STATE OF INDIANA
INTERSTATE ACCESS REQUEST PROCEDURES

PURPOSE OF DOCUMENT
The following is an outline of procedures for analysis and documentation in relation to INDOT requests to FHWA for changes in Interstate System access. The record of that analysis in the form of answers to the eight questions addressing engineering and operational acceptability is presented in an Interstate Access Document (IAD), previously known as an Interchange Justification Report.

There is agreement between FHWA and INDOT that the procedures must be followed by any party conducting such work, whether internal INDOT staff or agents acting on behalf of INDOT, to ensure shared expectations are met and the formal access change request is efficiently processed. These procedures apply to access changes on the existing Interstate System only and not to new Interstate Highways or non-Interstate Highways.

Study requirements will differ depending on the complexity of the site in question. Highway routes through heavily developed urban areas with high traffic volumes will undergo a higher level of scrutiny than routes through sparsely populated rural areas with lower traffic volumes. The complexity will affect the limits of the study area, the level of analysis, the measures of effectiveness displayed as evidence in the IAD and the level of detail of geometric layout required. Other factors such as interchange spacing and extent of treatment may elevate study requirements as well.

Please note that non-standard or otherwise complex concepts will require relatively well developed design drawings to support the FHWA’s determination of engineering and operational acceptability.

BACKGROUND
U.S. Federal Register notice of August 27, 2009 defines the latest FHWA policy on requests by states for new or revised access to the existing Interstate System, supplementing earlier notices in the Register on this topic of October 22, 1990, and February 11, 1998. The Interstate System Access Information Guide states in Section 2.6, “The policy includes the requirements for the justification and documentation necessary to substantiate any request that is submitted [by the state DOT] to FHWA for approval.” The policy outlines eight core considerations and requirements of requests to change an Interstate access point — the eight questions that must be answered to FHWA’s satisfaction. A key part of that overall requirement is number 3: “An operational [mobility] and safety analysis has concluded that the proposed change in access does not have a significant adverse impact on the safety and operation of the Interstate facility….”

INDOT must submit requests for proposed changes in access to the FHWA Indiana Division Office for review and approval. Only INDOT is authorized to present such a request to FHWA. MAP-21 for the first time permitted FHWA and state DOTs to enter into a programmatic agreement for the purpose of assigning the latter party the responsibility and authority to process (review and approve) specific types of Interstate System access changes, at least relative to engineering and operational acceptability. INDOT has entered into such a formal agreement with FHWA Indiana Division Office (attached).

In addition, new or revised access to the existing Interstate System must comply with planning and environmental review process of relevant parts of the Code of Federal Regulations (CFR). FHWA
approval of an access change is a Federal action, and therefore must conform to the National Environmental Policy Act (NEPA) among other Federal rules. Agreement by FHWA to engineering and operational acceptability by itself does not permit the state to execute the change. Therefore, full approval to change access is generally effected in two steps: initial acceptance of engineering and operational acceptability, then, upon completion of NEPA, full approval to change access.

FHWA ACCESS INFORMATIONAL GUIDE
FHWA’s August 2010 Interstate System Access Informational Guide explains “what should be addressed in requests for new or modified access to the Interstate System.” It defines Interstate System Access Change Request as the formal petition made by a state DOT to FHWA. It states, “These requests are inclusive of the written documentation that supports the formal request…. States may retain any term they are currently using to identify these reports.” INDOT uses the terms “Interstate Access Request” (hereafter referenced as “request”) and associated “Interstate Access Document” or IAD. In any event, the request must be a standalone document; that is, it not reference essential intent necessary to address the core questions by means of separate documents (e.g., feasibility study, engineering report, scoping report). All relevant information to answer the eight questions should be provided in the Interstate Access Document (IAD).

Chapter Two of the Informational Guide lists the eight policy requirements, with expanded explanation. Chapter Three provides guidance on review and processing of requests, and explains roles of FHWA and state DOTs in that process. Chapters Seven and Eight discuss traffic safety and operational (mobility) considerations.

The Informational Guide recommends that the Interstate Access Document (as newly labeled in this document) include discussion of feasible alternative designs, including no-build (no-action) and build alternative(s). However, the principle content in the IAD should be on the single recommended alternative meaning, the answers to the eight questions should be based solely on the recommended action. Non-recommended build options should be described, but not in detail. The IAD need not serve the function of comprehensive documentation of alternatives’ development, performance, and selection.

The Informational Guide serves as the fundamental manual for Indiana/INDOT on procedure for analysis and documentation associated with an Interstate access change request. The Guide is freely available online (http://ops.fhwa.dot.gov/access_mgmt/resources.htm ). Further methodology and requirements spelled out in this Procedures document supplement instructions of the Informational Guide, and supersede in any case of conflict.
**FIVE-STEP PROCESS**

There are five sequential steps in the process for INDOT to secure authorization from FHWA to change Interstate access:

1. Establish the framework for scope of study relative to alternatives’ analysis, and record that in a concise *Framework Document*.
2. Carry out alternatives’ analysis, and document those activities and findings in a report — the *Alternative Selection Report* or similarly named.
3. Determine whether an Interstate Access Request to FHWA and its associated *Interstate Access Document* (IAD) are required, and if so, prescribe the nature or scale of that IAD.
4. Produce the IAD, and transmit to FHWA from INDOT the request for determination of engineering and operational acceptability along with that supporting IAD. This is the first of two approval phases.
5. Transmit to FHWA from INDOT the request for full and final approval, following environmental (NEPA) approval. This is the second of the dual approval phases.

For any action/project that involves potential for change in Interstate access (e.g., new interchange construction, interchange modification), INDOT’s Corridor Development Office shall serve as common path of coordination between project development parties (for instance, INDOT’s project team to evaluate/scope and design, or consultant acting on the Department’s behalf) and FHWA. The latter expects that protocol to be followed, to ensure consistent practice and clear communication and responsibilities.

There is a select position/person in Corridor Development responsible for that continual relationship with FHWA on all matters of Interstate access. That coordinator has specific roles and authority in each of the five steps, and therefore should be made aware of or invited to significant events/meetings related to the various products. For step #1, a draft of the *Framework Document* should be sent to the coordinator for review, who will ultimately sign off on it and secure concurrence signature from FHWA. For step #2, a draft of the *Alternative Selection Report* should be sent to the coordinator for review. In step #3, the coordinator is the person, in consultation with FHWA, who determines (a) if the proposed improvement meets conditions requiring formal request to FHWA for change in Interstate access and thus development of the companion *Interstate Access Document* (IAD), and (b) whether the IAD is *Major* or *Minor* and the traffic operations analysis is *Complex* or *Simple*. However, any recommended alternative is subject to approval of the final NEPA document. In step #4, the draft *Interstate Access Document* (IAD) should be sent to the coordinator for review. The coordinator has sole authority to formally transmit the request (letter) for “engineering and operational acceptability” of change in access, sent along with the supporting IAD. And finally in step #5, following conclusion of environmental studies, the coordinator transmits the notice (letter) to FHWA requesting final approval to make the access change.

**STEP 1: FRAMEWORK FOR PROJECT SCOPE**

A brief stand-alone record called a *Framework Document* should be developed early in the access request process that states the scope of study or framework for the project as discussed and agreed upon at the framework meeting. The document should have concurrence lines for INDOT and FHWA representatives to sign. Within the document, identify and address how any red flag issues from the perspective of INDOT or FHWA (environmental, utility, public involvement, geometrics, etc.) that may delay the schedule or have an influence on interchange type selection will be resolved.
STEP 2: ALTERNATIVES ANALYSIS AND SELECTION
Alternatives analysis and its documentation (Alternative Selection Report) should first be completed. Its findings will indicate if the access change request and associated IAD are required. If an IAR is not required for an interchange modification project, an Alternative Selection Report will still be required so as to identify the site, background information, deficiencies, alternatives and proposals. The report will evaluate traffic operations and safety performance of each alternative regarding the interchange itself and the mainline interstate as is covered below.

Traffic Operations Analysis

**Travel Forecast & Analysis Years/Periods**
The IAD document shall record the source for existing and projected traffic volumes and describe the methodology used in developing those traffic numbers. Document the assumptions made in the methods/models used to generate the traffic. Methodology should be consistent or otherwise calibrated with that used in the NEPA evaluation.

Discuss the analysis years to be used for operational analysis that will associate with existing conditions, opening year, any necessary interim periods, and design year for design periods. AM and PM peak periods, representative off peak and any other special periods (such as special events) if relevant should be included.

**Complex vs. Simple Analysis within the Alternative Selection Report**
As was noted earlier in the document, an IAD will be classified as either major or minor in scale and scope. Generally a major IAD will require complex operational analysis and a minor IAD will only require simple operational analysis. There are exceptional cases where a major IAD will pair with simple analysis and vice versa. If the project is determined to be complex then a higher degree of traffic analysis will be required than if the project is determined to be simple. The difference between major/minor and complex/simple will be determined on a case by case basis by INDOT and FHWA. Analysis requirements for each are shown below:

*Complex*
Analyze for no-build and alternatives in existing and design year:
- Intersection network performance at and near interchange
- Mainline interstate performance
- Ramp merge and diverge performance
- Weaving segment analysis (if applicable)
- Intersection network performance at and near adjacent interchanges on subject interstate route
- Network simulation

*Simple*
Analyze for no-build and alternatives in existing and design year:
- Intersection network performance at and near interchange
- Mainline interstate performance
- Ramp merge and diverge performance
- Weaving segment analysis (if applicable)
Highway Capacity Software shall be used for mainline interstate, weaving segment and ramp junction analysis. Synchro Traffic Signal software shall be used for signalized intersection analysis and simulation of signal networks. Interstate highway network simulation shall be done using modeling software such as Synchro SimTraffic, Vissim simulation software or Transmodeler. INDOT and FHWA will advise which simulation software is best for each project. All roundabout analysis shall be completed using Sidra Intersection software. The version of all software used shall be communicated to and approved by INDOT and FHWA before any analysis is performed.

Assumptions made during the analysis and simulation phase shall be discussed with and approved by INDOT and FHWA.

**Analysis and Simulation Measures of Effectiveness (MOE)**

The following MOE’s shall be used in the Interstate Access Document. Taken together, these MOE’s provide a good overall evaluation of the merits of each alternative and ensure achievement of the stated objectives. All MOE’s shall be determined for the open to traffic year, the design year and for any intermediate years as directed.

- Level of Service (LOS) as defined by HCM, or other approved guidance
- Delay in seconds per vehicle (intersection analysis)
- Average speed and density (mainline analysis)
- Travel time on network in time per vehicle
- 95% queue length for each intersection approach

**Design Plans:**

Before an alternative is provisionally approved (NEPA determines final approval), design will need to reach approximately 30% plan development. The purpose of this requirement is to cover geometrics that may have an effect on traffic flow and/or an impact on safety. The plans should include geometrics, pavement markings, horizontal and vertical alignments and signing plans.

**Traffic Safety Analysis**

Detail the crash rate in the project study area by type, contributing factors to crashes, and which locations have been identified as crash analysis corridors and crash analysis locations. Describe the time frame, typically 3 to 5 years, from which the crash data will be analyzed and deemed relevant to the report. And, identify other safety risks to be explored during the study. Also, investigate predicted safety performance and how crash rates and severity will be impacted under the proposed conditions using HSM procedures (IHSDM, ISATe or RoadHAT).
STEP 3: INTERSTATE ACCESS REQUEST DETERMINATION
A request from INDOT to FHWA to change Interstate access will not necessarily be required for each interchange modification proposal.

Situations that will require an IAD include (but are not necessarily limited to):

- Establishing a new interchange
- Upgrading a service interchange (interstate to non-interstate) to system interchange (interstate to interstate)
- Major modification of an interchange
- Changing the essential type of interchange or form of a ramp
- Removal from service of select access points or ramps or an entire interchange
- Any significant change to intersection control at the ramp terminals since the change may affect mainline interstate flow, even if a new access point to the interstate is not being created
  → An example of this is conversion of a conventional diamond to diverging diamond, roundabout, single point

Situations that will not require an IAD:

- Addition of a traffic signal control at the ramp terminals
- Addition or lengthening of turn lanes at the ramp terminals on the ramps or side road approaches
- Minor horizontal or vertical realignment of a ramp
- Converting a taper type on or off ramp to a parallel type ramp
- Increasing the length of ramp deceleration or acceleration sections
- Addition of continuous auxiliary lanes between two adjacent interchange ramps

Although some situations do not require an IAD, they may require additional information and coordination with the FHWA.

If an Interstate Access Document is required for an interchange modification project, it will be classified as an IAD-Major or an IAD-Minor. A major IAD is expected to have extensive answers to the 8 policy points. These requests will be required where new interchange construction is proposed at particularly complex sites or in circumstances where the treatment is intense or novel. A minor IAD can have simple, shorter answers to the 8 policy points, with the exception of Policy Point #3 in select cases in which complex traffic operations analysis is necessary. An example of a minor IAD would be the modification of ramp terminals at an interchange to roundabouts in a rural, low impact setting.
STEP 4 & 5: CONTENT OF INTERSTATE ACCESS DOCUMENT (IAD)

Introduction and Project Description
The IAD should begin with a description of the project and include: project leads and proponents, background information, location, existing conditions, need and purpose for the project, funding status, proposed project schedule, existing studies, development team members and project layouts.

Project and Study Areas
The study area limits are normally larger than the project limits. The study area limits represent influential conditions such as traffic impacts and land use typically beyond the project limits.

After detailing the project’s location and physical limits with both maps and a written description, clarify the study area boundaries on a map and include a written description of affected interchanges, intersections and streets, cities and counties with State Road impacts, and local agency improvements. Identify specific intersections and interchanges within the study area that will be analyzed and to what degree. A larger study area will be required for complex interstate access requests. At complex sites, this may involve one or more interchanges in each direction on the interstate route as well as parallel routes and adjacent intersections to the proposed or modified interchange site.

Statement of Need and Purpose
The IAD should describe the need and purpose for the project. Detail the operational (traffic mobility and safety) deficiencies that make the project necessary. Describe what the project will do to eliminate the operational deficiency.

Framework
This section will restate (summarize) the agreed-upon scope of study with INDOT and FHWA, the Framework Document.

Alternatives and Proposal
The detailed explanation and analysis of all alternatives should be reserved for the Alternative Selection Report. Only the proposed treatment should be detailed extensively within the Interstate Access Document while the other alternatives can be briefly summarized.

Traffic Operations Analysis
The detailed traffic operations and safety analysis of the preferred alternative should be included. The IAD should also include an evaluation matrix of the project alternatives to illustrate why one alternative is preferred.

Responses to the 8 Policy Points
This section is the substantial portion of the IAD where the 8 Policy Points are answered to the satisfaction of FHWA.

Appendices
Include all supporting maps and documentation, etc. related to the project.
Interchange modification (IM), interchange work (IW) or new interchange (NI) project is funded and gets Active status in SPMS

Proj Mgr (PM) notifies Corridor Dev Office IAR coordinator (CDO) & Federal Hwy Admin (FHWA) of the active IM / IW / NI project and schedules initial (kickoff) mtg

Step 1: PM and Designer meet with CDO and FHWA to discuss scope of study and the framework document (FWD) for the project (framework meeting)

Designers submit FWD and asks for concurrence from CDO and FHWA

Concurrence granted?

Yes

Proceed

Edit & resubmit FWD

No

Step 2: Engineer / analyst determines feasible interchange configuration(s), conducts preliminary analyses and submits Alternative Selection Report (ASR) to CDO

FHWA and CDO grant concurrence on ASR and establish final interchange configuration

FHWA and CDO review ASR and determine if Interstate Access Document (IAD) is required and IAD-Major or IAD-Minor status

Step 3: CDO and FHWA review ASR and determine if Interstate Access Document (IAD) is required and IAD-Major or IAD-Minor status

IAD req’d?

Yes

Step 4: Designer produces and submits draft IAD to CDO for review and comment

Comments and revision requests on draft IAD (if any) by CDO, FHWA, and/or HQ returned to Designer and PM

FHWA reviews internally, determines if review by headquarters in Washington DC (HQ) is required and notifies CDO

CDO and FHWA determine if IAD can be self-approved by INDOT per programmatic agreement (PA) or if IAD will require FHWA review and approval

Self-Approval?

No

Proceed with review and comments by CDO and FHWA

Yes

INDOT review & approve IAD internally per PA and notify FHWA

Memo of no IAD required decision from CDO to FHWA, Designer, PM, and project file

Draft final IAD approved by CDO & FHWA?

Yes

FHWA issues Determination of Engineering and Operational Acceptability (EOA) and notifies CDO, PM, and Designer

Final NEPA approval obtained

Step 5: Designer submits final IAD to CDO, FHWA, and PM

Final NEPA approval obtained

End

No

Step 5: Designer submits final IAD to CDO, FHWA, and PM

Final NEPA approval obtained

End

Edit & resubmit