos section at 1-888-574-8150.

   However, in all cases where a demolition activity will occur (even if no asbestos is found), the owner or operator must still notify IDEM 10 working days prior to the demolition, using the form found at http://www.in.gov/icpr/webfile/formsdiv/44593.pdf.

   Anyone submitting a renovation/demolition notification form will be billed a notification fee based upon the amount of friable asbestos containing material to be removed or demolished. Projects that involve the removal of more than 2,600 linear feet of friable asbestos containing materials on pipes, or 1,600 square feet or 400 cubic feet of friable asbestos containing material on other facility components, will be billed a fee of $150 per project; projects below these amounts will be billed a fee of $50 per project. All notification remitters will be billed on a quarterly basis.

   For more information about IDEM policy regarding asbestos removal and disposal, visit: http://www.in.gov/idem/4983.htm.

4. With respect to lead-based paint removal: IDEM encourages all efforts to minimize human exposure to lead-based paint chips and dust. IDEM is particularly concerned that young children exposed to lead can suffer from learning disabilities. Although lead-based paint abatement efforts are not mandatory, any abatement that is conducted within housing built before January 1, 1978 , or a child-occupied facility is required to comply with all lead-based paint work practice standards, licensing and notification requirements. For more information about lead-based paint removal visit: http://www.in.gov/isdh/19131.htm.

5. Ensure that asphalt paving plants are permitted and operate properly. The use of cutback asphalt, or asphalt emulsion containing more than seven percent (7%) oil distillate, is prohibited during the months April through October. See 326 IAC 8-5-2 , Asphalt Paving Rule (http://www.ai.org/legislative/iac/T03260/A00080.PDF).

6. If your project involves the construction of a new source of air emissions or the modification of an existing source of air emissions or air pollution control equipment, it will need to be reviewed by the IDEM Office of Air Quality (OAQ). A registration or permit may be required under 326 IAC 2 (View at: www.ai.org/legislative/iac/t03260/a00020.pdf.) New sources that use or emit hazardous air pollutants may be subject to Section 112 of the Clean Air Act and corresponding state air regulations governing hazardous air pollutants.

7. For more information on air permits visit: http://www.in.gov/idem/4223.htm, or to initiate the IDEM air permitting process, please contact the Office of Air Quality Permit Reviewer of the Day at (317) 233-0178 or OAMPROD atdem.state.in.us.

LAND QUALITY

In order to maintain compliance with all applicable laws regarding contamination and/or proper waste disposal, IDEM recommends that:

1. If the site is found to contain any areas used to dispose of solid or hazardous waste, you need to contact the Office of Land Quality (OLQ)at 317-308-3103.

2. All solid wastes generated by the project, or removed from the project site, need to be taken to a properly permitted solid waste processing or disposal facility. For more information, visit http://www.in.gov/idem/4998.htm.

3. If any contaminated soils are discovered during this project, they may be subject to disposal as hazardous waste. Please contact the OLQ at 317-308-3103 to obtain information on proper disposal procedures.

4. If PCBs are found at this site, please contact the Industrial Waste Section of OLQ at 317-308-3103 for information regarding management of any PCB wastes from this site.

5. If there are any asbestos disposal issues related to this site, please contact the Industrial Waste Section of OLQ at 317-308-3103 for information regarding the management of asbestos wastes (Asbestos removal is addressed above, under Air Quality).

6. If the project involves the installation or removal of an underground storage tank, or involves contamination from an underground storage tank, you must contact the IDEM Underground Storage Tank program at 317/308-3039. See: http://www.in.gov/idem/4999.htm.

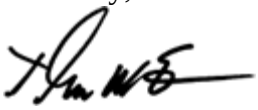
FINAL REMARKS

Should you need to obtain any environmental permits in association with this proposed project, please be mindful that IC 13-15-8 requires that you notify all adjoining property owners and/or occupants within ten days your submittal of each permit application. However, if you are seeking multiple permits, you can still meet the notification requirement with a single notice if all required permit applications are submitted with the same ten day period.

Should the scope of the proposed project be expanded to the extent that a National Environmental Policy Act Environmental Assessment (EA) or Environmental Impact Statement (EIS) is required, IDEM will actively participate in any early interagency coordination review of the project.

Meanwhile, please note that this letter does not constitute a permit, license, endorsement or any other form of approval on the part of the Indiana Department of Environmental Management regarding any project for which a copy of this letter is used. Also note that is it the responsibility of the project engineer or consultant using this letter to ensure that the most current draft of this document, which is located at http://www.in.gov/idem/5284.htm, is used.

Sincerely,



Thomas W. Easterly
Commissioner

Signature(s) of the Applicant

I acknowledge that the following proposed roadway project will be financed in part, or in whole, by public monies.

Project Description

US 50 Bypass Project Designation # 1173374 The Indiana Department of Transportation (INDOT) intends to proceed with the above project in Jennings County, Indiana. This letter is part of the early coordination phase of the environmental review process. We are requesting comments from your area of expertise regarding any possible environmental effects associated with this project. Please use the above designation number and description in your reply. We will incorporate your comments into a study of the projectâ€™s environmental impacts. The western limit of this project is at SR 3 approximately 1,200 feet south of CR 350 N, the eastern terminus of the first phase of the bypass, which is currently under construction. The eastern terminus of this project will depend on the alternative selected during the project development process. Alternatives currently under consideration terminate as far west as the vicinity of the intersection of US 50 and CR 75 E and as far east as the vicinity of US 50 and CR 280 E

With my signature, I do hereby affirm that I have read the letter from the Indiana Department of Environment that appears directly above. In addition, I understand that in order to complete that project in which I am interested, with a minimum of impact to the environment, I must consider all the issues addressed in the aforementioned letter, and further, that I must obtain any required permits.

Date: 10-9-13

Signature of the INDOT
Project Engineer or Other Responsible Agent

Date: 10-9-13

Signature of the
For Hire Consultant

Richard Connolly

Representing the Company: Parsons

United States Department of Agriculture

NRCS
Natural Resources Conservation Service
6013 Lakeside Blvd.
Indianapolis, IN 46278

March 27, 2013

Richard Connolly
Environmental Planner
Parsons
101 W. Ohio St.
Suite 2121
Indianapolis, IN 46204

Dear Mr. Connolly:

The proposed project to construct the eastern phase of US 50 in Jennings County, Indiana, as referred to in your letter received March 18, 2013, will cause a conversion of prime farmland.

The attached packet of information is for your use in completing Parts VI and VII of the AD-1006. After completion the federal funding agency needs to forward one copy to NRCS for our records.

If you need additional information, please contact Lisa Bolton at 317-295-5842.

Sincerely,

Roger Kult

ROGER KULT
Acting State Conservationist

Enclosures

Farmland Protection Policy Act
FPPA

This information is included for your assistance in completing sections I, III, VI and VII of Form AD-1006.

Natural Resources Conservation Service
6013 Lakeside Boulevard
Indianapolis, IN 46278

Lisa Bolton
317-295-5842
lisa.bolton@in.usda.gov

401.24 Farmland Protection Policy Act (FPPA) Rule.

(c) The Act and these regulations do not authorize the Federal Government in any way to regulate the use of private or non-Federal land, or in any way affect the property rights of owners of such land. In cases where either a private party or a non-Federal unit of government applies for Federal assistance to convert farmland to a nonagricultural use, the Federal agency should use the criteria set forth in this part to identify and take into account any adverse effects on farmland of the assistance requested and develop alternative actions that would avoid or mitigate such adverse effects. If, after consideration of the adverse effects and suggested alternatives, the landowners want to proceed with conversion, the Federal agency, on the basis of the analysis set forth in Sec. 658.4 and any agency policies or procedures for implementing the Act, may provide or deny the requested assistance. Only assistance and actions that would convert farmland to nonagricultural uses are subject to this Act. Assistance and actions related to the purchase, maintenance, renovation, or replacement of existing structures and sites converted prior to the time of an application for assistance from a Federal agency, including assistance and actions related to the construction of minor new ancillary structures (such as garages or sheds), are not subject to the Act.

(d) Section 1548 of the Act, as amended, 7 U.S.C. 4209, states that the Act shall not be deemed to provide a basis for any action, either legal or equitable, by any person or class of persons challenging a Federal project, program, or other activity that may affect farmland. Neither the Act nor this rule, therefore, shall afford any basis for such an action. However, as further provided in section 1548, the governor of an affected state, where a state policy or program exists to protect farmland, may bring an action in the Federal district court of the district where a Federal program is proposed to enforce the requirements of section 1541 of the Act, 7 U.S.C. 4202, and regulations issued pursuant to that section.

Sec. 658.4 Guidelines for use of criteria.

As stated above and as provided in the Act, each Federal agency shall use the criteria provided in Sec. 658.5 to identify and take into account the adverse effects of Federal programs on the protection of farmland. The agencies are to consider alternative actions, as appropriate, that could lessen such adverse effects, and assure that such Federal programs, to the extent practicable, are compatible with State, unit of local government and private programs and policies to protect farmland. The following are guidelines to assist the agencies in these tasks:

(a) An agency may determine whether or not a site is farmland as defined in Sec. 658.2(a) or the agency may request that NRCS make such a determination. If an agency elects not to make its own determination, it should make a request to NRCS on Form AD-1006, the Farmland Conversion Impact Rating Form, available at NRCS offices, for determination of whether the site is farmland subject to the Act. If neither the entire site nor any part of it is subject to the Act, then the Act will not apply and NRCS will so notify the agency. If the site is determined by NRCS to be subject to the Act, then NRCS will measure the relative value of the site as farmland on a scale of 0 to 100 according to the information sources listed in Sec. 658.5(a). NRCS will respond to these requests within 10 working days of their receipt except that in cases where a site visit or land evaluation system design is needed, NRCS will respond in 30 working days. In the event that NRCS fails to complete its response within the required period, if further delay would interfere with construction activities; the agency should proceed as though the site were not farmland.

(b) The Form AD 1006, returned to the agency by NRCS will also include the following incidental information: The total amount of farmable land (the land in the unit of local government's jurisdiction that is capable of producing the commonly grown crop); the percentage of the jurisdiction that is farmland

401.24 Farmland Protection Policy Act (FPPA) Rule.

covered by the Act; the percentage of farmland in the jurisdiction that the project would convert; and the percentages of farmland in the local government's jurisdiction with the same or higher relative value than the land that the project would convert. These statistics will not be part of the criteria scoring process, but are intended simply to furnish additional background information to Federal agencies to aid them in considering the effects of their projects on farmland.

(c) After the agency receives from NRCS the score of a site's relative value as described in Sec. 658.4(a) and then applies the site assessment criteria which are set forth in Sec. 658.5 (b) and (c), the agency will assign to the site a combined score of up to 260 points, composed of up to 100 points for relative value and up to 160 points for the site assessment. With this score the agency will be able to identify the effect of its programs on farmland, and make a determination as to the suitability of the site for protection as farmland. Once this score is computed, USDA recommends:

(1) Sites with the highest combined scores are regarded as most suitable for protection under these criteria and sites with the lowest scores, as least suitable.

(2) Sites receiving a total score of less than 160 need not be given further consideration for protection and no additional sites need to be evaluated.

(3) Sites receiving scores totaling 160 or more is given increasingly higher levels of consideration for protection.

(4) When making decisions on proposed actions for sites receiving scores totaling 160 or more, agency personnel consider:

(i) Use of land that is not farmland or use of existing structures;

(ii) Alternative sites, locations and designs that would serve the proposed purpose but convert either fewer acres of farmland or other farmland that has a lower relative value;

(iii) Special siting requirements of the proposed project and the extent to which an alternative site fails to satisfy the special siting requirements as well as the originally selected site.

(d) Federal agencies may elect to assign the site assessment criteria relative weightings other than those shown in Sec. 658.5 (b) and (c). If an agency elects to do so, USDA recommends that the agency adopt its alternative weighting system (1) through rulemaking in consultation with USDA, and (2) as a system to be used uniformly throughout the agency. USDA recommends that the weightings stated in Sec. 658.5 (b) and (c) be used until an agency issues a final rule to change the weightings.

(e) It is advisable that evaluations and analyses of prospective farmland conversion impacts be made early in the planning process before a site or design is selected, and that, where possible, agencies make the FPPA evaluations part of the National Environmental Policy Act (NEPA) process. Under the agency's own NEPA regulations, some categories of projects may be excluded from NEPA which may still be covered under the FPPA. Section 1540(c)(4) of the Act exempts projects that were beyond the planning stage and were in either the active design or construction state on the effective date of the Act. Section 1547(b) exempts acquisition or use of farmland for national defense purposes. There are no other exemptions of projects by category in the Act.

(f) Numerous States and units of local government are developing and adopting Land Evaluation and Site assessment (LESA) systems to evaluate the productivity of agricultural land and its suitability for conversion to nonagricultural use. Therefore, States and units of local government may have already performed an evaluation using criteria similar to those contained in this rule applicable to Federal agencies. USDA recommends that where sites are to be evaluated within a jurisdiction having a State or local LESA system that has been approved by the governing body of such jurisdiction and has been placed on the NRCS State conservationist's list as one which meets the purpose of the FPPA in balance with other public policy objectives, Federal agencies use that system to make the evaluation.

401.24 Farmland Protection Policy Act (FPPA) Rule.

(g) To meet reporting requirements of section 1546 of the Act, 7 and for data collection purposes, after the agency has made a final decision on a project in which one or more of the alternative sites contain farmland subject to the FPPA, the agency is requested to return a copy of the Form AD-1006, which indicates the final decision of the agency, to the NRCS field office.

(h) Once a Federal agency has performed an analysis under the FPPA for the conversion of a site, that agency's, or a second Federal agency's determination with regard to additional assistance or actions on the same site do not require additional redundant FPPA analysis.

Sec. 658.5 Criteria.

This section state the criteria required by section 1541(a) of the Act, 7 U.S.C. 4202(a). The criteria were developed by the Secretary of Agriculture in cooperation with other Federal agencies. They are in two parts, (1) the land evaluation criterion, relative value, for which NRCS will provide the rating or score, and (2) the site assessment criteria, for which each Federal agency must develop its own ratings or scores.
The criteria are as follows:

(a) Land Evaluation Criterion--Relative Value. The land evaluation criterion is based on information from several sources including national cooperative soil surveys or other acceptable soil surveys, NRCS field office technical guides, soil potential ratings or soil productivity ratings, land capability classifications, and important farmland determinations. Based on this information, groups of soils within a local government's jurisdiction will be evaluated and assigned a score between 0 to 100, representing the relative value, for agricultural production, of the farmland to be converted by the project compared to other farmland in the same local government jurisdiction, This score will be the Relative Value Rating on Form AD 1006.

(b) Site Assessment Criteria. Federal agencies are to use the following criteria to assess the suitability of each proposed site or design alternative for protection as farmland along with the score from the land evaluation criterion described in Sec. 658.5(a). Each criterion will be given a score on a scale of 0 to the maximum points shown. Conditions suggesting top, intermediate and bottom scores are indicated for each criterion. The agency would make scoring decisions in the context of each proposed site or alternative action by examining the site, the surrounding area, and the programs and policies of the State or local unit of government in which the site is located. Where one given location has more than one design alternative, each design should be considered as an alternative site. The site assessment criteria are:

(1) How much land is in nonurban use within a radius of 1.0 mile from where the project is intended?

More than 90 percent--15 points
90 to 20 percent--14 to 1 point(s)
Less than 20 percent--0 points

(2) How much of the perimeter of the site borders on land in nonurban use?

More than 90 percent--10 points
90 to 20 percent--9 to 1 point(s)
Less than 20 percent--0 points

(3) How much of the site has been farmed (managed for a scheduled harvest or timber activity) more than 5 of the last 10 years?

401.24 Farmland Protection Policy Act (FPPA) Rule.

More than 90 percent--20 points
90 to 20 percent--19 to 1 points(s)
Less than 20 percent--0 points

(4) Is the site subject to State or unit of local government policies or programs to protect farmland or covered by private programs to protect farmland?

Site is protected--20 points
Site is not protected--0 points

(5) How close is the site to an urban built-up area?

The site is 2 miles or more from an urban built-up area--15 points
The site is more than 1 mile but less than 2 miles from an urban built-up area--10 points
The site is less than 1 mile from, but is not adjacent to an urban built-up area--5 points
The site is adjacent to an urban built-up area--0 points

(6) How close is the site to water lines, sewer lines and/or other local facilities and services whose capacities and design would promote nonagricultural use?

None of the services exist nearer than 3 miles from the site--15 points
Some of the services exist more than 1 but less than 3 miles from the site--10 points
All of the services exist within \1/2\ mile of the site--0 points

(7) Is the farm unit(s) containing the site (before the project) as large as the average-size farming unit in the county? (Average farm sizes in each county are available from the NRCS field offices in each State. Data are from the latest available Census of Agriculture, Acreage of Farm Units in Operation with $1,000 or more in sales.)

As large or larger--10 points
Below average--deduct 1 point for each 5 percent below the average, down to 0 points if 50 percent or more below average--9 to 0 points

(8) If this site is chosen for the project, how much of the remaining land on the farm will become non-farmable because of interference with land patterns?

Acreage equal to more than 25 percent of acres directly converted by the project--10 points
Acreage equal to between 25 and 5 percent of the acres directly converted by the project--9 to 1 point(s)
Acreage equal to less than 5 percent of the acres directly converted by the project--0 points

(9) Does the site have available adequate supply of farm support services and markets, i.e., farm suppliers, equipment dealers, processing and storage facilities and farmer's markets?

401.24 Farmland Protection Policy Act (FPPA) Rule.

All required services are available--5 points
Some required services are available--4 to 1 point(s)
No required services are available--0 points

(10) Does the site have substantial and well-maintained on-farm investments such as barns, other storage buildings, fruit trees and vines, field terraces, drainage, irrigation, waterways, or other soil and water conservation measures?

High amount of on-farm investment--20 points
Moderate amount of on-farm investment--19 to 1 point(s)
No on-farm investment--0 points

(11) Would the project at this site, by converting farmland to nonagricultural use, reduce the demand for farm support services so as to jeopardize the continued existence of these support services and thus, the viability of the farms remaining in the area?

Substantial reduction in demand for support services if the site is converted--10 points
Some reduction in demand for support services if the site is converted--9 to 1 point(s)
No significant reduction in demand for support services if the site is converted--0 points

(12) Is the kind and intensity of the proposed use of the site sufficiently incompatible with agriculture that it is likely to contribute to the eventual conversion of surrounding farmland to nonagricultural use?

Proposed project is incompatible with existing agricultural use of surrounding farmland--10 points
Proposed project is tolerable to existing agricultural use of surrounding farmland--9 to 1 point(s)
Proposed project is fully compatible with existing agricultural use of surrounding farmland--0 points

(c) Corridor-type Site Assessment Criteria. The following criteria are to be used for projects that have a linear or corridor-type site configuration connecting two distant points, and crossing several different tracts of land. These include utility lines, highways, railroads, stream improvements, and flood control systems. Federal agencies are to assess the suitability of each corridor-type site or design alternative for protection as farmland along with the land evaluation information described in Sec. 658.4(a). All criteria for corridor-type sites will be scored as shown in Sec. 658.5(b) for other sites, except as noted below:

(1) Criteria 5 and 6 will not be considered.

(2) Criterion 8 will be scored on a scale of 0 to 25 points, and criterion 11 will be scored on a scale of 0 to 25 points.

Form AD-1006

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request:
Name Of Project	Federal Agency Involved
Proposed Land Use	County And State
PART II *(To be completed by NRCS)*	Date Request Received By NRCS

Does the site contain prime, unique, statewide or local important farmland? *(If no, the FPPA does not apply -- do not complete additional parts of this form).*	Yes ☐	No ☐	Acres Irrigated / Average Farm Size
Major Crop(s)	Farmable Land In Govt. Jurisdiction Acres: %		Amount Of Farmland As Defined in FPPA Acres: %
Name Of Land Evaluation System Used	Name Of Local Site Assessment System		Date Land Evaluation Returned By NRCS

PART III *(To be completed by Federal Agency)*	Alternative Site Rating Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly				
B. Total Acres To Be Converted Indirectly				
C. Total Acres In Site	0.0	0.0	0.0	0.0
PART IV *(To be completed by NRCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland				
B. Total Acres Statewide And Local Important Farmland				
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted				
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value				
PART V *(To be completed by NRCS)* Land Evaluation Criterion. Relative Value Of Farmland To Be Converted *(Scale of 0 to 100 Points)*	0	0	0	0

PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5(b)*	Maximum Points				
1. Area In Nonurban Use	15				
2. Perimeter In Nonurban Use	10				
3. Percent Of Site Being Farmed	20				
4. Protection Provided By State And Local Government	20				
5. Distance From Urban Builup Area	15				
6. Distance To Urban Support Services	15				
7. Size Of Present Farm Unit Compared To Average	10				
8. Creation Of Nonfarmable Farmland	10				
9. Availability Of Farm Support Services	5				
10. On-Farm Investments	20				
11. Effects Of Conversion On Farm Support Services	10				
12. Compatibility With Existing Agricultural Use	10				
TOTAL SITE ASSESSMENT POINTS	160	0	0	0	0
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland *(From Part V)*	100	0	0	0	0
Total Site Assessment *(From Part VI above or a local site assessment)*	160	0	0	0	0
TOTAL POINTS *(Total of above 2 lines)*	260	0	0	0	0

Site Selected | Date Of Selection | Was A Local Site Assessment Used? Yes ☐ No ☐

Reason For Selection

(See instructions on reverse side)

Form AD-1006 (10-83)

Completing the AD-1006/CPA-106

- Where to find the form: The form should be provided by the originating agency. NRCS has this as a paper copy or on a CD.
- NRCS is initiating an electronic submission process for the AD-1006. Maps and specific site information will still be needed to process the request. The electronic submission process will facilitate tracking and reporting responsibilities.

Steps in processing the AD-1006/CPA-106

- Originating agency: complete parts I and III and send to NRCS
- NRCS: Consider using register to track AD1006/CPA106 (see exhibit)
- NRCS will complete parts II, IV, V
- NRCS steps to complete form
- Part II: date received by NRCS

  Information in this section should be in the ~~local field~~ state office. If this is not available, contact soils section in state office for guidance.
- Part IV. This information should be in ~~local field~~ state office. If this is not available, contact appropriate soil scientist.
- Part V. This information should be in the ~~local field~~ state office. If it is not available, contact appropriate soil scientist.
- NRCS returns AD-1006/CPA-106 to originating agency
- Part VI and VII: completed by originating agency (section 658.5 of Farmland Protection Policy Act list the specific criteria for scoring)
- Alternative Site Rating: If the total SA and LE score exceeds 160 alternative sites must be considered. 404.5 (310-GM) requires 2 alternatives for scores between 160 and 220 and 3 alternatives for scores over 220.
- Originating agency returns completed form to NRCS

Completing Form AD-1006, Steps 1-7

Step 1. Federal agencies involved in proposed projects that may convert farmland, as defined in the Farmland Protection Policy Act (FPPA) to nonagricultural used, will initially complete Parts I and III of this form.

Step 2. Originator will send three copies of AD 1006 together with maps indicating locations of the site(s) to the Natural Resources Conservation Service (NRCS) ~~local field~~ State office and retain one copy for your files. A list of NRCS field offices is available from the NRCS State Conservationist in each or from the NRCS website.

Step 3. NRCS will return 2 copies of the AD1006 to the originating federal agency within 10 working days of receipt of the request unless a land evaluation has not been completed or a site visit is required (30 working days are allowed if a land evaluation must be completed or a site visit must be made). If more than 10 days are required, NRCS will notify the agency of the need for additional time, up to 30 working days. See exhibit 403.26.

Step 4. In cases where farmland covered by the FPPA will be converted by the proposed project; NRCS field offices will complete parts II, IV, and V of the form.

Step 5. NRCS will return 2 copies of the form to the federal agency involved in the project. (One copy will be retained for NRCS records).

Step 6. The federal agency involved in the proposed project will complete parts VI and VII of the form.

Step 7. The federal agency involved in the proposed project will make a determination as to whether the proposed conversion is consistent with the FPPA and the agencies internal policies.

U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service

NRCS-CPA-106
(Rev. 1-91)

FARMLAND CONVERSION IMPACT RATING FOR CORRIDOR TYPE PROJECTS

PART I *(To be completed by Federal Agency)*	3. Date of Land Evaluation Request 3/18/13	4. Sheet 1 of 1
1. Name of Project **US 50 East Bypass**	5. Federal Agency Involved **FHWA**	
2. Type of Project **New Terrain Roadway**	6. County and State **Jennings, Indiana**	
PART II *(To be completed by NRCS)*	1. Date Request Received by NRCS 3-18-13	2. Person Completing Form Lisa Bolton
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES ☒ NO ☐		4. Acres Irrigated / Average Farm Size 226
5. Major Crop(s) Corn	6. Farmable Land in Government Jurisdiction Acres: 195,701 % 81	7. Amount of Farmland As Defined in FPPA Acres: 154,374 % 64
8. Name Of Land Evaluation System Used LESA	9. Name of Local Site Assessment System	10. Date Land Evaluation Returned by NRCS 3-27-13

PART III *(To be completed by Federal Agency)*	Alternative Corridor For Segment			
	6D Corridor A	4 Corridor B	Corridor C	Corridor D
A. Total Acres To Be Converted Directly	160	246		
B. Total Acres To Be Converted Indirectly, Or To Receive Services				
C. Total Acres In Corridor	160	246		
PART IV *(To be completed by NRCS) Land Evaluation Information*				
A. Total Acres Prime And Unique Farmland	90.59	157.14		
B. Total Acres Statewide And Local Important Farmland				
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted	0.067	0.092		
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value	53	52		
PART V *(To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)*	62	64		
PART VI *(To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))* — Maximum Points				
1. Area in Nonurban Use — 15	13	15		
2. Perimeter in Nonurban Use — 10	9	10		
3. Percent Of Corridor Being Farmed — 20	19	20		
4. Protection Provided By State And Local Government — 20	0	0		
5. Size of Present Farm Unit Compared To Average — 10	7	8		
6. Creation Of Nonfarmable Farmland — 25	6	6		
7. Availablility Of Farm Support Services — 5	5	5		
8. On-Farm Investments — 20	11	13		
9. Effects Of Conversion On Farm Support Services — 25	1	1		
10. Compatibility With Existing Agricultural Use — 10	8	8		
TOTAL CORRIDOR ASSESSMENT POINTS — 160	79	86	0	0
PART VII *(To be completed by Federal Agency)*				
Relative Value Of Farmland (From Part V) — 100	62	69	0	0
Total Corridor Assessment (From Part VI above or a local site assessment) — 160	79	86	0	0
TOTAL POINTS *(Total of above 2 lines)* — 260	141	155	0	0

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used?
6D Corridor A	160	9-27	YES ☐ NO ☑

5. Reason For Selection:
Alternative 6D had the lowest impacts to farmland as well as the majority of other resources.

Signature of Person Completing this Part: [signature] DATE 10-1-13

NOTE: Complete a form for each segment with more than one Alternate Corridor

RLM Engineering Inc.
Excelling in Service

December 10, 2012

Pat Carroll
Chief Drinking Water Branch
Indiana Department of Environmental Management
100 N. Senate Ave. Room ICGN 1201
Indianapolis, IN 46204

RE: City of North Vernon
US 50 Bypass Route
Potential Effect to Water Supply

Dear Mr. Carroll:

Mike Hess, North Vernon Water Superintendent requested that I send you information concerning the US 50 Bypass Route (East) and the potential issues that it creates with our water source. Attachments include:

- INDOT map of the alternative routes
- INDOT handout of Alternative 6-D

The maps contain added notes for the location of the City's Water Plant, Low Head Dam, and the nearby Stone Quarry "Hole". Mike Hess relayed issues to the bypass consultant in late summer 2012.

There was a recent early coordination meeting was held with various utilities that may be affected by the bypass alternate routes. Concerns were expressed by Mike Hess that the Alternative 6-D route was the closest to the City's water intake and that the potential of significant harm could result from an accidental or intention spill in their impoundment. A subsequent conversation with the consultant has indicated that the consultant plans to recommend Alternate 6-D to INDOT as the recommended project.

The attached maps provide the location of the alternate routes and the relative proximity to the City's low head dam. The location of alternate 6-D is approximately 2600 feet (stream length) from the low head dam while the alternative 4 is 20,900 feet stream length from the low head dam. This places alternative 4 as 3.5 miles farther away from the dam as alternative 6. There are no existing road crossings of the Muscatatuck River for approximately 9 stream miles from the dam.

The low head dam provides a shallow impoundment of water that is narrow, that is, within the narrow banks of the Muscatatuck River. The slope of the river is small in this section and the impoundment generally exists to the southern portion of the Selmier State Forest. The impoundment is limited in quantity.

Alternate 6-D places the location of the bypass and bridge across the Muscatatuck River above the impoundment only a short distance to the water intake for the water treatment facility. An accidental or intentional spill in the impoundment could result in severe consequences for the water users of the North Vernon water system. Since the City also provides bulk sales to Vernon, Burnt Pines Water Company, and Hayden Water, the consequences reach outside of the City.

From a public safety standpoint, Alternate 4 is better than Alternate 6-D. Should a spill occur, the City personnel and emergency management would have a longer time to respond to the spill. The spill

2700 N State Highway 7, North Vernon, IN 47265
Phone (812) 346-6139 Fax (812) 346-6440 Website: RLM-Engineering.com

could potentially be easier to contain as it is above the impoundment of the dam. The spill could also be diluted more or potentially absorbed by the plant matter, etc. in the river.

Typically, "time is of the essence" when dealing with spills that could migrate. The close proximity of Alternate 6-D to the intake may not provide sufficient time between a spill and it reaching the intake prior to the water plant being notified. Whereas, at least, Alternate #4 provides more time to notify the water plant, in which the intake could be shut down prior to the spill reaching the intake.

Discussions at the utility early coordination meeting seemed to be stressing that cost was the predominant factor in the final alternative selection. Mike Hess reiterated the City's concern about the proximity of the bypass to the water source at the meeting. The question was asked to the City as to what safeguards could be constructed to make Alternate 6-D better for water supply issues.

A response was made that Alternate 6-D crosses the existing Stone Quarry reserves. It does not cross the active mine area, but does cross the reserves. The active mine area or "hole" could be a potential "upland water storage reservoir". The relative proximity and size of the hole creates a potential use as a reservoir. The reservoir would require filling by the pumping of water from the Muscatatuck River. The volume held would be substantial and could allow the water intake to be closed for a significant period of time.

The potential was indicated that if the bypass project resulted in the State taking the quarry, which in turn, the remains of the quarry is provided to the City of North Vernon (due to damages to the existing impoundment), then a means is potentially created to safeguard the public. Additional infrastructure would be needed to make the quarry hole functional as an upland storage reservoir. Additional river pumps, piping to and from the river, quarry, and water plant, and quarry pumps would be needed.

The City is not aware that IDEM has entered any comments regarding the public water issues as it relates to the US 50 Bypass project. The City is requesting that IDEM provides comments to the appropriate bypass project personnel. The INDOT project manager is Jim Earl, IGCN, Room N642, 100 N Senate Avenue, Indianapolis, IN 46204, phone (317) 233-2072. The Consultant contact is Dan Prevost, Public Involvement Consultant, Parsons, 101 W. Ohio Street, Suite 2121, Indianapolis, IN 46204, phone (317) 616-1017.

The City also asks that you response ASAP as time is of the essence. It is rumored that the Consultant's recommendation to INDOT will be December 11, 2012.

Sincerely,

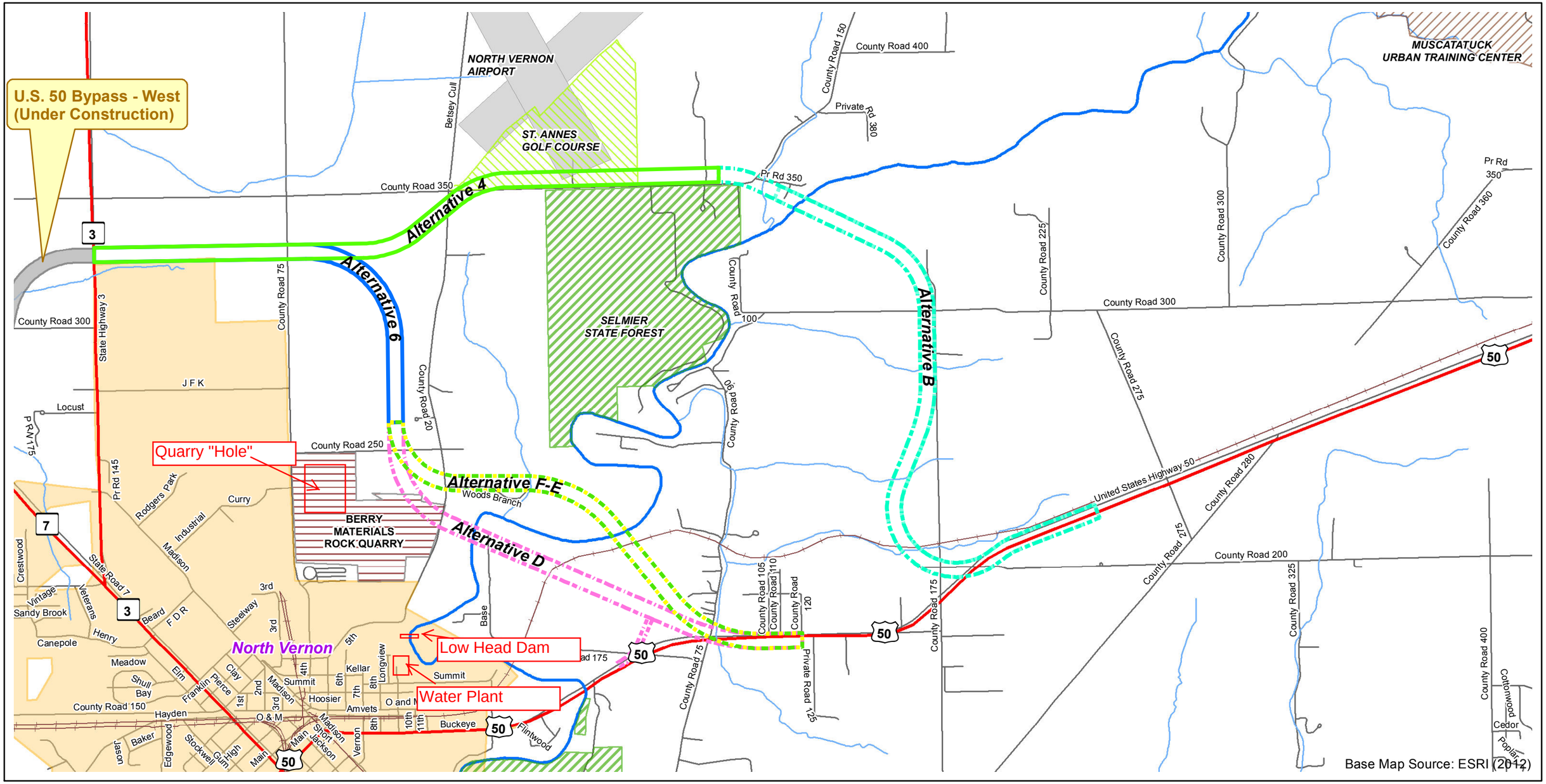
Richard Morin

President

Approved By: Mike Hess Mike Hess, Water Superintendent

Cc: Mayor Harold Campbell
Karen Snyder, Utility Board President
Dan Prevost, Toby Randolph; Parsons.

2700 N State Highway 7, North Vernon, IN 47265
Phone (812) 346-6139 Fax (812) 346-6440 Website: RLM-Engineering.com

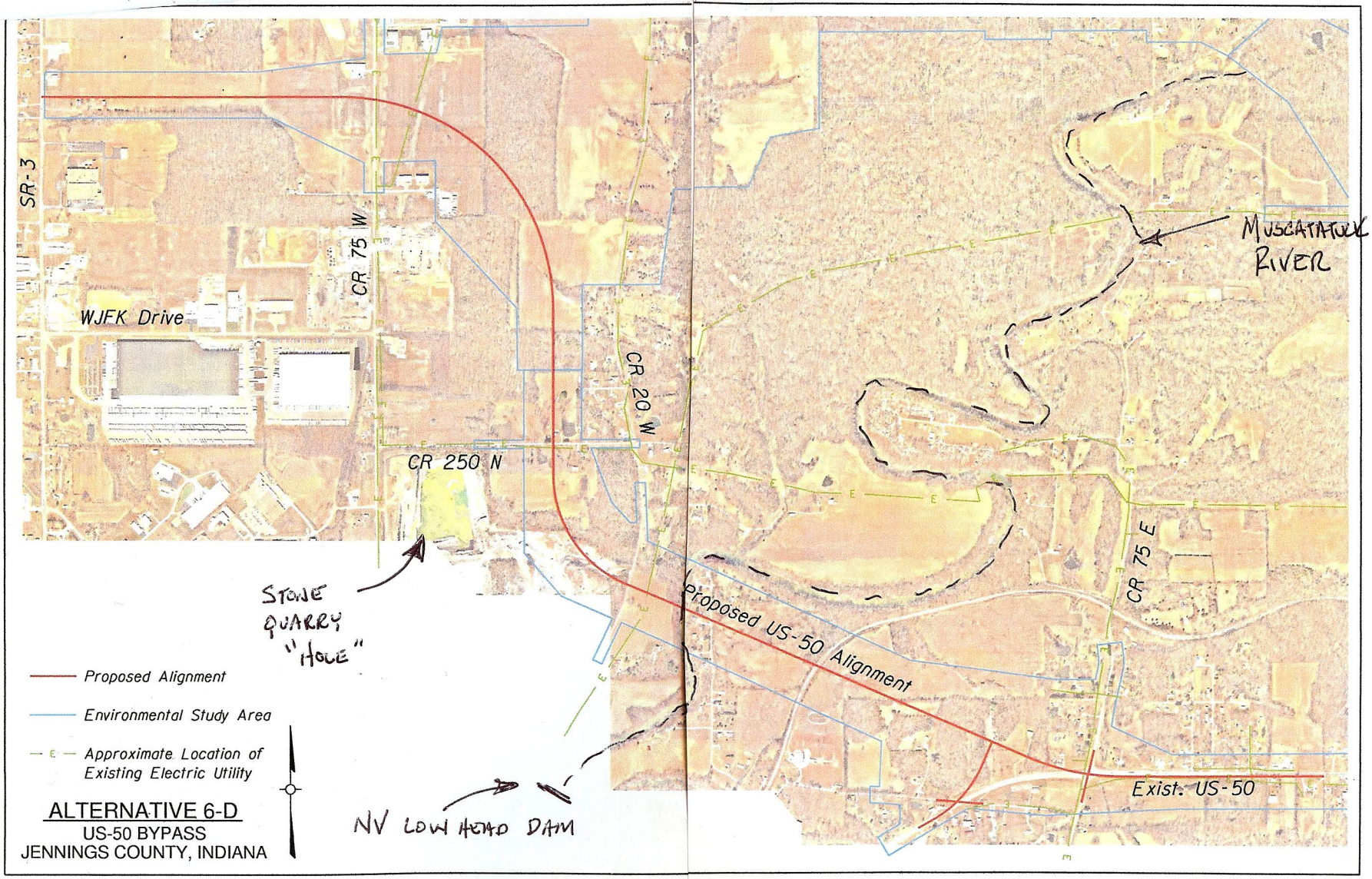


U.S. 50 BYPASS - EAST

Alternatives Selected for Detailed Study

0 2,500 5,000 10,000 Feet

Des. No. 1173374	PARSONS
Date: 10/9/2012	
Created By: AKB	


SR-3
CR 75 W
WJFK Drive
CR 20 W
CR 250 N
STONE QUARRY "HOLE"
MUSCATATUCK RIVER
CR 75 E
Proposed US-50 Alignment
Exist. US-50
NV LOW HEAD DAM
Proposed Alignment
Environmental Study Area
Approximate Location of Existing Electric Utility
ALTERNATIVE 6-D
US-50 BYPASS
JENNINGS COUNTY, INDIANA

US 50 Bypass Design and the Protection of the City of North Vernon, Indiana Water Supply

General Water Supply Information

The City of North Vernon, Indiana uses a low head dam in the Vernon Fork of the Muscatatuck River to keep water levels high enough for the raw water pumps to operate. The raw water pumps (or the low lift station) provides to the water treatment facility. The water treatment facility provides potable water for residential, commercial and industrial users for the City of North Vernon, Indiana and to bulk water or satellite water systems of the Town of Vernon, Burnt Pines, and parts of the Hayden Water Company. The City of North Vernon provides potable water to around a population of about 10,000 plus the commercial and industrial users.

The low head dam in the Muscatatuck River has been used for over 100 years for the purpose of water supply. The low head dam backs water up into the natural stream channel. This water impoundment or on-channel reservoir is a relatively narrow width of water that extends 6000 to 8000 feet upstream. (See location map.) The dam also creates siltation in the impoundment due to the reduced velocities or slowing of the water flow. The result is that the impoundment contains a relatively small quantity of reservoir storage. While a stream profile has not been conducted to determine any exact amount, a reasonable estimate is that the impoundment would contain about 10 million gallons of water.

Highway Design and Location

The US 50 Bypass around the City of North Vernon is proposed to go directly over the impoundment of water and relatively close to the City's water intake structure that supplies the raw water pumps. This route was chosen by INDOT over other potential routes. The selected route has a much greater potential of contamination of the water supply than the other routes that were considered.

INDOT and the highway consultant for the project have indicated that safeguards will be considered for the protection of the water supply. A request was made for information on the safeguards so that they could be reviewed and appropriate comments could be made. As of December 27, 2012, the following information was received from the highway consultant concerning the safeguards.

"We are still in the planning stages and will be addressing your concerns further as we get into detail design. Some ideas INDOT has used in the past and will be considered on this project are:

- no direct storm drainage from the bridge will be allowed to flow into the river; the water will be directed to the ditch and be filtered before entering the river;
- spill containment dams could be constructed at the end of the ditches before they empty into the river; and
- possible ditch lining techniques that do not allow soil absorption."

Issues

The response to the request about the safeguards creates the sense that the INDOT and the highway consultant do not fully understand the vulnerability of the water supply. Information was previously provided to the highway consultant and INDOT to voice a concern prior to the final selection of the route. Apparently, the information that was provided was not sufficient to indicate that locating US 50 over the impoundment was a poor choice. Due to this, additional information is being provided.

The "planning stages" being referred to, is the design of the highway and initiating land acquisition. So what if the design process does not adequately address the water supply concerns? Due to the public safety aspect of the drinking water issue and highway alignment, the drinking water safety concerns should be addressed prior to detail design.

A primary purpose of the US 50 Bypass was to reduce the heavy truck load from the City's downtown. The selected route takes the heavy truck load across a water supply reservoir. When does it make sense to locate a highway with a high truck load over a water supply reservoir when other routes are available?

Who will manage and maintain any protective device, structure, etc. that is designed into the highway design?

The highway design-water supply issue for the City of North Vernon is very different from other watershed protections that may have been done for highway construction. The reservoir storage is limited which provides little dilution of any pollutant. The stream flow is limited creating a long turnover time in the reservoir or flushing of the reservoir.

The descriptions of the safeguards listed from the highway consultant are vague and may not provide much protection of the drinking water supply.

- What is meant by filtering? If it only is to remove suspended matter, then soluble contaminants would pass through.
- Will the discharge to the reservoir include any additional treatment other than filtering for suspended matter?
- Who will maintain and operate any filters or treatment device?
- Will ditch lining techniques to reduce soil absorption make the situation better or worse? If ditch lining means that higher concentration of a contaminant is directed into the reservoir, then it is not a reasonable safeguard by itself.
- Will any discharge be sampled and tested for contamination? If so, what contaminants will be tested for and at what frequency? Even so, by the time that any sample result was obtained that indicates that a contaminant was released, the contaminant would have entered the water supplying the drinking water treatment facility and may have passed through the water treatment facility.

Understanding the Raw Water Supply to North Vernon

The water supply is dependent upon the water that flows in the Vernon Fork of the Muscatatuck River. Getting the water from the river required the construction of a dam to create enough depth in the river to withdraw water. The dam that was constructed was a "low head" dam or one that is not very tall. The low head dam also backs up the water to create the impoundment of water.

Years ago, the river source (including the dam and impoundment) by itself was found not to be sufficient in quantity. To provide a supplement for the river flow, the Brush Creek Reservoir was constructed in the 1950's. Brush Creek Reservoir would supplement the river flow through the opening of a valve and releasing water into the river. The Brush Creek Reservoir is approximately 9 miles upstream of the City's dam. The Brush Creek Reservoir also does not have the quantity to provide the entire water supply, but can only supplement the water supply during low stream flow periods. Brush Creek Reservoir is a water

supply reservoir that is also used for public recreational purposes and for training exercises conducted by the Muscatatuck Urban Training Center (MUTC).

When water is flowing over the dam, then there is an adequate quantity of water for the City's water supply. However, dry weather will produce periods where the stream flow is inadequate to keep up with the raw water pumping for the water treatment facility. During the low stream flow periods, water is taken from the impoundment and the water level of the impoundment decreases. To replenish the impoundment, the valve is opened on the Brush Creek Reservoir and water is released into the Muscatatuck River about 9 miles upstream of the dam. After a time period, the valve is closed to conserve the water in the Brush Creek Reservoir.

The releases are limited in quantity to reduce the amount of water that would flow over the dam. The conservation of water limits the lowering of the Brush Creek Reservoir water levels. Reasonable conservation measures are needed to preserve the reservoir levels for future additional releases. Limiting the lowering of the reservoir water levels also preserves the use of the reservoir for recreational or for training activities of the MUTC. Releases are made intermittently, rather than continuously, throughout the low stream flow periods.

During low stream flow periods, the City collects nearly all of the water that is available for water production. That is, there are periods where the City takes in all of the water that is coming down the river for water supply. These time periods can be rather long and can last for several months. These periods along with relatively small water storage volume in the impoundment creates a unique condition versus other water supply reservoirs.

The limited quantity of storage in the impoundment reduces the dilution potential. It is estimated that there may be about 10 million gallons of water in the impoundment. For instance, a 10 gallon pollutant direct spill into the impoundment would create about a 1 part per million or 1 mg/l concentration of the pollutant. With many chemicals, the maximum contaminant level is only a few parts per billion. Only three (3) tablespoons would be 1 part per billion of the impoundment.

It is also not known whether the contaminant would completely mix in the reservoir. A lack of complete mixing would result in a higher concentration of the contaminant. For instance, the raw water pumping draws the water towards the intake structure. The water movement toward the intake structure may not cause complete mixing of the contaminant and actually draw a higher concentration of the contaminant into the raw water pumps.

Not all contaminants will react the same. Some may disperse quickly while others are slower. Some may float near the surface while others may sink or mix. The personnel reaction time to deal with a spill may differ with each contaminant. If a contaminant enters the impoundment, will the water treatment personnel be notified quickly enough to stop withdrawals? If so, how long until the contaminant is removed and the raw water pumps can be turned on?

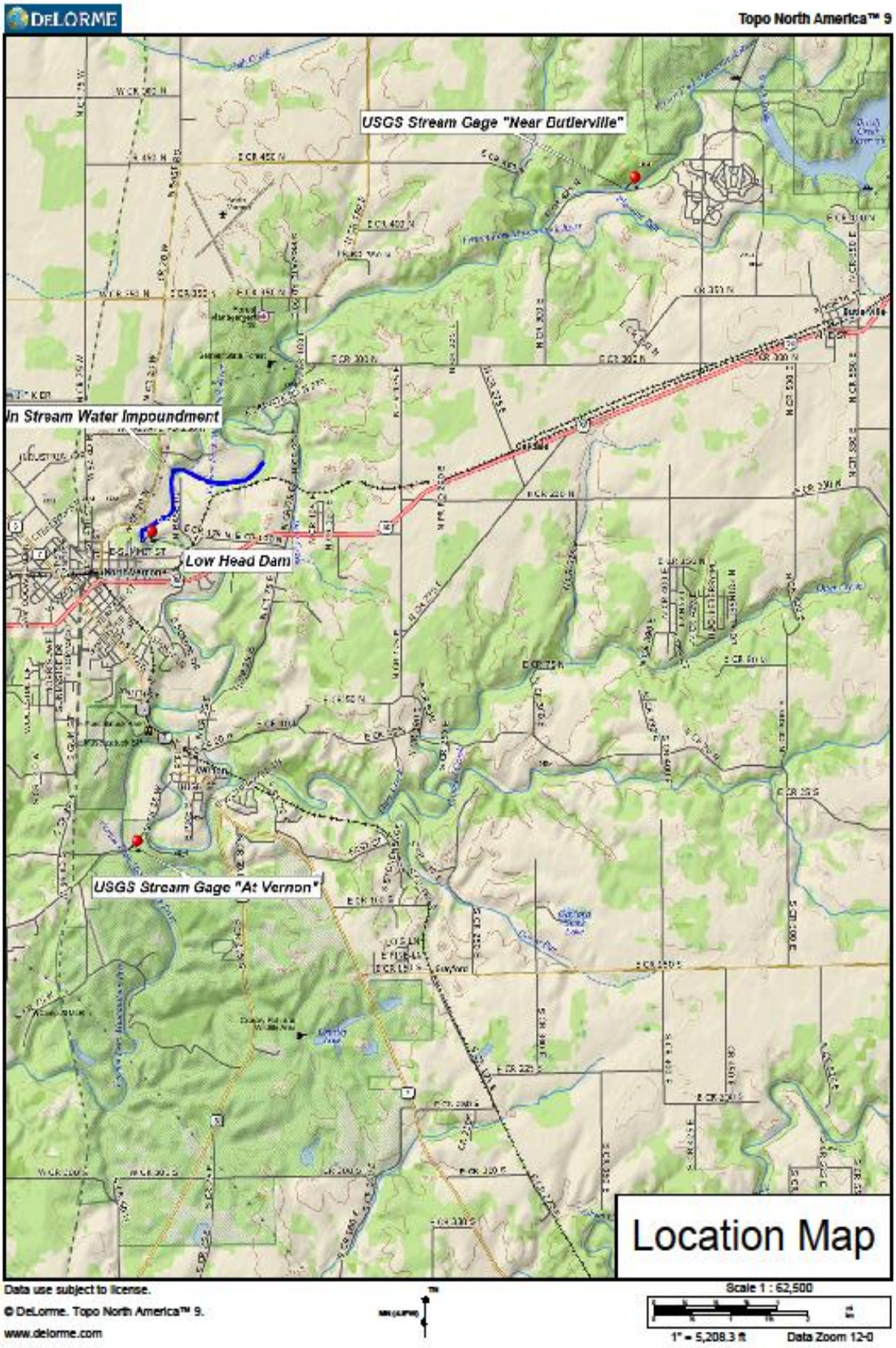
In some cases, it may be necessary to get nearly every spoonful of contaminant out of the reservoir prior to turning on the raw water pumps. Sampling and analysis of the water supply may be necessary to be assured that the public would be safe if the water is pumped to the water treatment facility. All of this would increase the length of time that the raw water pumps would need to be off. The City's treated water storage would only last about 1 day. It would appear very likely that any contaminant spill into the impoundment would create a period greater than 1 day to resolve.

Spill containment measures must be perfect and fail proof as to not let any amount, as even a few spoonfuls of some contaminants into the impoundment could be disastrous.

Stream Flow Information

The United States Geological Service (USGS) monitors various streams across the United States. The USGS makes much of the data available through the internet website. There are two stream gaging stations that provide information relative to the City of North Vernon. One is located on the Vernon Fork of the Muscatatuck near Butlerville. (See Location Map) The gaging station is downstream of the Brush Creek Reservoir and as such would include releases made from the reservoir. Water flowing through this gage would go to the City's water impoundment.

Another stream gage is located at Vernon or just south and west of Vernon. This gaging station would include flow over the City's low head dam, the City's waste water plant discharge plus other tributaries to the Vernon Fork of the Muscatatuck River. Much of the water pumped out of the river for potable water treatment is returned to the river at the waste water treatment plant. Therefore, the stream flow at the gage at Vernon would include the stream flow at the gage near Butlerville plus any tributaries to the river between the two stations. It is noted that evaporation, evapotranspiration, or other water withdrawals from the river could be taking place.


DeLORME
Topo North America™ 9
USGS Stream Gage "Near Butlerville"
In Stream Water Impoundment
Low Head Dam
USGS Stream Gage "At Vernon"
Location Map
Data use subject to license.
© DeLorme. Topo North America™ 9.
www.delorme.com
Scale 1 : 62,500
1" = 5,208.3 ft
Data Zoom 12-0

The stream gage near Butlerville is no longer providing data. Data is available from 1942 to 2001. The stream gage at Vernon is still active and data is available from 1942 to present time. Figure 2 provides a chart indicating the stream flow daily rates at the Vernon gage for the period beginning on August 1, 2012. The flow rate is in cubic feet per second (cfs). The City's water treatment plant currently requires about 2.5 cfs to meet the public water supply demand. The low stream flow period indicates flows less than 2.5 cfs even though a large part of the water used by the City's users is returned to the river and that there are other tributaries contributing to the river. It is also affected by releases from the Brush Creek Reservoir.

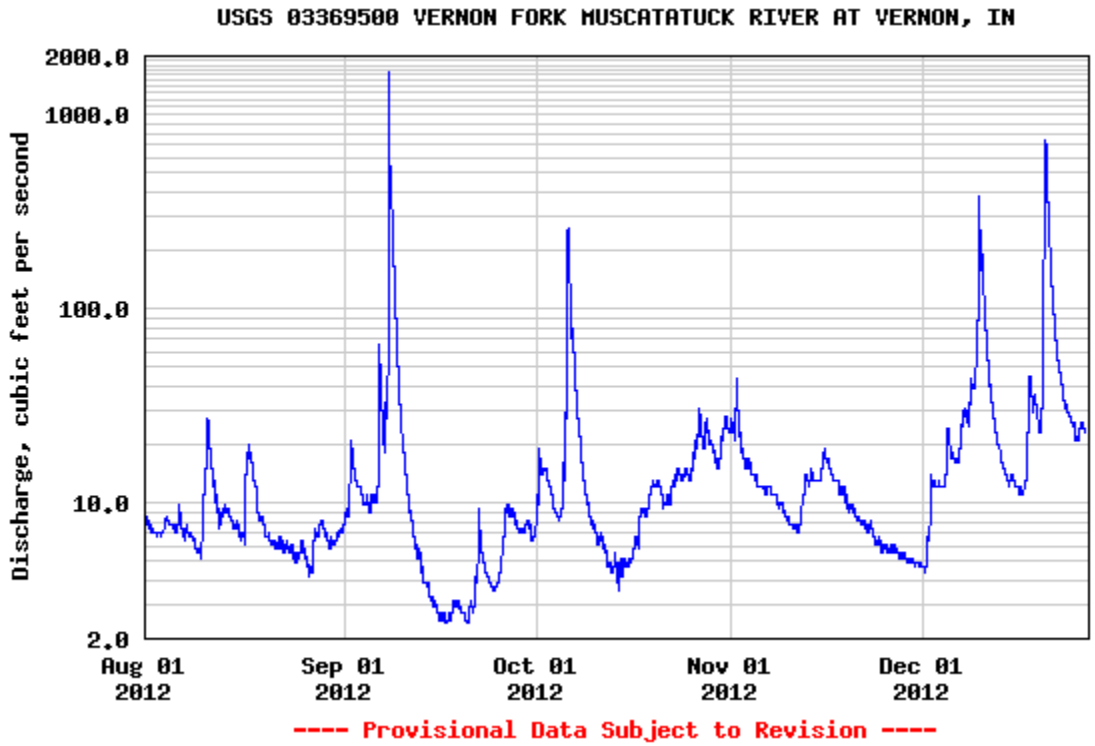
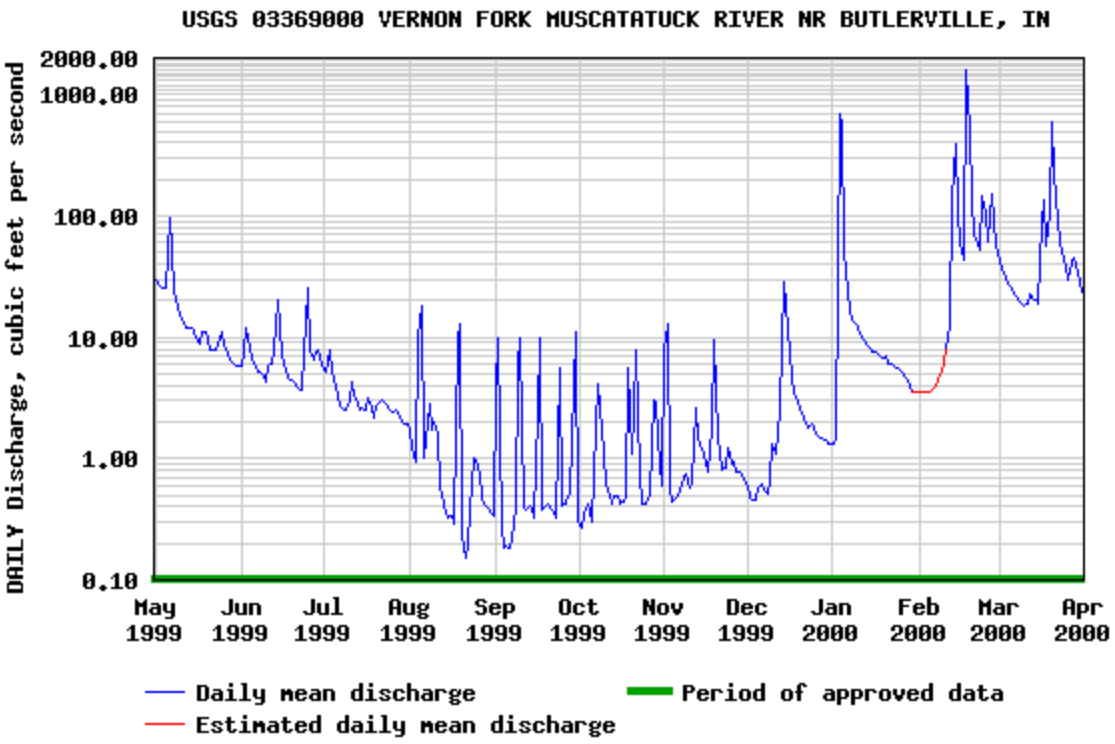


Figure 2

A comparison of the two gages provides for more insight as to how the water supply and impoundment affects the stream flow. Figure 3 contains stream flow data from both stations for a one year period beginning May 1, 1999. The upper gage (near Butlerville) has some higher peaks during the dry weather. Figure 4 provides a better scale for the time period of April 1, 1999 through December 31, 1999. Generally, the lower gage has higher flows as there is a much greater area and other tributaries contributing to stream flow. However, during dry periods, it is noticed that the upper gage (near Butlerville) has higher peaks than the lower gage (at Vernon) during the low flow periods.

The reason that the higher peaks exists for the upper gage is due to the releases from the Brush Creek Reservoir. The upper gage is relatively close to the Brush Creek Reservoir discharge. When releases occur, the upper gage responds with the release. The lower gage does not have as significant of a peak as a portion of the water released is replenishing the impoundment. The distance between the gages and the low head dam also smooths out the peaks by the time the flow reaches the lower gage. The time of the peak at the lower gage is also later.


USGS 03369000 VERNON FORK MUSCATATUCK RIVER NR BUTLERVILLE, IN
DAILY Discharge, cubic feet per second
2000.00
1000.00
100.00
10.00
1.00
0.10
May 1999
Jun 1999
Jul 1999
Aug 1999
Sep 1999
Oct 1999
Nov 1999
Dec 1999
Jan 2000
Feb 2000
Mar 2000
Apr 2000
Daily mean discharge
Estimated daily mean discharge
Period of approved data

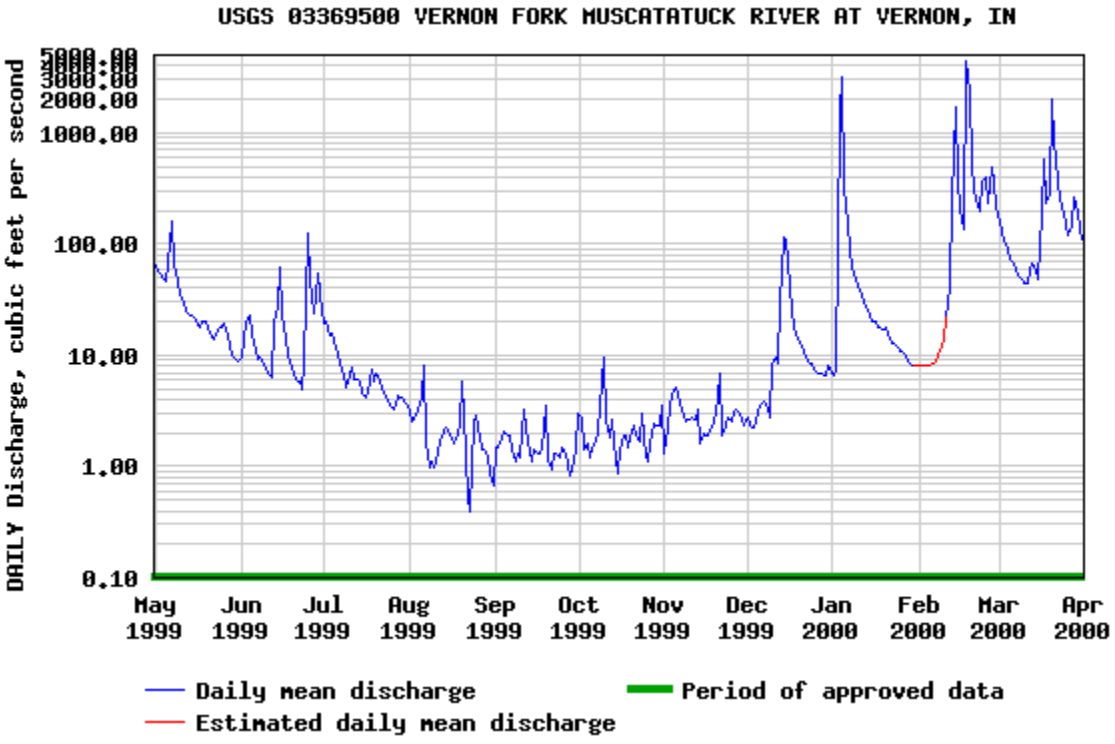

USGS 03369500 VERNON FORK MUSCATATUCK RIVER AT VERNON, IN
DAILY Discharge, cubic feet per second
5000.00
3000.00
2000.00
1000.00
100.00
10.00
1.00
0.10
May 1999
Jun 1999
Jul 1999
Aug 1999
Sep 1999
Oct 1999
Nov 1999
Dec 1999
Jan 2000
Feb 2000
Mar 2000
Apr 2000
Daily mean discharge
Estimated daily mean discharge
Period of approved data

Figure 3

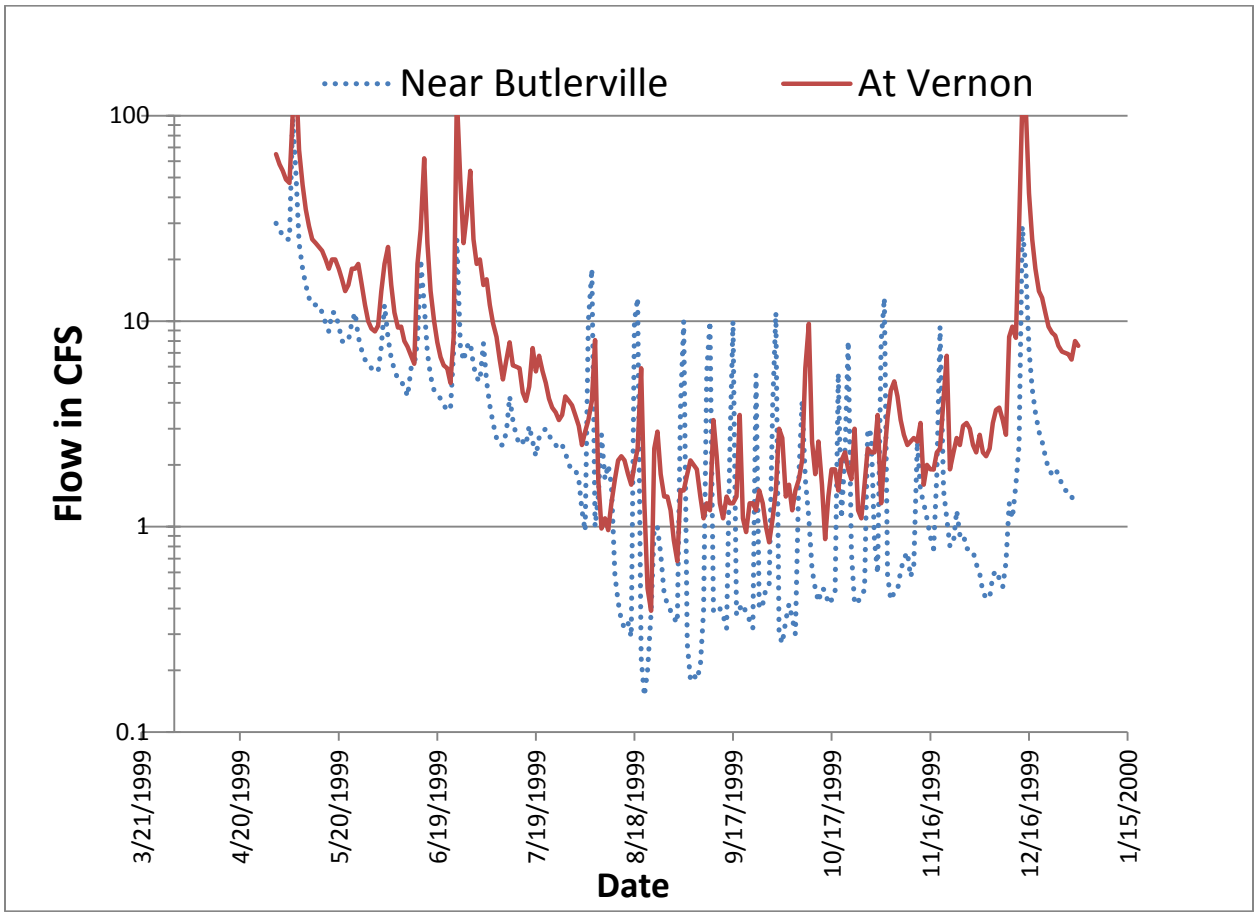


Figure 4

The figures provide an indication that when the upper gage drops below about 2.5 cfs, the water level begins to drop in the impoundment. Typically, when the water level in the impoundment drops about 6 inches, then a release is made from the Brush Creek Reservoir to replenish the storage in the impoundment. If the stream flow remains low after the release from lack of precipitation, then additional releases are made from the Brush Creek reservoir. It is in this manner that the Brush Creek Reservoir supplements the water supply. It is also shown that the low flow period lasts a significant time period and several releases were needed.

Could or should the Brush Creek Reservoir be used to flush a spill through the impoundment? This may be dependent upon the contaminant and its characteristics. A contaminant that mixes easily would likely not be flushed, but would be diluted by a release from the Brush Creek Reservoir. For instance, if dilution is a reasonable solution, then for each 10 million gallons of water released from the Brush Creek Reservoir (under low flow conditions), the concentration may only be about halved. Brush Creek Reservoir may not contain sufficient water to adequate reduce the concentration. For instance a 100 part concentration in the impoundment diluted to 1 part would require a release of 70 million gallons of

water. So a high concentration of a contaminant may require a release that would drain the Brush Creek Reservoir or reduce the level to compromise recreational or water supply functions.

If the contaminant was floating, then a lesser amount of water may be used for flushing over the low head dam. But what environmental issues would this create and then would it be more difficult to contain and remedy? There is still a timing issue as to how long the raw water pumps could be off. It takes a significant time period to release a high quantity of water from the Brush Creek Reservoir and for it to travel to the low head dam. It is likely that the dilution or flushing actions along with sampling and testing of the water supply would be longer than the 1 day maximum downtime of the raw water pumps.

Highway runoff issues exist at any time of the year. Potential spills could occur at any time. Highway runoff can be concentrated in contaminants after a long dry period where contaminants from normal vehicle operation collects and then is washed off during a precipitation event. A precipitation event could have an immediate release of contaminants into the reservoir without significantly affecting the stream flow or dilution potential.

Snow melt is also an issue. Precipitation in the form of snow will likely cause deicing procedures to be used. The runoff from deicing can be very concentrated while the precipitation does not increase the stream flow. The contaminants can be soluble such as chloride from the road salts where simple filters will not remove the contaminant.

The USEPA Source Water Protection Practices Bulletin "Managing Highway Deicing to Prevent Contamination of Drinking Water" provides a discussion of deicing issues pertaining to the potential contamination of drinking water. This bulletin indicates that "reservoirs and other drinking water supplies near treated highways and salt storage sites are especially susceptible to contamination".

The USEPA Guidance Document (November 2005, EPA-841-B-05-004) "National Management Measures to Control Nonpoint Source Pollution from Urban Areas contains a section for Bridges and Highways. This document discusses " Management Measure 7" for planning, design, operation, and maintenance of highways and bridges for protection of "sensitive ecosystems, including wetlands and estuaries, by minimizing road and bridge related impacts and water crossings, and by establishing protective measures including setbacks during construction".

Management measure 7 also includes a discussion of the typical pollutants found in highway runoff and the mechanics on how they enter the receiving streams. The following is a list from "Table 7.1 Primary sources of highway runoff pollutants" of the USEPA guidance document.

Pollutant	Primary Source
Particulate	Pavement wear and vehicle maintenance
Lead, cadmium, copper	Tire wear, lubricating oil and grease, bearing wear
Nitrogen, phosphorus	Roadside fertilizer application
Chromium, copper, nickel, cadmium	Metal plating, moving engine parts, brake lining wear
Chloride, sulfates	Deicing salts
PCB's, pesticides	PCB catalyst in synethetic tires, spraying highway rights-of-way
Cyanide	Anti-caking compound used to keep deicing salt granular
Petroleum, ethylene glycol	Spills and leaks of motor lubricants, antifreeze, hydraulic fluids

Section 7.3.1 of the USEPA guidance document indicates that "during the siting process, consideration should also be given to maintaining sufficient setbacks for the protection of drinking water sources".

Best Practices to Protect the City of North Vernon Water Supply

Transportation routes are limited in the area with no major road crossing of the Muscatatuck River near to the water intake for the City. The construction of the US 50 Highway Bypass increases potential pollutant and contamination issues for the watershed providing the source of the drinking water supply for the City of North Vernon and its water users. The potential routes presented by the highway consultant included different locations for the crossing of the river. The water supply risk increases as the location of the potential bridge across the Muscatatuck is to the proximity to water intake for the City.

With the above information, it is shown that a very small amount of a contaminant could place the potable water supply in peril for thousands of people and commercial and industrial operations. It may not require a large tanker truck to create a significant event. So every vehicle that would travel across the reservoir could possess a contaminant in sufficient quantity to harm the water supply. Road construction, operation and maintenance activities also create the potential for pollutants to enter the reservoir.

Are the techniques mentioned as safeguards that are being considered by INDOT reasonable in light of the unique water supply situation? Is the risk to the water supply for the proposed route worth the reduced cost of the highway project as compared to other alternatives? Are there other methods to safeguard the water supply? Further research and review of other protection devices should be conducted. For instance, the 1999 report "Controlling Highway Runoff Pollution in Drinking Water Supply Reservoir Watersheds" by Shaw L. Yu and Thomas E Langan provides information on a biodetention pond which may be warranted at any tributary crossing proposed in the watershed.

The safeguard techniques mentioned may be suitable for other areas in the watershed, but are less reliable at the impoundment. The use of these methods at other areas of watershed, such as a river location upstream of the impoundment or tributaries to the river above the low head dam may provide for some safeguard. At these locations, filters, containment dams, and absorption devices could provide a more reliable safeguard than directly at the impoundment.

Failure of these devices at a location other than the impoundment may produce a lesser contamination event. This is due to:

- the added distance to the impoundment (and water intake structure),
- added dilution effect,
- allowing nature to assist in protection by adsorption or absorption, or treatment of the contaminant,
- allowing more time for personnel reaction to shut down the water supply, assess the situation, and further contain and remedy the contaminant.

Another method to protect the water supply also exists. One of the issues with the City's water supply is the absolute dependence on the low head dam and the impoundment of water. This dependency can be reduced through the creation of an off channel or upland water storage reservoir. That is, if sufficient off channel water storage is created, then it is possible to shut off the raw water pump intake for a period of time.

Off channel storage reservoir is typically filled whenever higher stream flows are available. The off channel storage can provide water directly to the water treatment plant and allow the river pumps to be shut down for emergency or during extreme low stream flow periods. The length of time that the river pumps can be shut down is dependent upon the amount of stream flow, capacity of the off channel reservoir and the capacity of the river pumps pumping to the reservoir.

An obvious site for off channel storage for the City is the "hole" created from the stone quarry operations. The hole is sizable providing for a significant amount of water storage. A study is currently being conducted to examine this potential. However, a prior water supply study indicated that the quarry storage could exceed 400 million gallons. This could be greater than a one year water (current) demand for the water treatment facility.

Creating an upland water storage reservoir supply system for the City of North Vernon requires a significant capital investment. The property would need to be acquired, then high capacity river pumps, large diameter piping from the river to the reservoir, reservoir pumps (to water plant), and piping from the reservoir to the water plant would be needed to complete the system.

Creating upland storage at other locations may be more costly. Earthen type basins could be used, but due to karst areas and developed property, the reservoir may need to be located a significant distance from the river and water plant. A smaller capacity reservoir may be possible, but likely at least 30 days of storage to allow for significant river pump shut down and with allowances for siltation of the reservoir and evaporation would likely result in a minimum storage capacity of 60 million gallons. Even then, low stream flow periods have been shown to last for a period of 6 months which would justify larger capacity storage for the best operation.

Conclusions

- The relatively small volume of storage in the City's water impoundment creates a unique water protection issue.
- An extremely small amount of a contaminant could render the water supply to the City out of service until it is properly remedied.
- Due to the small amount of contaminant that could render the water supply in peril, then the safeguard devices designed for the highway must contain all of the contaminant.
- The design, construction, operation, and maintenance of these devices must be done flawlessly.
- The risk of contamination of the water supply is high with a US highway route across the water impoundment.
- A lower risk of contamination of the water supply would occur with a crossing of the river at a greater distance upstream of the impoundment. The construction of the safeguard devices and due to natural effects and increased time to react to the contamination.
- The greatest protection of the potable water supply is through the construction of an upland off-channel storage reservoir.
- The nearby stone quarry "hole" could be used as an upland storage reservoir if the property could be acquired by the City.
- Due to the authority of the Indiana Department of Environmental Management (IDEM), it is recommended that the City request that the IDEM Drinking Water Section concur that the solutions, alternatives, devices, etc. that INDOT proposed for the US 50 Bypass are the proper and best solutions, etc. to protect the City's drinking water supply.
- Specific design details to protect the water supply for the City of North Vernon have yet (as of December 27, 2012) to be provided to the City for review.

US 50 Bypass – Source Water Protection Meeting
North Vernon City Hall
Wed. January 30, 2013

Preface

The proposed alignment of the US 50 Bypass is over the reservoir and near the intake used for the water treatment facility for the City of North Vernon. The City provides treated water to approximately 10,000 people, and commercial and industrial establishments. Specific details had not been provided to the City as to how the water supply would be protected. General information that was provided did not appear to provide adequate protection. A meeting was requested by the North Vernon Utility Board with INDOT and IDEM to discuss the protection of the source of water supply for the City of North Vernon's water treatment facility. A report discussing the reservoir, streamflow, potential contaminants from highway runoff, and various issues that the proposed alignment creates for the water supply was provided to the parties in advance of the meeting.

Meeting Attendence:

In attendance were: Trevor Mills and Walter Land, INDOT
Jim Sullivan and Jason Randolph, IDEM
Richard Morin and Michael Meyer, RLM Engineering, Inc.
Toby Randolph, Parsons
Harold Campbell, Mayor
Karen Snyder, Utility Board
Connie Rayburn, City Council
Mike Hess, Water Superintendent was unavailable due to illness

Minutes:

Richard provided a summary of the concerns with a description of the impoundment and issues with relative small volume of water in the reservoir creating large potential for a small amount of contaminant. Aerial drawings were available to provide an indication of the area contours, length of the reservoir (impoundment area caused by the City's Dam), and location of the proposed highway alignment. The City has not seen any specific source water protection design and is concerned that this issue is not being treated serious enough.

Mike Meyer indicated that a travel time for contaminants in the reservoir from the highway location to the water plant intake may be 20 to 40 minutes. It was also noted that under low flow conditions that there are issues as to how to remove the contaminant once it gets into the reservoir.

Toby indicated that there are other pollution sources such as septic systems in the area.

It was noted that the water treatment facility can handle this type of contaminant or bacteria from CSO's. It was noted that there are no CSO's discharging to the reservoir. The wide scope of potential contaminants from the highway project cannot be identified ahead of time in order to treat. It creates a much less manageable contamination problem.

A concern was mentioned that the highway creates easier access for intentional contamination. It was noted that the current situation is vulnerable to intentional acts, but more effort would be needed and that the proposed highway provides an easier access and quicker escape.

INDOT indicated that the alignment will not change. No party was requiring that the alignment to be changed, but that the source water be protected. It was noted that an alternate alignment reduced the hazards to the source water, but that protection would still be needed.

There was discussion as to protection used on I-69 in sinkhole areas for the protection of groundwater. It was noted that these likely affected far less population and reaction time is different. The City's situation is different from these.

Containment of spills on the bridge was discussed. There were concerns about adequate volume, collection of runoff plus spill volume, and how contained material would be handled and disposed. The use of vegetative filter strips were discussed, but no information was provided as to the how effective these were for various contaminants.

Other protection solutions were discussed.

Moving the City's dam upstream of the alignment could result in similar transportation route as currently exists. That is, US 50 is located downstream of the dam and US 50 crosses Deer Creek (tributary) in nearly the same location as the proposed alignment. Permitting issues, reservoir storage volume, and need for a new water intake and pumping were mentioned.

Storm sewer for both sides of the reservoir from the proposed highway to the downstream side of the dam. Storm water pumping stations may be needed in lieu of gravity storm due to terrain. This would direct runoff, spillage, etc. beyond the water source for the water treatment facility.

The nearby location of the stone quarry "hole" was discussed with preliminary volumes of storage that the hole may provide. The quarry could be used as an upland reservoir to be filled from the river. The upland reservoir would provide additional protection to the water supply through treatment and dilution. A discussion indicated that INDOT likely would not purchase the entire quarry, but would pay damages to the quarry due their impact on the quarry. The City would likely be dealing with the quarry owners to gain acquisition. There was a question as to the amount of damage or INDOT acquisition costs for the proposed highway route. Toby had indicated that their preliminary appraisal information was that it was not a high cost property. Richard indicated that the quarry owners will differ from that and that the acquisition may be several million dollars. Trevor indicated that it would likely go to condemnation to be determined.

There was some discussion as to the need of borrow pits for highway construction. The borrow volume is yet to be known. Could the borrow pit(s) provide some part of the solution?

Mayor Campbell mentioned that there are other water providers in the area. It was mentioned that this alternative would create other issues such as more infrastructure to utilize an alternate source and a cost burden to the customer due to higher costs. This was examined in recent years by the City.

Information was voiced as to why the selected route was chosen, including less impact to wetlands, Section 4-F properties, wildlife, and utility relocations. Karen noted that protection of the water supply

was not on their list. She indicated that water supply protection should be a greater issue than all of those mentioned. It affects everyone in the county- not just city, but schools, hospital, nursing home, restaurants. Protecting the water source is a responsibility of government and the proposed project has an enormous potential liability to the City for decades. Richard noted that the solution needs to be fail proof.

There was a discussion of including this into an emergency plan. It was noted that there is a local emergency management agency. However, this would be a new issue for the agency. Jim indicated that he would provide some framework for the LEMA concerning this.

The timing of the Public Meeting is scheduled for March. Toby indicated that the final details for the water supply protection will not be provided prior to the Public meeting.

IDEM expressed that the water supply has been weighted too lightly. It needs to looked at carefully and pay attention to it. They also suggested that INDOT keep local officials involved so there are no surprises.

It was indicated that INDOT would meet with the City prior to the public meeting to discuss any additional design details.

Meeting adjourned

Minutes prepared by Richard Morin

Meeting Minutes

Subject: **Spill Containment Options at Muscatatuck River**

Date/Time: **May 14, 2013 at 9:00 a.m. and**
June 4, 2013 at 12:00 p.m.

Location: **City Hall, 143 East Walnut Street, North Vernon, IN 47265**
Water Plant, 43 9th Street, North Vernon, IN 47265

Meeting Facilitator: **Toby Randolph**

Invitees:

Name	Organization	Email	Phone	Present
Trevor Mills	INDOT-Project Mgmt	tmills@indot.in.gov	317-232-5121	X
Harold Campbell	Mayor – North Vernon		812-346-3789	X
Russel Vaught	Manager – N. V. Wastewater	rvaught@northvernon-in.gov	812-346-1496	X
Mike Hess	Manager – N. V. Water	nvwaterworks@gmail.com	812-346-2037	X
Richard Morin	RLM Engineering	richard@rlm-engineering.com	812-346-6139	X
Toby Randolph	Parsons	tobias.randolph@parsons.com	317-616-1016	X
Dan Prevost	Parsons	Daniel.prevost@parsons.com	513-552-7013	X

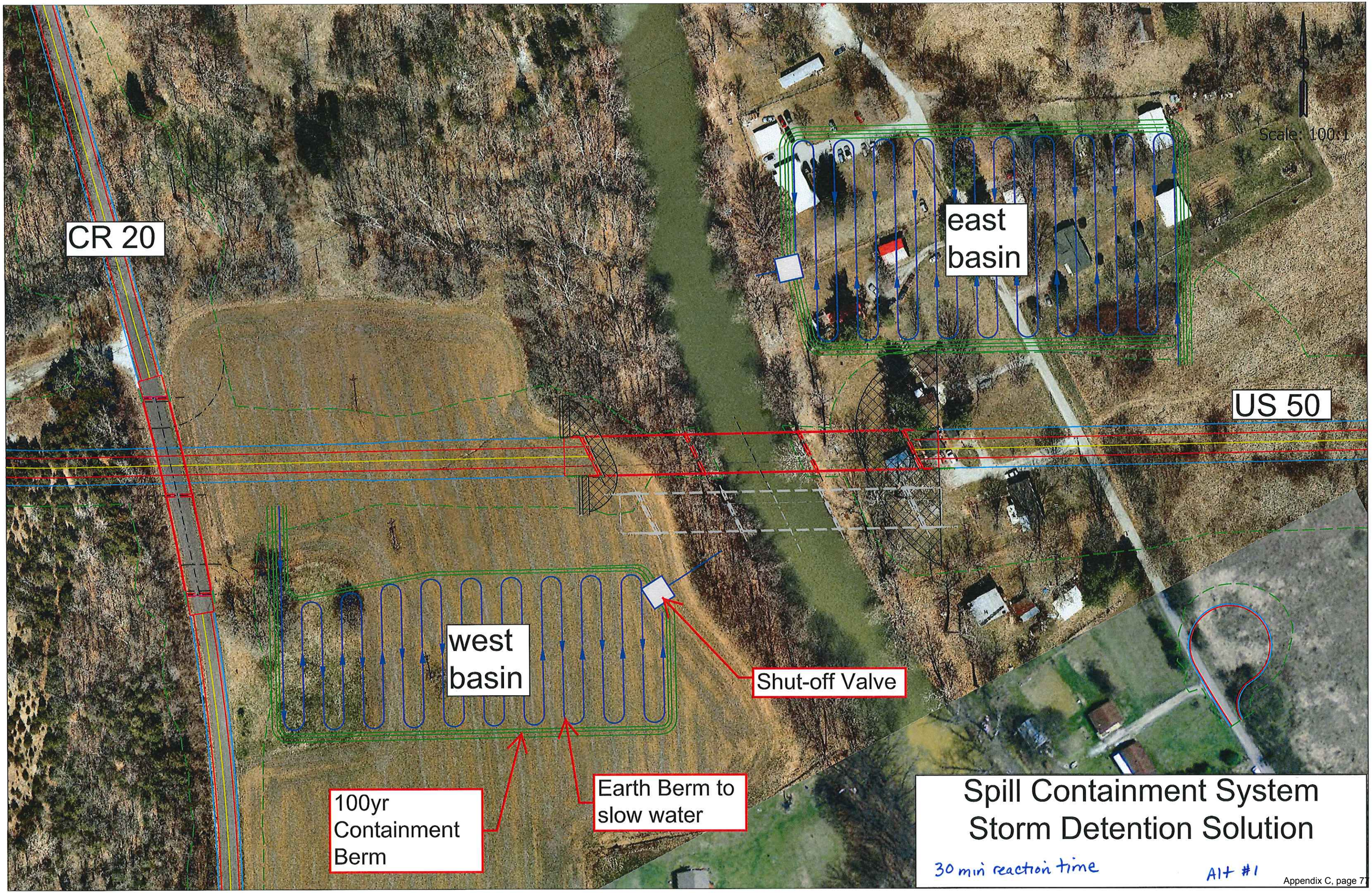
Two meetings were held with the City of North Vernon representatives to discuss the spill containment concern with the US 50 bypass bridge over the Muscatatuck River. This bridge is located just upstream from the water intake valve for the water treatment plant. INDOT and Parsons have reviewed multiple options for containment and presented 2 feasible options to the City and the North Vernon Municipality. Attached to these minutes are graphics showing the two options.

Alternative 1 was the use of spill containment basins in the southwest and north east corners of the bypass and the bridge over the river. Alternative 2 was the use of ditches and storm sewers to collect storm runoff or a spill and direct it to downstream of intake valve.

At both meetings, it was decided that Alternative 2 is the preferred option. The City recommended the design storm should be no less than a 5 year storm. Parsons has not completed the detailed the hydraulics but will consider this in the design. Mike Hess also requested that a vandal fence be placed on the bridge.

These minutes are in the writer's best interpretation of discussions held during the meeting. Please inform the writer within three (3) business days of any noteworthy omissions or errors as these will become part of the project record.

Minutes prepared by: Toby Randolph 06-10-13

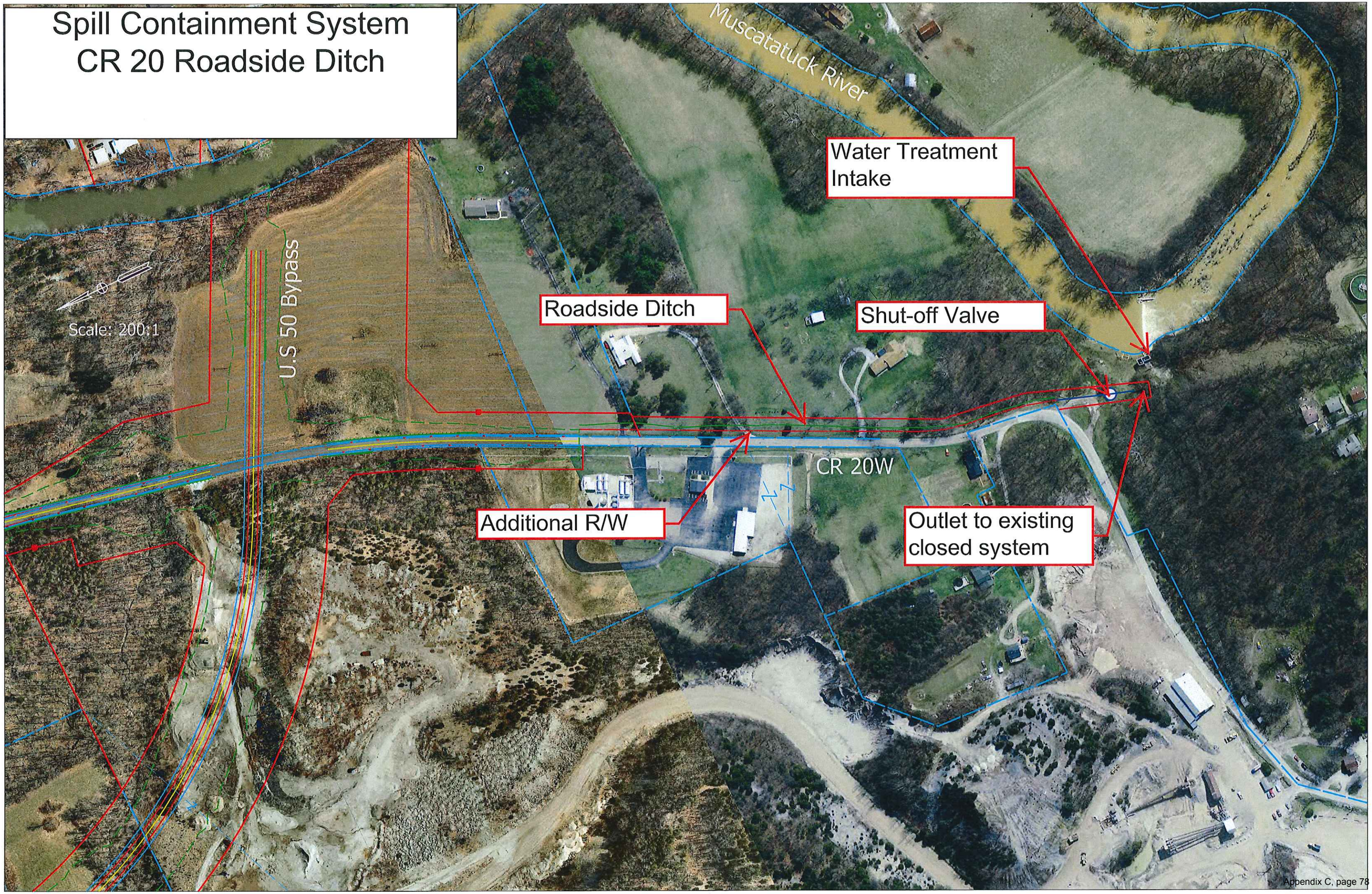


Spill Containment System
Storm Detention Solution

30 min reaction time

Alt #1

Spill Containment System
CR 20 Roadside Ditch



Spill Containment Closed System Base Road

PARSONS

101 West Ohio, Suite 2121 • Indianapolis, Indiana 46204 • (317) 616-1000 • FAX (317) 616-1033 • www.parsons.com

MEMORANDUM

Date: September 6, 2013
To: Trevor Mills, PE
From: Toby Randolph, PE
Marcel Dulay, PE, Ph.D.
Dan Prevost, AICP-CTP
Subject: US 50 North Vernon Bypass – Drinking Water Mitigation Plan

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The purpose of this memo is to respond to concerns raised in a document titled "Water Supply Protection Issues," dated January 2, 2013, submitted by RLM Engineering, Inc. on behalf of the City of North Vernon. The City of North Vernon, Indiana (the City) is concerned that the proposed alignment of the US 50 bypass introduces the possibility of a truck cargo spill into the Muscatatuck River near North Vernon Water's intake point. Because a spill in this location could contaminate the region's raw water supply, the opinion of the City is that the roadway alignment is "a poor choice".

Highway projects with new alignment have a thorough planning and design process that requires approval from a number of state and federal agencies. Although a low probability event, chemical spills along highways do occur; however, they are not part of the regular federal and state review process. Addressing all potential concerns across the entire highway network would be cost-prohibitive. Due to the unique situation in North Vernon, INDOT agrees that evaluating and addressing the risks are appropriate for this project.

It is generally cost prohibitive to design infrastructure for all potential technical, financial, social, and environmental issues, but the Project Team believes this project has struck a balance between protecting public health while also being good stewards of public funds. Many decision factors were taken into account when setting the alignment of the new roadway including cost, minimizing impacts, avoiding critical habitat, and connecting to existing roadways. Based on a broad balancing of factors, INDOT identified Alternative 6D as the preferred alternative.

A wide range of mitigation measures were evaluated to protect the water supply, including detention basins, curbs and gutters, pumps, ditches, and closed system pipes, both in isolation and combined as a multifaceted system. Based on the evaluation a system that will reroute all stormwater runoff, including contaminated spills, from the bridge area was selected. Costing approximately $520,000, the system includes a combination of curb-and-gutter, ditches and closed pipes with shut-off valves that will direct stormwater to outfalls located downstream of the water intake. INDOT is confident that this system will effectively eliminate the risk of contamination via a vehicular accident or typical stormwater runoff in a cost-effective manner. The attached documentation provides additional details regarding INDOT's evaluation and conclusions.

The Project Team wishes to thank the City of North Vernon, North Vernon Water, and their representatives for working cooperatively to address this issue and look forward to addressing any additional questions regarding the proposed plan.

BYPASS ALTERNATIVE SELECTION

In December 2011, the Federal Highway Administration (FHWA) issued a Finding of No Significant Impact (FONSI) for the U.S. 50 North Vernon Bypass – West project (FHWA, 2011). That project, which is currently under construction, represents half of a northern bypass of North Vernon. The Bypass – West project leaves the existing U.S. 50 alignment near CR 400 W and travels northeast to end at SR 3 on the north side of North Vernon. The approximate length of the roadway will be 4.5 miles. This new roadway will help alleviate some of the operational concerns created by commercial truck traffic by creating a new, more efficient access to the industrial areas of North Vernon. The northern terminus at SR 3 was chosen to allow for the continuation of the roadway to the east at a later date while maintaining sufficient separation from the intersection of SR 3 and CR 350 N.

In the spring of 2012, Parsons Transportation Group and INDOT began the planning phase for the remaining half of the bypass, known as the U.S. 50 North Vernon Bypass – East project. This project begins on SR 3 at the terminus of the Bypass – West project, and reconnects with existing U.S. 50 east of North Vernon. Several land-use constraints, such as Selmier State Forest, St. Anne's Golf Course, the North Vernon Airport, Berry Materials Rock Quarry, and several industrial parks, shaped the alternative development process. The alternatives considered for the Bypass – East project fell into two broad groups: those that went north of Selmier State Forest, and those that went south of the forest. A total of sixteen possible alternatives were examined before a pair of alternatives (6D and 4B) were selected in Fall 2012 for further study. These alternatives, along with the "No Build" option will undergo detailed analysis in an Environmental Assessment (EA).

The engineering and environmental analysis, in conjunction with public comments, led INDOT to select Alternative 6D as the preferred alternative (see Figure 1). This combination best meets the project's Purpose and Need and achieves several other desirable outcomes. Specifically, the preferred alternative:

- Aligns with INDOT's long-term goals for the U.S. 50 corridor by completing a bypass around North Vernon.
- Provides for an efficient connection with existing U.S. 50 to facilitate use of the new roadway.
- Supports the planning and economic development goals of North Vernon and Jennings County.
- Provides the best balance between construction cost and access.
- Minimizes impacts to residences and businesses.
- Minimizes impacts to wetlands and streams.
- Received broad support from the community and agency stakeholders.

While two lanes are sufficient to effectively carry traffic in this corridor for the foreseeable future, in accordance with the designation of U.S. 50 as a Statewide Mobility Corridor, INDOT plans to acquire sufficient right-of-way for a future four-lane roadway. The two-lane roadway constructed as part of this project would serve as the westbound lanes of that roadway. Through most of the corridor, a 300-foot wide right-of-way will be acquired, allowing for construction of the eastbound lanes in the future.

CONTAMINANT RISK AND RESPONSE

Risk to Water Supply from Cargo Spills

The RLM Engineering report provides a summary of the potable water system in North Vernon. It states the low-flow, low-volume nature of the system leaves little buffer for protection. The storage impoundment, created by a low-head dam on the Muscatatuck River, provides only a 10 day supply of water with no other water source other than releases from the upstream Brush Creek reservoir. The concern is that a significant spill (e.g., a full tanker truck at 11,600 gallons) could produce a concentration of pollutants many magnitudes above allowable limits. The report sites many concerns related to spills and highway runoff in general.

Most areas of concern related to this impoundment would apply to either bypass alternative. However, one factor did standout that could be useful: the lead time to stop the intake of contaminants by the raw water pumps. The assessment of the information shows that the distance to the raw water intake and river flow could produce measurable differences in reaction time. Since the flow can vary by two to three orders of magnitude and the distance between the two alternatives is substantially different, the lead time could be drastically different between the two alternatives, leaving only a few minutes of reaction time in some cases. Under certain conditions, operators may not be able to stop the pumps in time to avoid a hazardous chemical from entering the potable water system. This section provides details of each of the items addressed in the comments.

Dilution

The RLM Engineering report suggests that as little as three tablespoons of certain chemicals could contaminate the supply. The report assumes that in the unlikely event that a "spill" makes its way into the river, it could result in concentrations likely much higher than allowable drinking water standards. The report estimates that the volume of water in the impoundment is nearly 10 million gallons. A typical truck, carrying as much as 80,000 lbs of a dry substance, could lead to a chemical concentration as high as 1000 mg/L of a chemical, if completely mixed. Liquids are different and it would depend on the concentration of the liquid being carried; however, it would likely be far higher than regulatory standards. For example, the maximum contaminant level goals (MCLG) for toluene set by EPA is less than 1 mg/L. A full spill of 11,600 gallons at a density of (0.87 g/ml) would result in a concentration of over 1000 mg/L.

At first glance, a spill appears to produce concentrations much higher than drinking water standards for the entire supply, but that result is not the most accurate representation of the physical system. Four factors are related to the harm and pollutant concentration: the volume of mixing water, the mass of the pollutant, the treatment effect, and potency of the concentration. First, the dilution effect described above can be drastically different if the volume changes. The scenario above assumes the spill would be diluted by the entire impoundment area, but the physical process would not allow for proper mixing (described in detail below). What does happen is a higher concentration in the portion of the river receiving the spill because it is only diluted by the affected river segment. For example, if the spill occurs on 100 longitudinal feet of the river with a cross section of say 100 square feet, the effective volume is 10,000 cubic feet, not the entire river segment. As the pollutant is not diluted with less volume of water there will be a higher concentration. Although the concentration is high, the spill is localized providing the utility time to allow the volume of contaminated water to pass the intake. Thus, not impacting the entire water supply.

Second, the mass of the pollutant is dependent on how much of the pollutant makes its way into the river. Many of the substances are in dry form and are not likely to "spill" into the river. In addition, an entire cargo is not likely to make its way into the river because the barrier wall on both sides of the bridge would stop the flow. The bridge is also on a slope and the spill would naturally drain down the highway and away from the river. In the absence of other controls (e.g., curbs, ditches, etc.) the contaminant would have to travel over land, where infiltration would reduce the volume of contaminant reaching the river.

Third, there are many natural/physical treatment and absorption processes that take place before it reaches a household. The treatment plant has the ability to treat some of these chemicals, rendering them inactive. Soils have the potential to remediate pollutants. Biological processes would also occur in the river.

Finally, the actual concentration, once treated, may be low. Recall, the standards referenced are for drinking water quality and not river ambient water quality. Although not a consolation to affected parties, many of these pollutants require long term exposure for there to be any serious health issues. The volume affected is the same for either bridge location, making this factor not relevant for a decision.

Mixing

As the City report suggests, mixing of the pollutant in the impoundment will have a significant impact on concentration. However, mixing is not an accurate description of a narrow, low-flow river regime. Low flow, flat rivers do not have sufficient turbulence to allow for mixing. They are normally considered "plug flow" reactors where any batch of water moves down the river as a plug of water that remains mostly homogenous. Something akin to a train of cars carrying liquids where each tanker has its own unique characteristics. Mixing does occur overtime as a plug passes over turbulent areas and from natural mixing due to the concentration gradient and a concept known as Brownian motion (random collision of atomic particles). As discussed earlier, the lack of mixing does cause higher concentrations in the particular spill area, but it is localized as it "travels" down the river, giving operators time to react by simply waiting for the plug to pass. Thus, for this river any spill would likely travel down the river and be unmixed. Each of the bypass alternatives would experience similar "plug flow" characteristics, with no difference between concentrations and volumes, thus making dilution not a useful criteria for differentiating between the two alternatives.

Flushing

Flushing is a process of using a rush of water to displace or "wash" away something. The report suggests that to flush a pollutant that has "100 part concentration in the impoundment diluted to 1 part would require a release of 70 million gallons of water" is not necessarily accurate. As shown in point 2, the river does not mix, it flows as a plug. Similarly, flushing has the effect of using a volume of water to displace the contaminated water and move it down the river. This process creates a transport process not a mixing process. The amount of water needed for flushing depends on the existing flow. If the river has low flow then more water from the upstream river will be needed. The volume is trivial as it is the same regardless of where the bypass is located because the same amount of flush water still has to travel the same distance: from the reservoir to the raw water intake. Regardless of the bridge location, the impact is the same, making flushing not a useful factor to distinguish among alternatives.

Storage

The RLM Engineering report indicates that North Vernon Water has only one day of storage in the potable water system. The Brush Creek Reservoir is 9 miles upstream. At a high flow, it would take roughly 2.5 hours for the flush water to reach the contaminated area, well within the 1 day storage period allowed. As stated previously, the travel time to the contamination period and having to pass the same intake location makes the total travel time for the flush water equal regardless of bypass location. Thus, the impact on limited potable storage is equal for both alternatives.

Highway runoff and snow melt

The comments suggest that highway runoff puts the water supply at risk. The water supply is surrounded by roads and parking lots where this concern is not unique to the bypass project. The bridge section is an immeasurable quantity in comparison to the surrounding paved surfaces. For instance there are parking lots where there is chemical build up on a regular basis due to parked cars and then flushed into the river with every rainfall event. Deicing may occur on the bridge just as it would likely occur in other parts of the city (e.g., large culvert crossing and other bridges in the area). Regardless, because the rainfall runoff discharges in the river at the same concentration and location, this concern does not distinguish the two alternatives. The bridge is still upstream of the water intake no matter how far.

Response Period

The report states that under low flow conditions the city may have a problem. As stated above the City's storage tanks only allow for 1 day of supply. Operators are not likely to risk drawing water from the river until the plug arrives because they will not know for certain where the contaminated plug is located. The question will be if the plug of water will pass before they run out of potable water. One solution would be to increase the flow in the river. The report comments that the Brush Creek Reservoir could provide the flushing water, but that flows are often constrained from lack of precipitation. The issue is not as significant as it seems because, unlike the report suggests, a large flow of water (70 million gallons to "dilute" the contaminant) is not necessarily needed. The flow that is needed needs to be sufficient enough to provide enough time for it to pass the intake, not dilute it. So a discharge in the high range, say 1000 cfs, would require less than 5 minutes of flow for the plug to pass the intake under Alternative 6D and 20 minutes for Alternative 4B (see table below). This is well within the 1 day threshold. However, if only low flow conditions prevail, then there could be a condition where the city may run out of water before it has time to flush it out. In this case, it is an advantage to have the bypass closer because it will take less time for the plug to pass. This condition is not ideal and the City would have to coordinate with the reservoir operator and express the urgency of the situation. If the flow regime is already high, then operators may not have to wait for flush water and the plug will pass quickly.

Response time

All of the discussion above leads to the one issue that is a concern if a spill were to occur: flushing requires a response time to avoid contaminate uptake by the raw pumps. The report documents that the majority of the flow rate is below 10 cubic feet per second (cfs). The flow and river dimensions affect the time it takes to flush the contaminant. Table 2 provides a rough estimate of the time for the plug to pass, which serves as the warning time it would take for the

City to stop its pumps. Two options are shown: the close alternative at 2,500 feet and the far option approximately at 20,000 feet (the cross section was assumed to be 70 feet wide by 2.5 feet deep). Because the majority of the flow in the river is below 1 cfs, the city would have plenty of time to react with Alternative 6D. Because an accident is likely to get immediate attention (hours not days), both of the warning times are within a reasonable period to react. It should be noted that under a high flow condition the warning time is decreased. For example, at 1000 cfs, the difference between 5 minutes and 20 minutes is significant. This would be a good reason to choose a farther alternative if the potable water system cannot be protected from a spill.

TABLE 1: FLUSH/WARNING TIMES FOR VARIOUS DISCHARGE RATES

Discharge (cfs)	Velocity (ft/sec)	Flush/Warning Time (hours)	
		Alternative 6D	Alternative 4B
0.2	0.001	607.64	4,861.11
1	0.006	121.53	972.22
10	0.06	12.15	97.22
100	0.57	1.22	9.72
1000	5.7	0.12	0.97

The conclusions of the report state that "The construction of the US 50 Highway Bypass increases potential pollutant and contamination issues for the watershed providing the source of the drinking water supply for the City of North Vernon and its water users," where the distance to the location matters such that a very small amount of contaminant could put thousands at risk. Although it is true that a small amount of particular pollutant would prevent the water supply from attaining drinking water standards, the concern is the same for both locations. The plug flow nature of the river's flow regime, not mixing, make this concern equal for both alternatives because whether the spill occurs at 2,500 feet upstream or 20,000 feet upstream, roughly the same concentration and volume will pass the raw water intake—the real difference is how long operators have to react and how long do they have to wait for it to pass.

The concerns brought up in the report are not necessarily accurate. Flushing is equal for both alternatives as the source of the flush water travels the same distance from its source, Brush Creek Reservoir, to the intake location—making the location of bridge irrelevant. The majority of the flow in Muscatatuck River is below 10 ft/s, which allows for at least 8 hours of reaction time for the close option, well within the range of response time for a spill. The ability to discharge large slugs of water from upstream in order to move several hundred to a thousand cfs, makes the response period well within the 1 day storage period. Therefore the period is the same no matter where the bridge is located. Under high flow conditions, the time to flush the pollutant is less than one day and if flush water is needed from Brush Creek Reservoir, it can arrive in less than one day. Under low flow conditions, having the alternative closer is an advantage because it takes less time for the slug to pass (assuming people are already aware and are simply waiting). Highway runoff is the same concern for both alternatives.

Probability

Traditionally, truck spills are not normally given attention during an alternative analysis because there is no way to predict where one would occur. It is also cost prohibitive to protect entire stretches of roadway for events that are extremely rare. Any money spent on costly protection

for rare events, would give less value than the same money used for other regularly used public infrastructure. As such events are considered maintenance or part of an emergency response, and even if one were to plan for it, the probability of occurrence is the same for all alternatives, making its utility as a deciding factor less useful. For contamination to occur a perfect storm of events would have to occur. The City should take comfort that the probability for a spill to occur is very low. The Indiana State Police accident reports provide data that can be used to estimate the probability of a spill occurring at the bridge.

- **Jennings County Accidents:** According the *Indiana Crash Facts 2011* report, of the 188,132 accidents in the state, Jennings County had only 832 accidents (the mean was 2,045).
- **Truck accidents:** there were approximately 13,941 large truck accidents in the state (7.4 percent of total accidents).
- **Hazardous Spill:** Trucks carry all of sorts of materials, from ice-cream to nuclear waste. All trucks carrying hazardous materials have a placard stating the nature of the cargo. In 2011, 253 trucks had a spill of hazardous cargo in Indiana (1.8 percent of all truck accidents).
- **Road miles:** there are approximately 1,335 miles (7 million feet) of highway in Indiana. The bypass bridge is 300 feet, a ratio of 0.0042 percent of the roads in the state.

Given all of these ratios, the likelihood of a spill occurring is the product of all the percentages, as follows:

$$probability = \frac{13941}{188132} \cdot \frac{253}{13941} \cdot \frac{300}{1335 \cdot 5280} = \frac{1}{17{,}471{,}737}$$

Which suggest that at 832 accidents a year in Jennings County, it would take over 21,000 years for there to be spill in the bridge area. This does not include the added probability that the spill occurs directly over the bridge so that it is not contained by the curb and walls. In addition, much of it will be cleaned up, absorbed in the soil, and bio-reacted in the river. The rest will be treated at the treatment plant or will not even be harmful to humans at treated levels. Also note that many chemicals require long-term exposure to be harmful. Risk levels by EPA often suggest that risk be below the 1:1M ratio. For these reasons this event is considered to be a low probability event.

MITIGATION PLAN

It was stated that the "spill containment measures must be perfect and fail proof as to not let any amount, as even a few spoonfuls of some contaminants into the impoundment could be disastrous." It is often quite difficult and unlikely to achieve under the best circumstance a design that is "perfect" and "fail proof." It would be cost prohibitive and there is always room for error. For this reason engineers introduce safety factors that account for uncertainty and the range of possible constraints.

For this particular project, given the analysis above, the primary source of concern is the time available between a spill occurring and action required on the part of North Vernon Water staff.

When the river is flowing fast, this window of time could be low and not give operators sufficient time to stop the pumps.

The project team evaluated two general approaches to address this concern:

- Construct large detention basins that would increase the time before the contaminant could reach the river; or
- Construct a system that captures stormwater in the area of the bridge and discharges it downstream of the intake.

Detention Basin Option

This option would construct a large detention basin on one or both sides of the river, adjacent to the bypass (see Figure 2). Stormwater from an approximately 3,900 foot section of the roadway, extending from 950 feet west of CR 20 W to the bridge over the CSX Railroad would be collected via roadside ditch and carried to a single inlet at the detention basin. Within the outer berm, the floor of the basin would have a zig-zagging ditch system that would carry all water from intake to outfall. The ditch system would be designed with a very low grade that would provide a minimum time of travel of 30 minutes for water entering the basin. The outfall, which would discharge to the Muscatatuck River, would have a valve system that, when closed, would capture all water (up to a Q_{100}[1] storm) in the basin. Any contaminants within the basin could then be addressed appropriately prior to them entering the river. The basin would be sized to handle a Q_{100} storm.

For this system to be effective a spill incident must be identified and action (closing the valve) must be taken. Further, once a contaminant is captured in the basin, its removal could require the excavation of the soil and reconstruction of the basin. Finally, the valve itself must be maintained to ensure its effectiveness when required. The estimated cost of this system would be $460,000 for initial installation and would require approximately 8.2 acres of additional right of way. (Much of the system would be built within land already to be acquired for the project.)

While this option requires action and, therefore, is subject to identification of an incident and appropriate action, it would provide a substantial increase in the response time and does provide a mechanism by which the contaminant is prevented from entering the river.

Diversion Option

This option would, like the previous option, capture stormwater from a 3,900 foot section of the roadway. Under this option the captured water would be carried by either a roadside ditch or buried pipe to outfalls in the river located below the dam and the City's drinking water intake (see Figures 3 and 4).

East of the Muscatatuck River, all water, including any contaminants, would be collected and directed to drainage ditches on either side of the road. From there, water would be routed into a directionally-drilled pipe that would parallel Base Road (west side of the road), flowing to the south. The pipe would include four man-holes for maintenance access. At the south end of Base Road where it turns to the east, the pipe would be extended across private property, via an

[1] A storm event with a 1% event probability in a given year.

easement, to a new outfall into the Muscatatuck River, approximately 2,200 feet downstream from the dam.

West of the Muscatatuck River, a similar collection system would be used with the water directed into a ditch along the east side of CR 20 W. The ditch would flow south along CR 20 W for a distance of approximately 2,100 feet. Where CR 20 W bends to the west at the parking area near the dam, the ditch would connect to an existing buried stormwater pipe that would outfall to an existing ditch that flows into the Muscatatuck River just below the dam. Prior to the outfall to the ditch, a shut-off valve will be provided on the pipe in case a spill occurs during a flood event and it becomes necessary to capture and temporarily hold a contaminant in the system.

The pipe/ditch system would be designed to handle a Q_{100} storm event and divert all stormwater to outlet below the City's drinking water intake. This option requires no knowledge of a spill or action on the part of emergency response personnel. This option is estimated to cost $520,000 to construct and would require minimal maintenance. This option would require approximately 5.75 acres of additional permanent right of way in order to install the ditch and pipes along CR 20 W and Base Road.

Agency Coordination and Selection of a Preferred Option

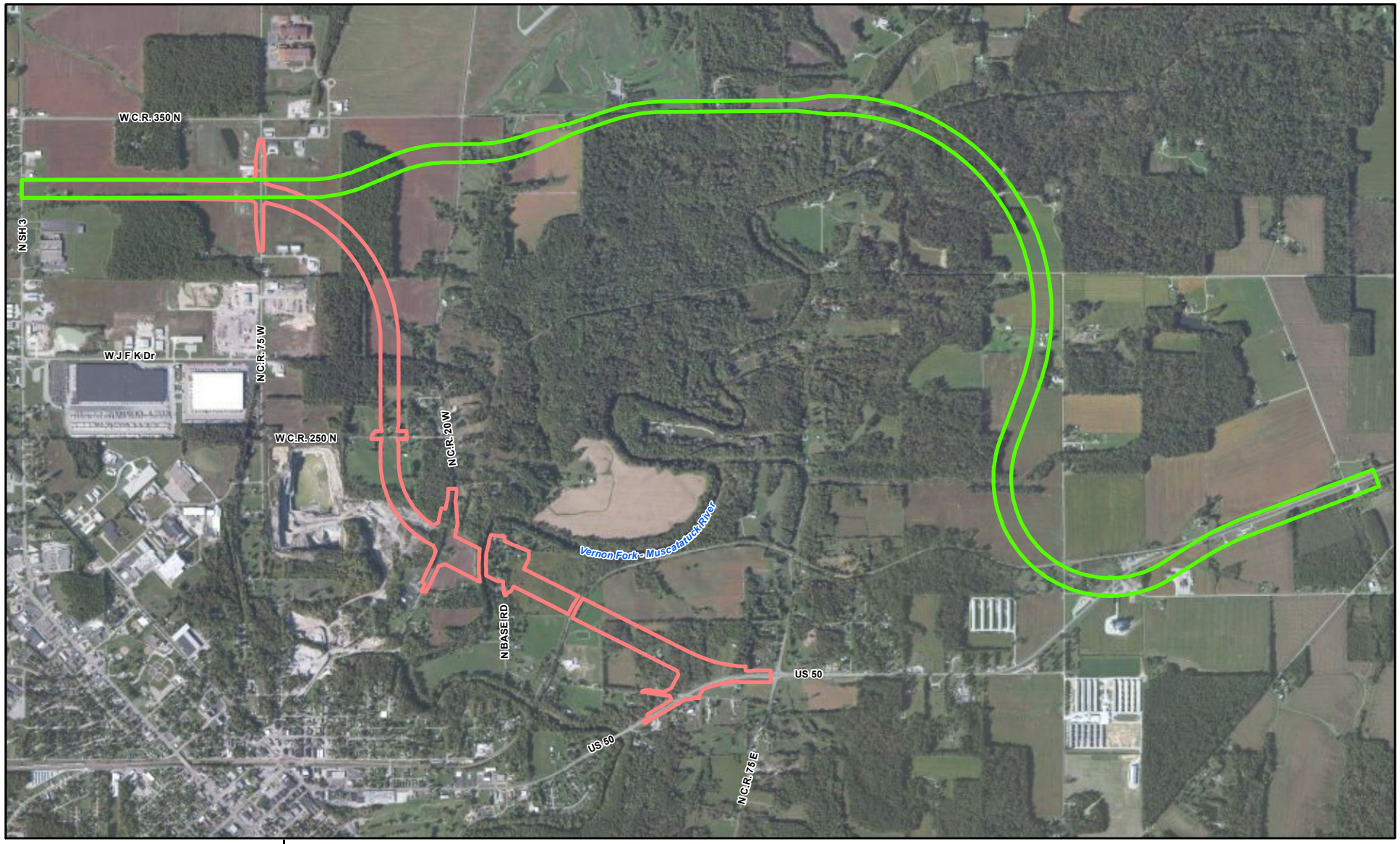
Following the development of these two options, the Project Team reviewed the details internally and with the City of North Vernon. The consensus among all parties was that the Diversion Option was preferred for the following reasons:

- "Always on" design that requires no action by emergency response personnel
- Maintenance of the ditch and pipes would be less frequent than for the valve system on the basin outfall
- A spill would not require reconstruction of any portion of the system
- The detention basin would have a negative impact on aesthetics in the area

It's worth noting that had Alternative 4B been selected as the preferred alternative, the Diversion Option would be cost-prohibitive due to the distance between the bridge and the dam. Thus, the selection of Alternative 6D provides a higher level of protection for the City's drinking water supply.

CONCLUSION

This document shows that many of the issues brought up by the RLM Engineering report apply equally to Alternatives 6D (preferred alternative) and 4B and, therefore, don't play a role selection between the alternatives. INDOT recognizes the City's concern for the security of their drinking water supply and developed two viable mitigation options for use with Alternative 6D. Based on the Project Team's analysis, with input from the City of North Vernon, INDOT has selected the Diversion Option to be included in the project's design.



0 1,500 3,000 Feet

1 inch = 3,000 feet

Legend

ROW 4NB2 - Permanent

ROW 6D - Permanent

Figure 1
Alternative 6D & 4NB2

PARSONS

Environmental Assessment
U.S. 50 North Vernon Bypass – East
Des. No. 1173374

CR 20

east
basin

US 50

Scale: 100:1

west
basin

Shut-off Valve

100yr
Containment
Berm

Earth Berm to
slow water

Figure 2
Detention Basin Option

Figure 3
Diversion Option
East of River

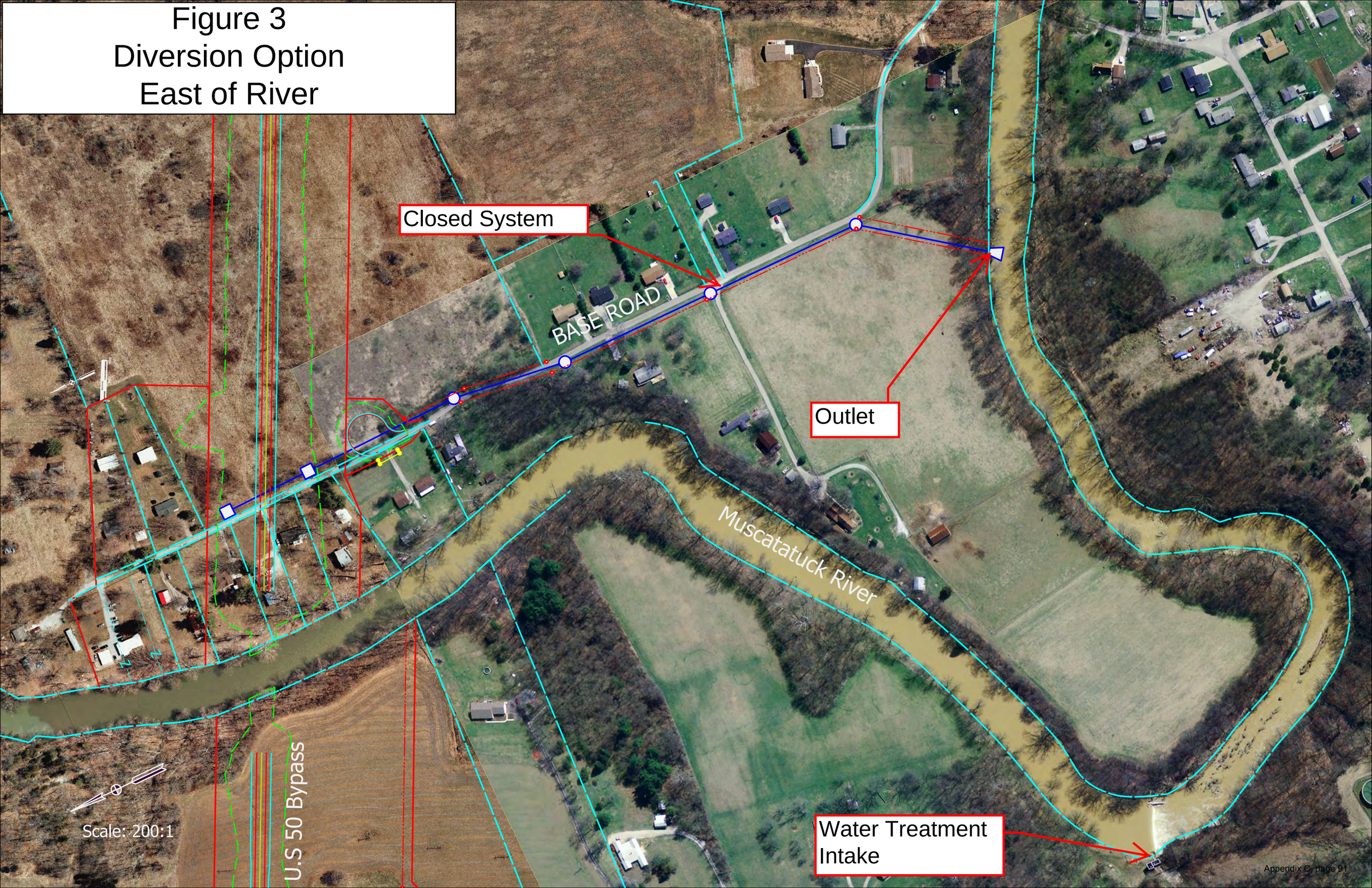


Figure 4
Detention Option
West of River

Muscatatuck River

Water Treatment Intake

Roadside Ditch

Shut-off Valve

U.S 50 Bypass

Scale: 200:1

CR 20W

Additional R/W

Outlet to existing closed system

United States Department of the Interior
Fish and Wildlife Service

Bloomington Field Office (ES)
620 South Walker Street
Bloomington, IN 47403-2121
Phone: (812) 334-4261 Fax: (812) 334-4273

September 10, 2013

Dan Prevost
Parsons
101 West Ohio Street
Suite 2121
Indianapolis, Indiana 46204

Dear Mr. Prevost:

This letter responds to your Biological Assessment (BA) received on June 6, 2013, and your request for concurrence on your determination that the effects of the proposed North Vernon U.S. 50 Bypass (East) in Jennings County, Indiana, are not likely to adversely affect the Indiana bat (*Myotis sodalis*). Due to the presence of a federally-listed species, informal consultation has been ongoing during the development and assessment of potential alternatives for this project.

The Indiana Department of Transportation has proposed to construct a highway bypass around the City of North Vernon, Indiana. Construction of the western half of the project began in March of 2012. The current proposal will extend the western bypass starting at S.R. 3 north of North Vernon to the east and south, and rejoin existing U.S. 50 on the east side of North Vernon. Initially, two lanes will be constructed for the project, although enough right-of-way will be purchased for a potential four-lane facility in the future. Impacts analyzed in the BA include anticipated impacts based on a four-lane facility; however, there are currently no plans or funding for the expansion to four lanes (pers. comm. Daniel Prevost, Parsons).

The BA includes a description of the preferred alternative, 6D, and an analysis of direct, indirect and cumulative effects to the Indiana bat and its habitat. The document also describes measures incorporated into the project plans to avoid adverse effects on the Indiana bat, including seasonal tree clearing restrictions. Copies of the 2009 and 2012 Indiana bat summer mist net surveys are included, as well as the 2012 Indiana Bat Habitat Survey which documents habitat impacts for each of the seven initial alternatives. In addition, the U.S. Fish and Wildlife Service (Service) recently received a more detailed analysis of the indirect and cumulative impacts in a memo emailed to our office August 29, 2013.

According to the BA, the 6D alternative is the preferred alternative. The length of the alignment is approximately 3.3 miles with a proposed right-of-way (ROW) ranging from 300 to 500 feet wide. Land use in the area consists of agriculture, forested land, and residential land. Important natural resources in the area include a large forest block associated with Selmier State Forest and the Vernon Fork of the Muscatatuck River. In addition, a recent bat survey (2012) found the endangered Indiana bat, along with several other state-listed bats, in the project area. The captured Indiana bat, a juvenile female, was fitted with a radio-transmitter. However, despite multiple attempts to track the bat, the individual was not detected after leaving the capture site. The BA indicates the gray bat (*Myotis grisescens*) may be present in the project area; however, the Service does not consider it to be extant in Jennings County and therefore no impacts to the gray bat are expected.

Effects to the Indiana bat

According to the BA, the project was expected to impact 42.1 acres of suitable Indiana bat habitat along the preferred alternative ROW. In order to evaluate impacts to the Indiana bat and its habitat, a habitat assessment was conducted in November 2012. Thirty-five sample plots were located within the forested portion of the expected clearing limits. Data was collected for various parameters and a suitability rating of "low", "medium", or "high" was assigned to each plot. High quality areas had characteristics favorable for Indiana bat foraging, roosting, or commuting, such as the presence of one or more potential roost trees, low density of mid-story and/or understory, good canopy closure, etc.

Based on the habitat assessment, the majority of the habitat expected to be impacted (26.7 acres) was rated as low quality. Approximately 11 acres were rated as high quality and five as medium quality. The habitat impact area was described as primarily a young forest. Since the submission of the BA in June, refinements to the ROW have resulted in a slight decrease in the overall estimated impacts to forested habitat. Per the recent Indirect and Cumulative Impacts Analysis document, the total forest impacts are currently estimated to be 36.4 acres. Of that amount, an estimated 22 acres is expected to be impacted during the initial construction of the two-lane facility. If an expansion to four-lanes becomes warranted in the future, the remaining acreage would be cleared at that time.

In addition to direct habitat loss, some impacts to bats could occur as a result of habitat fragmentation and reduced habitat connectivity. The woodlot where the juvenile Indiana bat was captured will no longer be connected to the majority of the forested areas east of the new bypass. Although the new roadway could potentially act as a barrier to bat movement, most of the suitable habitat is situated east of the preferred alternative (with the City of North Vernon to the west and south). Furthermore, it is anticipated that the bridge over the Muscatatuck River will have enough of an opening above the river and floodplain to allow bats to continue to move along the corridor, if in fact it is currently used as a travel and foraging area.

Other impacts likely to occur include indirect impacts to forests as a result of project-related induced growth and development in areas previously not accessible prior to the new roadway

being constructed. The preferred alternative has the fewest proposed access locations and a majority of the estimated growth areas are at either termini of the project, near S.R. 3 on the northern end, and where the road connects to existing U.S. 50 at the southern terminus. Approximately 56 acres of forest impacts are anticipated to occur along the project corridor sometime in the future as a result of induced growth and development along the new bypass, primarily around the two terminal points.

General Comments

On page three of the BA, a reference is made to information obtained from an acoustic study performed on the nearby Selmier State Forest from May 11 to May 15, 2012. Although it was reported that no acoustic pulses were identified as Indiana bat pulses, the study was done almost entirely outside the recommended time period that the Service would consider appropriate for determining Indiana bat presence (as indicated in Mr. Haulton's email in Appendix A).

Also on page three, under the *Additional Species* heading, only the evening bat (*Nycticeius humeralis*) is mentioned as being a state-listed bat species known to occur in the project area. Of the eight species found in the project area during the 2009 and 2012 bat surveys, all but the big brown bat (*Eptesicus fuscus*) are currently listed on the Indiana Department of Natural Resources "List of Endangered, Threatened, & Rare Species", most as Species of Special Concern.

Figure 1 on page 11 depicts the variety of species that were captured during the 2009 bat survey. While the text mentions that northern long-eared bats (*Myotis septentrionalis*) were found, the species is not shown on the figure.

The *Indirect Effects* section (page 21) does not discuss bat or habitat impacts associated with project-related induced growth and development; however, in an email dated August 29, 2013, INDOT's consultant, Parsons, sent an electronic copy of a memo which provided an analysis of the anticipated indirect and cumulative impacts to forested habitat in the project area. That information indicated that 56 acres of forest may be impacted by secondary development as a result of the project.

Under Section 8.0 (*Determination of Effect*), the BA states that the late summer capture date of the female juvenile Indiana bat may indicate that the individual was transient, as opposed to occurring within the home range of a local maternity colony. The Indiana bat survey protocols were developed, in part, to eliminate concerns related to the time of year Indiana bats are captured and whether or not they are resident or transient individuals. Based on scientific literature and species expertise, we have concluded that any Indiana bats captured during the May 15 to August 15 time period are resident individuals. Furthermore, the fact that the individual captured was a juvenile is further evidence that an Indiana bat maternity colony is present in the area, since juveniles typically stay in their summer maternity area for a longer period of time than adults prior to fall migration.

Finally, the Service appreciates the on-going coordination that has occurred on this project and the ability to work with INDOT and its consultants to select a preferred alternative with the least amount of impacts to the Indiana bat and other natural resources. As part of their proposed action, INDOT has committed to seasonal tree-clearing restrictions during the summer Indiana bat maternity season (April 1 through September 30). In addition, they have committed to minimizing tree clearing within the ROW. The BA also mentions that INDOT will seek opportunities to preserve and/or create Indiana bat habitat during the evaluation of excess ROW parcels; however, no commitment to purchasing or restoring habitat has been made at this time. The Service strongly encourages INDOT to consider preservation and reforestation of adjacent and nearby habitat in order to help conserve and recover the endangered Indiana bat.

Based on our review of the BA, including project description, evaluation of project effects, and proposed conservation measures, and the fact that not all tree-clearing will occur during the first phase of construction, we concur with your determination that the project is not likely to adversely affect the Indiana bat. We have determined that the anticipated effects of the proposed action on the Indiana bat are insignificant and discountable.

This precludes the need for further consultation on this project as required under Section 7 of the Endangered Species Act of 1973, as amended. If, however, new information on endangered species at the site becomes available or if project plans are changed significantly, please contact our office for further consultation.

Our previous early coordination comments are being included as an attachment to this document and any previous comments and recommendations related to the project and general natural resource issues would still be applicable.

We appreciate the opportunity to further review and comment on the North Vernon East Bypass project. For further discussion, please contact Robin McWilliams Munson at (812) 334-4261 ext. 1207.

Sincerely,

Scott E. Pruitt
Field Supervisor

Cc: Katie Smith, IDNR, Indianapolis, IN
Christie Stanifer, IDNR, Indianapolis, IN

ATTACHMENT

FILE COPY

United States Department of the Interior
Fish and Wildlife Service

Bloomington Field Office (ES)
620 South Walker Street
Bloomington, IN 47403-2121
Phone: (812) 334-4261 Fax: (812) 334-4273

September 10, 2012

Mr. Dan Prevost
Parsons
101 West Ohio Street, Suite 2121
Indianapolis, Indiana 46240

Project:	North Vernon Bypass East
Road(s):	US 50
Waterway:	Vernon Fork of Muscatatuck River and tributaries
Work Type:	Highway realignment/new route construction
County(ies):	Jennings

Dear Mr. Prevost:

This responds to your letter dated August 14, 2012 requesting U.S. Fish and Wildlife Service (FWS) comments on the aforementioned project. These comments are consistent with the intent of the National Environmental Policy Act of 1969, the Endangered Species Act of 1973, and the U. S. Fish and Wildlife Service's Mitigation Policy.

Your letter states that the proposed east bypass starts at the eastern terminus of the west leg of the bypass (SR 3) and terminates along the existing US 50 route east of North Vernon. Several preliminary alternatives have been proposed, with multiple eastern termini, and additional alternatives are likely to be developed. Detailed environmental studies will not be conducted until preliminary alternative screening has been completed. We are providing the following general comments on fish and wildlife issues of concern, and will provide more detailed comments as project development progresses.

1. Stream Impacts

All route alternatives will require multiple stream impacts, including a new crossing of the Vernon fork of the Muscatatuck River. The project should be located and designed to minimize stream/riparian impacts, avoid areas of high quality aquatic habitats such as rock riffles and mussel beds, and avoid the need to realign or relocate stream channels. The FWS would oppose realignments of perennial streams and good-quality intermittent streams. The environmental document should provide fish community and stream habitat information from existing data or, as appropriate, from site-specific stream surveys. Stream impacts for each alternative should be

estimated in terms of the number of crossings, quality of the stream at each crossing and extent of impacts at each crossing.

2. Terrestrial Wildlife Habitat

All route alternatives should be designed to minimize forest loss and fragmentation. Bird surveys should be conducted in large forested areas during nesting season.

3. Wetlands

Wetlands are present in the floodplains of the Muscatatuck River and its tributaries, and on Cobbsfork soils in interfluvial areas. The National Wetland Inventory map do not shows wetland impacts for most route alternatives, however the perched interfluvial wetlands are often not mapped correctly. A preliminary wetland survey should be conducted for all routes, using all available mapping and orthophotography resources. A comprehensive wetland delineation should be conducted for alternatives carried forward as soon as access becomes available. Wetland impacts should be avoided to the extent possible, and unavoidable impacts should be mitigated in accordance with the MOU between INDOT, the FWS and the Indiana DNR.

4. Migratory Birds

Executive Order #13186, issued on January 10, 2001, directs each federal agency taking actions having or likely to have a negative effect on migratory bird populations to work with the FWS to develop an agreement to conserve migratory birds. In addition to avoiding or minimizing impacts to migratory bird populations, agencies are expected to take reasonable steps to restore and enhance habitat and incorporate migratory bird conservation into agency planning processes whenever possible. The Environmental Document will need to address this issue.

Although no longer federally listed under the Endangered Species Act, bald eagles and their foraging and winter roosting habitat remain protected under the Bald and Golden Eagle Protection Act (BGEPA) and Migratory Bird Treaty Act (MBTA). Take and/or disturbance of bald and golden eagles is prohibited without a permit. The FWS recommends taking all practical measures to minimize detrimental effects on eagles. Guidelines to avoid disturbance of eagle nests are available at http://www.fws.gov/midwest/eagle/guidelines/index.html. Recent amendments to the BGEPA allow the limited issuance of permits to authorize take of eagles when it is associated with otherwise lawful activities, cannot practicably be avoided, and is compatible with the goal of stable or increasing eagle breeding populations.

There are currently no bald eagle nests within the study area, however the Muscatatuck River corridor provides suitable nesting habitat, and bald eagles are rapidly expanding their nesting range in Indiana.

5. Water Quality

The environmental document should include a discussion of best management practices to be used to avoid erosion and runoff of soil and other pollutants during construction, and to mitigate

the effects of polluted road runoff from traffic on new routes.

6. Karst

Most of the study area is underlain by karst geologic formations. A karst survey should be conducted in accordance with our karst MOU with INDOT. All route alternatives should be designed to avoid adverse physical and water quality/quantity impacts on significant karst resources (e.g. caves, springs, sinkholes).

7. Secondary Impacts

New route alternatives often generate the potential for extensive habitat impacts from secondary development. Secondary impacts should be minimized by not locating new routes near good quality habitats and sensitive areas, and by implementing access control near such areas.

Endangered Species

The proposed project is within the range of the federally endangered Indiana bat (*Myotis sodalis*).

Indiana bats hibernate in caves, then disperse to reproduce and forage in relatively undisturbed forested areas associated with water resources during spring and summer. Research has shown that they will inhabit fragmented landscapes with adequate forest for roosting and foraging. Young are raised in nursery colony roosts in trees, typically near drainageways in undeveloped areas.

There are numerous recent summer records of Indiana bats from the Muscatatuck River watershed in Jennings, Ripley and Jefferson Counties, therefore there are substantial concerns about potential impacts on Indiana bats. INDOT commissioned a mist-net bat survey of the project study area in August of this year. The survey captured a reproductive Indiana bat and attempted to track it to a roost tree using radio telemetry. The transmitter signal could not be detected despite extensive telemetry efforts, thus we do not know the location of any roost trees for that bat.

Because Indiana bats are now known to be present in the study area, the project may adversely affect a federally endangered species. Informal consultation for the US 50 project is ongoing, pursuant to Section 7 of the Endangered Species Act. Because the route alternatives to be carried forward from preliminary screening have not yet been selected, and because the exact route alignments are not known, no determinations can be made at this time. INDOT will eventually need to provide a biological assessment (BA) in order to determine whether formal consultation is necessary. The BA should address alignments carried forward to allow the FWS to determine the alignment(s) that will avoid or minimize adverse effects on the Indiana bat.

This endangered species information is provided for technical assistance only, and does not fulfill the requirements of Section 7 of the Endangered Species Act. Please coordinate with the Indiana Department of Natural Resources for comprehensive information on species listed as endangered or special concern by the State of Indiana.

We appreciate the opportunity to comment at this early stage of project planning. As project plans progress please continue to coordinate with our office concerning measures to minimize impacts on fish and wildlife resources. If you have any questions about our recommendations, please call Mike Litwin at (812) 334-4261 (Ext. 205).

Sincerely yours,

Michael L. Litwin

for Scott E. Pruitt
Field Supervisor

cc: Federal Highway Administration, Indianapolis, IN
Christie Stanifer, Indiana Division of Fish and Wildlife, Indianapolis, IN

ES: MLitwin/332-4261/September 10, 2012