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December 12, 2003

Mr. Brad L. Steckler, P.E. Manager
Engineering Assessment Section
Indiana Department of Transportation
N848 Government Center North
100 North Senate Avenue
Indianapolis, Indiana 46204

Re: Engineering Assessment
Des. No. 0101169
I-65 at SR 28
Interchange Modification
Clinton County, Indiana

Dear Mr. Steckler:

A field investigation was held for the I-65 interchange modification project in Clinton County on December 2, 2003, at 9:00 A.M. at the project location. The purpose of the meeting was to collect necessary field data and to discuss the project scope and possible improvement alternates with INDOT personnel. Those in attendance included:

Steve Isenhower	INDOT Crawfordsville District Development	(765) 361-5224
Wes Shaw	INDOT Crawfordsville District Construction	(765) 361-5216
Hasmukh Patel	Janssen and Spaans (INDOT Design Review Consultant)	(317) 254-9686
Jeffrey Mahan	Beam, Longest and Neff, L.L.C. (BLN)	(317) 849-5832
Jim Johnson	BLN	(317) 849-5832

The INDOT Environmental Assessment Section was notified of the meeting, but did not attend.

The referenced segment of I-65 is a rural interstate running essentially north-south through Clinton County. It is on both the National Highway System (NHS) and the National Truck Network, and was constructed in 1971. There are four travel lanes, two in each direction, and a wide grass median. SR 28 within the project limits is a two-lane rural arterial and runs east-west. It is not a NHS route, but it is on the National Truck Network.

The existing interchange is a rural diamond configuration, with one exit ramp and one entrance ramp in each direction (northbound and southbound). The ramp termini at SR 28 form two at-grade intersections.

The bridge within the project carries SR 28 over I-65. It was constructed in 1969. The clear roadway width is 44 feet (two 12' travel lanes and full-width 10' shoulders) and the vertical clearance under the bridge is 16 feet.

INDOT Crawfordsville District Development indicated the reason for the project is to modify the interchange ramps and bridge as necessary to accommodate and coordinate with the added travel lanes project on SR 28 to the east of I-65. That project is currently planned to construct a five-lane section approaching the interstate from the east. Originally, the project was to include the portion of SR 28 within the interchange. However, it was thought that the existing bridge would not provide the necessary intersection sight distance for the ramp intersections if it were re-

striped to accommodate three lanes. As a result, the added travel lanes project was shortened to end at the east ramp termini.

Specific comments regarding the project made during the field check are outlined below:

- The interchange project will need to coordinate with the added travel lanes project to the east (Des. No. 9503450, Contract No. R-27265). The added lanes project has an anticipated letting of April 2004.
- Due to SR 28 traffic volumes west of I-65 being significantly lower than to the east, it is anticipated that only three lanes would be required across the bridge over I-65. Volumes given by the District at the field check were 3250 vehicles per day (vpd) to the west of I-65, 8150 vpd to the east.
- Project limits would tie into the added lanes project to the east, and would extend at least to the end of the existing concrete pavement section west of I-65. Due to the poor condition of the existing concrete, pavement replacement is anticipated along SR 28. Crawfordsville District Construction would prefer concrete pavement due to the high volume of trucks present within the interchange.
- The existing bridge is a two-span structure. The District stated that widening the existing bridge would likely be preferable to bridge replacement, if widening of the existing structure is determined to be feasible. However, the widening would have to be accomplished without reducing the vertical clearance on I-65. The District also stated that they have had construction difficulties during work on a similar two-span bridge (undergoing a deck replacement), and the same type of difficulties may affect work on this structure.
- The District indicated a preference to NOT close the interchange during construction as the interchanges to either side are relatively distant. If necessary, SR 28 could possibly be closed west of the interchange due to the lower traffic volumes.
- The existing right-of-way appears to be adequate for the added lanes along SR 28 within the limits of the existing concrete pavement section. Right-of-way was purchased for widening of SR 28 to the north with the original interchange construction. No additional right-of-way is anticipated as a part of this project.
- There are no known drainage concerns. The drainage flows in open ditches within the project limits. The area around the gas station in the southeast quadrant has been filled and raised – in the past it was wet and swampy. District Construction indicated that BLN should contact Randy Large in the INDOT Frankfort Subdistrict for any known drainage issues.
- The existing vertical curve on SR 28 over I-65 needs to be checked for proper sight distance.
- The District had envisioned the project to include no work on mainline I-65, and would prefer that any ramp modifications (on the I-65 ends of the ramps) wait on the I-65 added lanes project that will add a third travel lane in each direction on the interstate.
- Mr. Patel indicated that as an Interchange Modification project, the ramps must be checked for adequate geometry and acceleration/deceleration lengths. The possibility of changing the project type (possibly to pavement replacement and bridge widening/replacement) was discussed if investigation of the ramps exposed significant areas of concern.
- The northbound entrance ramp appears to be lacking in acceleration length. Extending the acceleration lane would likely introduce many design difficulties. North of the interchange, there exist bridges over an abandoned railroad. The existing northbound acceleration lane ends (tapers) on the existing bridge. The existing side-slopes in the area of this bridge appear to be quite steep as well.

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Alternates to be investigated include the following:

- A. Reconstruction of SR 28 within the limits, bridge widened as necessary, ramp intersections modified as necessary.
- B. Reconstruction of SR 28 within the limits, bridge replaced, ramp intersections modified as necessary.
- C. Ramp modifications to desirable geometry and acceleration/deceleration lengths in addition to either A or B.

This is our understanding of the concerns discussed at the meeting. If there are any additional questions or comments, please contact this office.

Very truly yours,

BEAM, LONGEST AND NEFF, L.L.C.



Jeffrey D. Mahan, P.E.

JDM/jdm

xc: All Attendees
Mr. Jim Juricic, INDOT Environmental Assessment
Mr. Kumar Dave, INDOT Materials and Tests
File #3611-674

NBI-NUMBER: 7670
BRIDGE-NUMBER: 028-12-05585A
FACILITY-CARRIED: SR 28
LOGMILE-OVER: 2.24

FEATURE(S)
INTERSECTED: I-65
LOGMILE-UNDER: 157.56
LOCATION: 2.52 E US 52

Ref. Post 50 Offset 84

Inspection Date: 10/12/1999

Inspector's Initials:

- | | |
|--|---|
| <input type="checkbox"/> Inventory Data Updated | <input type="checkbox"/> 2 Year Inspection |
| <input type="checkbox"/> Under/In Water Inspection | <input type="checkbox"/> Condition Data Updated |
| <input type="checkbox"/> Special or Partial Inspection | <input type="checkbox"/> In Depth Inspection |
| <input type="checkbox"/> Other Data Updated | <input type="checkbox"/> Fracture Critical Inspection |
| <input type="checkbox"/> Clearance Measurement Inspection | <input type="checkbox"/> Submitting Correction |
| <input type="checkbox"/> Damage Inspection | |
| <input checked="" type="checkbox"/> Normal Inspection Report | |
| <input checked="" type="checkbox"/> Photo(s) Taken | <u>Monitor Freq. (# Months):</u> |
| <input type="checkbox"/> Notified District | <u>Follow-up Inspection Date:</u> |
| <input type="checkbox"/> Notified Design | <u>Special Equipment Needs:</u> |
| <input type="checkbox"/> Notified Central Office Bridge | |
| <input type="checkbox"/> Other | |
| <input type="checkbox"/> Special Feature(s) | |

Specific Comments

<u>ITEM</u>	<u>DATE</u>	<u>COMMENT</u>	<u>PERSON</u>
60.10	10/12/1999	LETTER WAS WRITTEN TO REPAIR VOIDS & CONCRETE SEPERATIONS AT BOTH SLOPEWALLS.	WOODY GARRISON
60.10	10/8/1997	LETTER WAS WRITTEN ABOUT SLOPEWALLS & POSSIBLE EROSION PROBLEM AT THE NORTWEST CORNER.	DAN BEWLEY

General Inventory Data

CONTRACT-PREF: B
 CONTRACT-NUM: 15291
 BRIDGE-NUMBER: 028-12-05585A
 STRUCTURE-DESG: A
 DISTRICT-CODE: 1
 COUNTY-CODE: 12
 ROUTE-NUM-O: 28
 ROUTE-NUM-U: 65
 LOGMILE-OVER: 2.24
 LOGMILE-UNDER: 157.56
 FACILITY-CARRIED: SR 28
 FEATURES-INTERSECTED: I-65
 LOCATION-21: 2.52 E US 52
 STRUCT-MATL: 4
 STRUCT-CONST: 2
 STR-TYPE-MAIN-ENGL: KCSG
 MAIN-WIDE-TYPE-ENGL:
 APPRO-MATL: 0
 APPRO-CONST: 0
 STR-APPRO-PRIM-ENGL:
 OTHER-APPRO-CODES: N
 NUMBER-MAIN-SPANS: 2
 NUMBER-APPRO-SPANS: 0
 LANES-OVER: 2
 LANES-UNDER: 4
 SKEW: 33
 LENGTH-MAX-SPAN: 123.8
 STRUCTURE-LENGTH: 253
 TOT-HZ-CLR-OV-EN: 44
 TOT-HZ-CLR-OV-WS:
 TOT-HZ-CLR-UN-EN: 61
 TOT-HZ-CLR-UN-WS: 60
 BRIDGE-ROADWAY-WIDTH: 44
 DECK-WIDTH: 47
 SIDEWALK-WIDTH-LEFT: 0
 SIDEWALK-WIDTH-RIGHT: 0
 DECK-MEDIANS: N
 STR-FLARED: 0
 MIN-VERT-OV-FT: 99
 MIN-VERT-OV-IN: 99
 MIN-VERT-CLR-CODE: H
 MIN-VERT-UN-FT: 16
 MIN-VERT-UN-IN: 0
 MIN-LATERAL-RIGHT: 12
 MIN-LATERAL-LEFT: 28.8
 APPROACH-RDWY-WIDTH: 44

TSF-BRIDGE-RAILING: 1
 TSF-TRANSITIONS: 0
 TSF-APP-GUARDRAIL: 1
 TSF-TERMINAL-END: 1
 BRIDGE-RAIL-TYPE: A
 TRAFFIC-DIR: 2
 TYPE-INTERCHANGE: C
 MIN-NAV-VERT-CLR-L:
 CITY-TOWN-CODE: 00000
 YEAR-BUILT: 1969
 YR-RECONSTRUCTED: 1987
 WIDEN-YR:
 LAST-REPAIR-YR:
 DECK-STR-TYPE: 1
 CONCRETE-FORM: N
 METAL-FORM: N
 DECK-THICKNESS: 008
 TYPE-WEAR-SURFACE: 3
 TYPE-MEMBRANE: 0
 TYPE-DECK-PROT: 0
 ASPHALT-THICKNESS: 02

Deck Condition

DECK-WEAR-SURFACE: 7
 DECK-UNDERSIDE: 7
 BRIDGE-JOINT-TYPE-SW: B
 BRIDGE-JOINT-COND-SW: F
 BRIDGE-JOINT-TYPE-NE: B
 BRIDGE-JOINT-COND-NE: F
 BRIDGE-JOINT-TYPE-INTERIOR: N
 BRIDGE-JOINT-COND-INTERIOR:
 DECK-LONGI-JOINT: N
 DECK-TRANS-JOINT: 7
 COND-OF-DECK: 7

Approach Condition

APPRO-ROAD-COND: 7

SuperStructure Condition

SPSTR-BEARING: 7
 SPSTR-STEEL-GIRDER: 7
 SPSTR-STEEL-BEAM: N
 SPSTR-STEEL-DIAPH: 7
 SPSTR-STL-CROSS-BRACE 7
 SPSTR-CONCRETE-GIRDE N
 SPSTR-CONCRETE-BEAM: N
 SPSTR-CONCRETE-DIAPH: N
 SPSTR-CONCRETE-SLABS: N
 SPSTR-INTEGRAL-PIER: N
 SPSTR-TIMBER-BEAMS: N
 SPSTR-ARCH-RING: N
 SPSTR-SPANDREL-WALL: N

COND-OF-SPSTR
 7

Check Items:

SPSTR-STRINGER: N
 SPSTR-FLOOR-BEAM: N
 SPSTR-KNEE-BRACE: N

SPSTR-TRUSSES: N

Check Items:

SPSTR-EYEBARS: N	SPSTR-LOW-BRACE-LA N
SPSTR-VERTICALS: N	SPSTR-CONNECT-PLAT N
SPSTR-DIAGONALS: N	SPSTR-GUSSET-PLATE: N
SPSTR-UPPER-CHORD: N	SPSTR-STAY-PLATE: N
SPSTR-LOWER-CHORD: N	SPSTR-LACING: N
SPSTR-UPPER-BRACE: N	SPSTR-RIVETS: N
SPSTR-PORTALS: N	SPSTR-BOLTS: 7
SPSTR-TOP-LATERAL: N	SPSTR-SPLICE-PLATE: 7
SPSTR-LATERAL-STRUT N	SPSTR-BRACKETS: 7
SPSTR-SWAY-BRACE: N	SPSTR-TACK-WELD: N

SPSTR-FULL-WELD: 7
 SPSTR-OTHER-CONNEC 7
 SPSTR-HANGER: N
 SPSTR-NUM-HANG-BARS 00
 SPSTR-HINGES: N
 SPSTR-PINS: N
 SPSTR-NUM-PINS: 00
 SPSTR-HANGER-BAR: N
 SPSTR-MUDWALL: N
 SPSTR-CURTAIN-WALL: N

Collision Damage Condition:

SPSTR-COLLISION-DAMAGE 8
NUM-MEMBERS-DAMAGED: 0
SEVERITY-OF-DAMAGE: N

Paint Condition:

PAINT-CONDITION: 6
PAINT-TYPE: 2
PAINT-EST-REMAIN-LIFE: 05
PAINT-CONTRACT-NUMBE M 18699
PAINT-CORTEN-STEEL: N
PAINT-YR: 90
PAINT-MO: 8
TONS-STEEL: 216
PAINT-RATE: 6

Channel & Channel Protection:

CHAN-PROTECTION: N
CHAN-TYPE-PROT: N
COND-OF-CHAN-PROT N
PIER-ABUT-PROT:

Foundation Information:

SCOUR-TOT-NUM-PIER: 3
SCOUR-ABUT-TYPE-1: E
SCOUR-ABUT-TYPE-2: E
SCOUR-PIER-VISIBLE: N
SCOUR-NUM-INTERMD-PIER: 1
SCOUR-IN-PIER-TYPE1: D
SCOUR-IN-PIER-TYPE2:
SCOUR-IN-PIER-TYPE3:
SCOUR-IN-PIER-TYPE7:
SCOUR-NUM-PIER-WATER: NA
SCOUR-NUM-HAVE-SCOUR: NA

Substructure Condition:

SBSTR-BRIDGE-SEAT:	7
SBSTR-BACKWALL:	7
SBSTR-BREASTWALL:	7
SBSTR-BENT-CAP:	N
SBSTR-WING-WALL:	7
SBSTR-FOOTING:	N
SBSTR-PILES:	N
SBSTR-SCOUR:	N
SBSTR-EROSION:	6
SBSTR-CCRETE-SLP-WALL:	6
SBSTR-SETTLEMENT:	8
SBSTR-PIER-CAP:	7
SBSTR-COL-SOLID-STEM:	N
SBSTR-CCRETE-PILLAR:	7
SBSTR-CCRETE-PILE:	N
SBSTR-INTERMD-FOOTING:	N
SBSTR-BRACE:	N
SBSTR-INTERMD-EROSION:	8
SBSTR-SCOUR:	N
SBSTR-INTERMD-SETTLE:	7
SBSTR-COLLISION-DAMAGE	8
SBSTR-CRASH-WALL	7

Overall Condition of Substructure

COND-OF-SBSTR

7

Culvert & Underfill Structures:

CULV-BARREL: N
CULV-HEADWALL: N
COND-CULVERT-RET-WAL N

Estimated Remaining Life:

EST-LIFE-SURFACE: 10
EST-LIFE-DECK: 15
EST-LIFE-JOINTS: 08
EST-LIFE-SUPERSTRUCTUR 25
EST-LIFE-SUBSTRUCTURE: 25
EST-LIFE-APPROACH: 05
EST-LIFE-CHANNEL: NA
EST-LIFE-CULVERT: NA
OPC-CODE: A
NUM-TONS-POSTED:

Appraisal Condition:

OPERATING-RATING: 269
OP-TONS: 69
INVENTORY-RATING: 241
INV-TONS: 41
GROSS-TONS: 26
OVERLOAD-PROBLEM: N
APPRA-OF-STR-COND: 7
APPRA-DECK-GEOMETRY: 8
ADT-OVER: 3110
ADT-UNDER: 25010
ADT-OVER-YR: 94
ADT-UNDER-YR: 94
FUNC-CLASS-OVER: 6
FUNC-CLASS-UNDER: 1
APPRA-OF-UNDERCLR: 5
APPRA-OF-WATERWAY-ADEQ: N
APPRA-APPROACH-ALIGN: 8
SCOUR-CRITICAL-BRIDGES: N

Inspectors Proposed Improvements:

YR-NEED-IMPROVED:
Type-Work-Needed 1ST-CD:
Type-Work-Needed 2ND-CD:
LENGTH-OF-IMPRV: 0

District Priority in HIP:

PRIOR-NUM:
PRIOR-NUM-YR:
ORIG-YR-HIP:
NEW-BRIDGE-NUMBER:
DESIG-NUMBER:
READY-LETT-YR:
READY-LETT-MO:
WORK-TYPE:
BRIDGE-IMPROV-COST: 0
RDWY-IMPROV-COST: 0
TOTAL PROJECT COST: 0
YR. OF COST ESTIMATE:

Critical Features:

FRAC-INSP-CD: N
FRAC-INSP-NUM-MO:
FRACTURE-INSP-MO:
FRACTURE-INSP-YR:
UNDERWATER-INSP-CD: N
UNDERWATER-INSP-NUM-MO:
UNDERWATER-INSP-MO:
UNDERWATER-INSP-YR:
SPCL-INSP-CD: N
SPCL-INSP-NUM-MO:
SPECIAL-INSP-MO:
SPECIAL-INSP-YR:
SPECIAL-INSP-ITEM:
DEF-O-FT: 99
DEF-O-IN: 99
DEF-U-FT: 16
DEF-U-IN: 1

Structural Details:

INTERMD-DIAPH: N
INTERMD-DIAPH-CONNECT: N
BEARING-DIAPH: Y
BEARING-DIAPH-CONNECT: 3
JACKING-FRAME: Y
VERT-WEB-STIFF: Y
VERT-WEB-STIFF-CONNECT: 3
CROSS-BRACING: Y
CROSS-BRACING-TYPE: 1
TRANSV-PLATE-NO-BRACE: N
TRANSV-PLATE-WITH-BRACE: N
WEB-WELDS: 1
FLANGE-WELDS: N
FLANGE-COVER-PLATE: N
LONG-WEB-STIFF: N
PLATE-WELD-FLANGE: N
STEEL-BOX-GIRDER: N
HANGER-CONNECT: N
HINGE-PIN-CONNECT: N
CANTIL-BEARING: N
STEEL-BOX-PIER-CAP: N
CONCRETE-SEG: N
OPEN-SPANDREL-ARCH: N
SUSPEN-CABLES: N
SUSPEN-TIE-CHORDS: N
OTHER-DETAIL-FLAG: N
REDUNDANT-CODE: 1
NUMBER-BEAMS: 00
NUMBER-GIRDERS: 06
NUMBER-STRINGERS: 00
NUMBER-FLOOR-BEAMS: 00

Roadway Management Data:

BRIDGE-DATA-SORTS: L
LARGEST-VERT-DISTANCE: 0162
IDENTIFY-PIER: 2
IDENTIFIED-PLANS-MEASURE M
PREDOMINAT-SUBSTR-TYPE: 3
PREDOMINAT-SUPPORT-SYS-
IDENTIFY-PIER-USED-ABOVE: 2
SUBDISTRICT-UNIT-NO: 614
SUBDISTRICT-UNIT-NAME: FRANKFORT
SUFFICIENCY-RATING: 97.8
SUFFICIENCY-RATING-YY: 2001
SUFFICIENCY-RATING-MM: 4
SUFFICIENCY-RATING-DD: 1
FUNCTIONALLY-OBSOLETE: N
STRUCTURALLY-DEFICIENT: N
BRIDGE-REMARKS:

NATIONAL-ROAD-SYSTEM:
sort no: 8490