Conservation Plan for the Illinois-endangered Kentucky crayfish (*Orconectes kentuckiensis*) at FAP 885 (IL 146) over Peters Creek in Hardin County, Illinois

1. Description of the impact likely to result from the proposed taking

A. Legal Description of the project area

Located in the Rosiclaire Quadrangle, Township 12 South, Range 9 East, Section 7, 3rd Principal Meridian approximately three miles east of Elizabethtown. The project is located within the existing state right-of-way of IL 146 in Hardin County. See Attachment 1, Location Map.

B. Biological Data on the Affected Species

The Kentucky crayfish (*Orconectes kentuckiensis*) has a limited range in the lower Ohio River Valley, where it occurs in southeastern Illinois and western Kentucky. It is found in shallow regions with gravel or cobble substrates in small to large creeks and small rivers.

Threats to the species' continued existence include habitat alterations such as gravel/cobble removal and the damming of flowing waters, and the introduction of non-native crayfish species.

The Illinois Natural History Survey (INHS) found this species at site H (Figure 1, Attachment 2). Thirty one individuals were collected from a 285 sq. m area of Peters Creek bisected by the Illinois Route 146 / IDOT FAP 885 bridge. No other crayfish species were collected or observed. Given the collection of the species, the abundant presence of suitable habitat both up and downstream of the bridge, and the long history of collection of the Kentucky Crayfish in Peters Creek, it is believed that a large, reproducing population occurs in the immediate vicinity of the Illinois Route 146 / IDOT FAP 885 bridge. Like many stream dwelling crayfishes, the Kentucky Crayfish uses interstitial spaces under cobble for refuge from predation by fishes. (See Attachment 2.)

C. Description of Incidental Taking

The proposed improvement will consist of bridge removal and reconstruction. Proposed work within the channel includes removal of existing structure as described above, driving piles for new abutments, placement of riprap for scour protection, and incidental grading along the

stream banks within the existing state right-of-way – see Attachments 3 and 4.

D. Anticipated Adverse Effects on the Listed Species

Primary threats to the Kentucky Crayfish fall into two categories: habitat alteration and introduction of non-native species. Habitat alteration can consist of siltation, stream channelization, debris, debris removal or substrate removal.

For the purposes of this project, potential adverse affects consist mainly of excavation and placing of riprap around the bridge piers. Excavation could create minor, short term siltation in the area immediately downstream of the structure, while some crayfish could be covered or crushed during the excavation and placement of the riprap.

2. <u>Measures to Minimize and Mitigate Impacts</u>

A. Plans to minimize the affected area, the amount of individuals of the endangered species that will be taken and the habitat affected

The area of the work zone has been limited to the existing right-of-way. Total impacted area within the stream is approximately 2000 square feet. The existing right-of-way line is 90' from roadway centerline . Riprap will be placed in the area of disturbed habitat and around the bridge piers for erosion and scour prevention. The rock used for riprap will be in the size range of 5"x5"x5" or smaller.

B. Plans for management of the area affected by the proposed action that will allow continued use of the area by the species.

Similar habitat is located both upstream and downstream of the structure site. The streambed and habitats will be controlled by natural processes after construction activities are completed. Crayfish should move back into the area immediately adjacent to the bridge over time. Introduction of riprap within the channel and streambed at the bridge site may actually enhance the habitat characteristics within the immediate vicinity of the structure, and the scour prevention afforded by the new bridge will protect habitat downstream of the site.

C. Description of measures to be implemented to minimize or mitigate the effects of the proposed action to the endangered species.

A Storm Water Pollution Prevention Plan (SWPPP) will be devised and implemented for the site. The SWPPP shall be coordinated with the Bureau of Design and Environment. The resident engineer will monitor the activities of the contractor for compliance with special provisions regarding mitigation and the use of best management practices (BMP's) to minimize erosion and siltation. Regular inspections will be made to ensure proper repair and maintenance of BMP's by the resident engineer, including weekly and immediately following significant rainfall events.

In order to avoid impacts to the Kentucky Crayfish, in stream work shall be prohibited from March 1 through May 15.

Instream rock will be removed immediately prior to construction in the immediate vicinity of where instream construction activities will take place.

Four weeks prior to the start of instream work, the Resident Engineer will notify the Bureau of Design and Environment (BDE) of the date that instream work will begin. Within one week of receipt of notification, the BDE will task the Illinois Natural History Survey (INHS) to move by hand the rocks within the stream to a location just outside and upstream of the limits of construction.

D. Plans for monitoring the effects of the measures implemented.

The Resident Engineer will notify the BDE when the project reaches 100% completion. BDE will then task the INHS to perform monitoring surveys.

Post construction monitoring will be performed by INHS in years 2 and 4 following completion of the project.

E. Adaptive management practices that will be used to deal with changed or unforeseen circumstances that affect the effectiveness of the measures instituted.

The biggest threat to the Kentucky crayfish is sediment entering the water in Peters Creek during construction of the proposed improvement (Taylor 2011). The project sponsor will implement the Stormwater Pollution Prevention Plan. The IDOT will monitor the construction site for

proper placement and function of the selected best management practices.

Despite the best intentions, there may be practices that are specified in the SWPPP that prove to be ineffective at controlling soil erosion and sedimentation. If this is the case, the IDOT Resident Engineer shall consult the IDOT Erosion and Sediment Control Field Guide for Construction Inspection 2010 or the Illinois Urban Manual for practices that might be more effective or better suited to the site environment than the specified ones. The IDOT district Landscape Architect may be of assistance to the Resident Engineer on matters concerning corrective measures for erosion and sediment control.

F. Verification that funding to support mitigation activities will be available for the life of the conservation plan.

The project estimated budget will include line items for implementation of BMP's included in the SWPPP, including seeding of all disturbed areas draining to the stream. Maintenance and repair of SWPPP items, and additional measures implemented during construction will be paid for by change order or force account. By law, the erosion and sediment control measures will remain in place for the life of the project.

Funding for the monitoring activities will be provided through the Intergovernmental Agreement for the Illinois Transportation Biological Survey Program between IDOT and the University of Illinois. This program is administered by the Bureau of Design and Environment in cooperation with the Illinois Natural History Survey at the University of Illinois.

3. Analysis of Project Alternatives

There are four alternatives for this project and the reasoning why these alternatives are not being considered as a viable option.

A. No build

Currently, IL Route 146 is a major east – west highway for residents in Southern Illinois. It is the main route to Cape Girardeau, Missouri, a major economic region for Southern Illinois. The only alternative that does not result in a taking of the listed species is leaving the bridge as is. This would result in a structurally deficient bridge being left in place. Normal maintenance measures cannot correct the deficiencies, and the structure will continue to deteriorate. This alternative is neither prudent

nor feasible, due to the unacceptable safety hazard it poses and the restrictions an eventual closure would place on local traffic.

B. Leave existing bridge in place and construct a new structure on an offset alignment.

This alternative is not considered feasible. It would eliminate taking of the species at the current bridge site, but would necessitate taking of the species at a location either immediately upstream or downstream of the structure at the site of new construction. This option would require the acquisition of additional right-of-way, and the disturbance of additional areas adjacent to the existing right-of-way.

C. Rehabilitate the existing structure.

Rehabilitation of the existing structure would require extensive work to the existing piers and abutments to make it suitable for a new deck, resulting in high costs. Complete replacement with a single span bridge was analyzed to be more cost effective. Therefore this alternative is not considered feasible.

D. Construct a new structure on existing alignment.

This is the preferred alternative. Complete removal and replacement of the bridge will provide the maximum benefit to area residents. No additional right-of-way will be required to construct the new structure on the present alignment. Roadway approach, excavation and embankment work will be minimized. Work within the channel will also be minimized. This is the most practical and cost effective option for this project.

4. <u>Data and information regarding survival of the species after the proposed take is complete.</u>

The Kentucky crayfish occurs in shallow regions with large rock/cobble substrates in small to large streams. Given the collection of the species, the abundant presence of suitable habitat both up and downstream of the bridge, and the long history of collection of the Kentucky crayfish in Peters Creek, it is believed that a large, reproducing population occurs in the immediate vicinity of the Illinois Route 146 / IDOT FAP 885 bridge. Due to the small area affected by construction of the new bridge, it is expected that the species will continue to exist in this reach of Peters Creek.

5. **An implementing agreement, which shall include, but not be limited to:**

A. Names of all participants in the execution of the conservation plan, including public bodies, corporations, organizations, and private individuals.

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B. The obligations and responsibilities of each of the identified participants with schedules and deadlines for completion of activities in the conservation plan and a schedule for preparation of progress report to be provided to the Department.

The Illinois Department of Natural Resources is responsible for the review of this conservation plan and for the subsequent issuance of the Incidental Take Authorization.

The Illinois Department of Transportation is responsible for all biological clearance coordination and recommendations related to the project. IDOT is also responsible for securing authorization for the incidental take; securing all permits, Section 404 and Office of Water Resources; inspection of the work and contractor compliance with the contract documents.

The activities in the conservation plan will be implemented concurrently with the contract for the highway work.

Post construction monitoring will be performed by INHS in years 2 and 4 following completion of the project. Monitoring reports will be prepared by the INHS and submitted to the BDE for review. Monitoring reports will be coordinated with the IDNR Division of Ecosystems and Environment, Transportation Review Program.

C. Assurances that each participant in the execution of the conservation plan has the legal authority to carry out their respective obligations and responsibilities under the conservation plan.

IDOT is authorized by the Illinois Highway Code to carry out its duties of providing safe and efficient highways for Illinois citizens.

The Illinois Natural History Survey (INHS) has the E&T permits to perform this work.

D. Assurances of compliance with all other federal, state, and local regulations pertinent to the proposed action and to execution of the conservation plan.

The Illinois Department of Transportation exclusively abides by the National Environment Policy Act and all associated federal and state environmental laws in carrying out their mission of performing the most environmentally sensitive methods of transportation planning and engineering. The Kentucky crayfish is listed as endangered in Illinois and is covered by the Illinois Endangered Species Act of 1971 only. Therefore, compliance under the federal Endangered Species Act of 1973 is not required. No known local regulations are pertinent to this conservation plan.

E. Copies of any federal authorizations for taking already issued to the applicant.

Not applicable since the Kentucky crayfish is not federally threatened or endangered.

F. For projects that will result in the taking of endangered or threatened species of plant, copies of expressed written permission of the landowner.

Not applicable for the Kentucky crayfish.

6. Attachments

1. Location Map
2. All information regarding the Kentucky Crayfish was taken from Kentucky Crayfish Survey Memorandum dated 28 June 2011 and prepared by:

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3. Plan drawing with proposed construction limits
4. Plan drawing with environmental survey request limits