Title 27. Transportation

Chapter V. Arkansas Department of Transportation, State Highway Commission

Subchapter B. Design and Construction

Part 95. Procedures for New or Revised Freeway Access in Arkansas

Codification Notes. This part as promulgated prior to codification into the Code of Arkansas Rules of provided as follows:

"1. INTRODUCTION

Section 111 of Title 23, United States Code (23 USC 111) requires that proposed new or revised Interstate access must be approved by the Federal Highway Administration (FHWA) before such access modifications can be made. This report explains the FHWA policy (The Policy) for new or revised Interstate access proposals and establishes procedures for applying that policy in Arkansas. The Policy was originally issued in 1990 and then revised in February 1998 and in August 2009.

While The Policy applies to new or revised access points to the Interstate System, the Arkansas State Highway and Transportation Department (AHTD) and the Arkansas Division Office of FHWA have jointly agreed to apply The Policy to all fully access-controlled freeways in Arkansas regardless of the source(s) for funding the changes. The Policy applies to all federal, state, and local government agencies and private entities that propose and/or finance projects for new or modified access. Further, The Policy does not imply that the AHTD is relinquishing its authority over any part of the State Highway System."

Subpart 1. General Provisions

27 CAR § 95-101. Definitions.

As used in this part:

(1)(A) "Interchange Justification Report (IJR)" means the document that is

transmitted to the Federal Highway Administration along with the request for new or revised freeway access.

(B) The IJR supports the request and is the document that is reviewed by the Arkansas Department of Transportation and the Federal Highway Administration;

(2) "Locked gate access for right-of-way maintenance" means the access granted by the Arkansas Department of Transportation to the adjacent property owner for access to the highway right-of-way, but not the main lanes, for the purpose of mowing the part of the right-of-way that is outside the area that is typically mowed;

(3) "Locked gate access to/from the main lanes" means the specific access rights granted by the Arkansas Department of Transportation, with Federal Highway Administration approval, to allow non-Arkansas Department of Transportation personnel access to an adjacent property;

(4)(A)(i) "Request", for new or revised freeway access, means the process of asking the Federal Highway Administration for granting approval.

(ii) If the proposing entity is other than the Arkansas Department of Transportation, the request goes to the Arkansas Department of Transportation first.

(B) "Request" for a finding of engineering and operational acceptability is typically stated in a letter that accompanies the Interchange Justification Report (IJR).

(C) "Request" for final approval is a separate letter;

(5)(A) "Review" means the process the Arkansas Department of Transportation and the Federal Highway Administration follow to determine whether the request meets the eight (8) Federal Highway Administration policy requirements.

(B) This occurs by reviewing the IJR during the engineering and operational acceptability review step, and later during the final approval step;

(6) "Transportation management area (TMA)" means an urbanized area with a current population more than two hundred thousand (200,000) as determined by the latest census, or other area when the TMA designation is requested by the Governor and the MPO, and officially designated by the Administrators of the Federal Highway Administration and Federal Transit Administration;

(7)(A) "Urban area" means an urbanized area or an urban place as designated

by the United States Bureau of the Census having a population of five thousand (5,000) or more and not within any urbanized area, within boundaries to be fixed by responsible state and local officials in cooperation with each other, subject to approval by the United State Secretary of Transportation.

(B) Such boundaries shall encompass, at a minimum, the entire urban place designated by the United States Bureau of the Census; and

(8)(A) "Urbanized area" means an area with a population of fifty thousand (50,000) or more designated by the United States Bureau of the Census, within boundaries to be fixed by responsible state and local officials in cooperation with each other, subject to approval by the United States Secretary of Transportation.

(B) Such boundaries shall encompass, at a minimum, the entire urbanized area as designated by the United States Bureau of the Census.

Authority. Arkansas Code § 27-65-107.

Codification Notes. "MPO" means metropolitan planning organization.

27 CAR § 95-102. Arkansas Department of Transportation notice of nondiscrimination.

(a) The Arkansas Department of Transportation complies with all civil rights provisions of federal statutes and related authorities that prohibit discrimination in programs and activities receiving federal financial assistance.

(b) Therefore, the department does not discriminate on the basis of race, sex, color, age, national origin, religion, or disability in the admission, access to, and treatment in the department's programs and activities as well as the department's hiring or employment practices.

(c) Complaints of alleged discrimination and inquiries regarding the department's nondiscrimination policies may be directed to:

James B. Moore, Jr., Section Head – EEO/DBE (ADA/504/Title VI Coordinator)
P. O. Box 2261
Little Rock, AR 72203
(501) 569-2298 (Voice/TTY 711)
james.moore@arkansashighways.com (email address)

(d) This notice is available from the ADA/504/Title VI Coordinator in large print, on audiotape, and in Braille.

Authority. Arkansas Code § 27-65-107.

27 CAR § 95-103. Basis of policy and general requirements.

(a)(1) The Arkansas Department of Transportation and the Federal Highway Administration have a substantial investment in the fully access-controlled freeways in Arkansas.

(2) The freeway system in Arkansas makes up less than five percent (5%) of the sixteen-thousand-mile state highway system but carries approximately thirty percent (30%) of the vehicle miles of travel and serves as the backbone of the system.

(3) Full control of access along the freeway main lanes and ramps, along with control-of-access on the local roadway network at interchanges, is critical to providing the highest levels of service in terms of safety and mobility.

(4) Therefore, the decision to approve new or revised access points to the freeway system should be supported by substantiated information justifying and documenting that decision.

(b) The department's and Federal Highway Administration's interest is to ensure all new or revised access points:

(1) Are considered using a decision-making process that is based on information and analysis of the planning, environmental, design, safety, and operational effects of the proposed change;

(2) Support the intended purpose of the freeway system;

(3) Do not have an adverse impact on the safety or operations of the freeway system, connecting local roadway network, or other elements of the transportation system; and

(4) Are designed to acceptable standards.

(c)(1) The department and the Federal Highway Administration have determined that the approval procedure will be a two-step process.

(2) The first step is a finding of engineering and operational acceptability in accordance with this part.

(3) The second step is final Federal Highway Administration approval which constitutes a federal action, and as such requires that the National Environmental Policy Act of 1969, 42 U.S.C. § 4321 et seq., procedures are followed.

(4) All of these are discussed in detail in 27 CAR § 95-301 et seq.

(5) See 27 CAR § 95-101 for definition of terms.

Authority. Arkansas Code § 27-65-107.

27 CAR § 95-104. Interchange spacing.

(a) The spacing of adjacent interchanges has a pronounced effect on the operation of freeways.

(b) As a rule of thumb, the minimum interchange spacing is one (1) mile in urban areas as measured from the intersecting crossroads.

(c) More space is generally required for freeway-to-freeway interchanges due to their larger footprint and higher ramp volumes.

(d) Proposed interchanges spaced less than one (1) mile in urban areas may still be considered with appropriate geometric designs, i.e., collector-distributor roads or braided ramps.

(e) In rural areas, the minimum interchange spacing is three (3) miles for interstates and two (2) miles for noninterstate freeways as measured from the intersecting crossroads.

Authority. Arkansas Code § 27-65-107.

27 CAR § 95-105. Reevaluations.

(a)(1) If the design or operation of a project that was previously accepted is significantly changed, e.g., land use, traffic volumes, roadway design, environmental impacts, etc., then a reevaluation is required.

(2) The scope of the changes and the factors justifying the change will determine the level of analysis required.

(b)(1) If an accepted change in access has not progressed to construction within eight (8) years after receiving affirmative determination of the engineering and operational acceptability from the Federal Highway Administration, a reevaluation is required.

(2) The National Environmental Policy Act of 1969, 42 U.S.C. § 4321 et seq., reevaluation period is different from the freeway system access reevaluation.

(3) National Environmental Policy Act of 1969 documents require reevaluation in three (3) years (23 C.F.R. § 771.129) if major steps to advance the proposed project have not occurred.

(c)(1) If the reevaluation is performed after the planning, air quality conformity, and National Environmental Policy Act of 1969 processes are completed, documentation must be provided on how these processes were amended.

(2) The documentation should include the results and/or conditions that are addressed in the reevaluation to allow the department and Federal Highway Administration to make an informed decision on the change in access.

Authority. Arkansas Code § 27-65-107.

27 CAR § 95-106. Federal Highway Administration policy requirements.

(a) This part states that new or revised access points to the existing Interstate Highway System should meet eight (8) specific requirements.

(b) The Arkansas Department of Transportation and the Arkansas Division of the

Federal Highway Administration have determined that a new or revised access point on any fully access-controlled freeway must also meet these requirements, as shown below:

(1)(A) The need being addressed by the request cannot be adequately satisfied by existing interchanges to the interstate, and/or local roads and streets in the corridor can neither provide the desired access, nor can they be reasonably improved (such as access control along surface streets, improving traffic control, modifying ramp terminals and intersections, adding turn bays, or lengthening storage) to satisfactorily accommodate the design-year traffic demands (23 C.F.R. § 625.2(a)).

(B)(i) The intent of this requirement is to demonstrate that an access point is needed for regional traffic needs and not to solve the needs associated with local traffic.

(ii) While the freeway facility should not be allowed to become part of the local circulation system, it should be maintained as the main regional facility.

(iii) Improvements to parallel facilities should be considered in lieu of new access wherever feasible;

(2)(A) The need being addressed by the request cannot be adequately satisfied by reasonable transportation system management (such as ramp metering, mass transit, and high occupancy vehicle (HOV) facilities), geometric design, and alternative improvements to the interstate without the proposed change or changes in access (23 C.F.R. § 625.2(a)).

(B)(i) Improvements within an existing interchange should be considered prior to new access.

(ii) This requirement does not mean that ramp metering, mass transit, and HOV facilities are the only transportation system management (TSM) alternatives that should be considered.

(iii) Analysis needs to be provided that addresses the design, safety, and operational considerations of these alternatives.

(iv) The proposed change in access also needs to document the consistency of any proposed change with regional, corridor, or system-wide

assumptions of special use lanes, transit, or other alternatives to ensure the change in access does not preclude implementation of these TSM alternatives in the future;

(3)(A)(i) An operational 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 (which includes mainline lanes, existing, new, or modified ramps, or ramp intersections with crossroad) or on the local street network based on both the current and the planned future traffic projections.

(ii) The analysis shall, particularly in urbanized areas, include at least the first adjacent existing or proposed interchange on either side of the proposed change in access (23 C.F.R. §§ 625.2(a), 655.603(d), and 771.111(f)).

(iii) The crossroads and the local street network, to at least the first major intersection on either side of the proposed change in access, shall be included in this analysis to the extent necessary to fully evaluate the safety and operational impacts that the proposed change in access and other transportation improvements may have on the local street network (23 C.F.R. §§ 625.2(a) and 655.603(d)).

(iv) Requests for a proposed change in access must include a description and assessment of the impacts and ability of the proposed changes to safely and efficiently collect, distribute, and accommodate traffic on the interstate facility, ramps, intersection of ramps with crossroad, and local street network (23 C.F.R. §§ 625.2(a) and 655.603(d)).

(v) Each request must also include a conceptual plan of the type and location of the signs proposed to support each design alternative (23 U.S.C. § 109(d) and 23 C.F.R. § 655.603(d)).

(B)(i) The operational and safety analysis performed needs to include all elements of the freeway system, including collector-distributor roads, and provide a comparison of the no-build and build conditions that are anticipated to occur through the design year of the project.

(ii) The analysis may be extended beyond the minimum requirements outlined above to establish the potential extent and scope of the impacts, particularly in urbanized areas with closely spaced interchanges.

(iii) The analysis should demonstrate the engineering and operational acceptability of the proposed change in access.

(iv) When considering the impacts of various alternatives, priority needs to be given to the performance of the freeway system within the context of the local planning, environmental, design, safety, and operational conditions;

(4)(A)(i) The proposed access connects to a public road only and will provide for all traffic movements.

(ii) Less than full interchanges may be considered on a case-by-case basis for applications requiring special access for managed lanes (e.g., transit, HOV, or high occupancy toll lanes) or park and ride lots.

(iii) The proposed access will be designed to meet or exceed current standards (23 C.F.R. §§ 625.2(a), 625.4(a)(2), and 655.603(d)).

(B)(i) All interchanges need to provide for each of the eight (8) basic movements (or four (4) basic movements in the case of a three-legged interchange), except in the most extreme circumstances.

(ii) Partial interchanges usually have undesirable operational characteristics.

(iii) If circumstances exist where a partial interchange is considered appropriate as an interim improvement, then commitments need to be included in the request to accommodate the ultimate design.

(iv) These commitments may include purchasing the right-of-way required during the interim improvements.

(C) Access to special use lanes, transit stations, or park and ride lots that are part of the freeway system are special cases, and the movements requiring access should be determined on a case-by-case basis;

(5)(A)(i) The proposal considers and is consistent with local and regional land use and transportation plans.

(ii) Prior to receiving final approval, all requests for new or revised access must be included in an adopted metropolitan transportation plan, in the adopted statewide or metropolitan transportation improvement program (STIP or TIP), and the

congestion management process within transportation management areas, as appropriate, and as specified in 23 C.F.R. pt. 450, and the transportation conformity requirements of 40 C.F.R. pts. 51 and 93.

(B)(i) The freeway system access change request needs to include a discussion as to how the proposal is consistent with the transportation planning activities for the area.

(ii) If the project will be added to the planning process in the future, a discussion needs to be provided that indicates how the project will affect the current plan.

(C)(i) Although the Federal Highway Administration may review a proposed change in access prior to its inclusion in the transportation plans, final approval cannot be given until the project is adopted in the metropolitan planning organization's (MPO) metropolitan transportation plan (MTP) or TIP within metropolitan areas and the STIP in rural areas.

(ii) This would include funding from any sponsor, including a:

(a) State agency;

(b) Local agency; or

(c) Private developer.

(iii) Additionally, if approval of the access hinges upon improvements to the local street network, those local improvements must also be included in the TIP and STIP;

(6)(A) In corridors where the potential exists for future multiple interchange additions, a comprehensive corridor or network study must accompany all requests for new or revised access with recommendations that address all of the proposed and desired access changes within the context of a longer-range system or network plan (23 U.S.C. § 109(d), 23 C.F.R. §§ 625.2(a), 655.603(d), and 771.111).

(B)(i) Sufficient review and coordination needs to be performed to avoid conflicts with other proposed changes in access or corridor improvements.

(ii) If two (2) or more changes in access are being considered in the same vicinity, then these changes should be analyzed together.

(iii) The combined effect of the proposed change in access is especially important when several new interchanges are proposed.

(C)(i) The intent of this requirement is to avoid isolated, piecemeal analysis for access change decisions.

(ii) Where multiple access changes are anticipated in the vicinity, analysis must consider the possible, cumulative effects if all were to be implemented;

(7)(A)(i) When a new or revised access point is due to a new, expanded, or substantial change in current or planned future development or land use, requests must demonstrate appropriate coordination has occurred between the development and any proposed transportation system improvements (23 C.F.R. §§ 625.2(a) and 655.603(d)).

(ii) The request must describe the commitments agreed upon to ensure adequate collection and dispersion of the traffic resulting from the development with the adjoining local street network and interstate access point (23 C.F.R. §§ 625.2(a) and 655.603(d)).

(B)(i) Highways should be developed in an orderly and coordinated manner to serve the public.

(ii) When new development is the driving force behind the need for access, it is expected that the appropriate coordination and analysis is performed to achieve mutual benefits with minimal adverse impact on freeway travelers.

(iii) As a condition of approval, certain parts of the local circulation system may be required to be constructed or improved before the new, or change in, access is opened to traffic.

(iv) Coordination and cooperation is essential to ensure that when several projects are linked to the approval of a change in access, that they are constructed according to an appropriate phasing plan.

(v) A commitment of funding or inclusion of projects as part of the planning process prior to final approval of the change in access may be required; and

(8)(A)(i) The proposal can be expected to be included as an alternative in the required environmental evaluation, review, and processing.

(ii) The proposal should include supporting information and current

status of the environmental processing (23 C.F.R. § 771.111).

(B)(i) This part allows for a two-step approval process.

(ii) The first step is the determination of engineering and operational acceptability.

(iii) The final approval can be granted only after the National Environmental Policy Act of 1969, 42 U.S.C. § 4321 et seq., process is completed.

(iv) The National Environmental Policy Act of 1969 process must be followed regardless of the source of funding (including private funding) for the project, since approval of the proposed change in access constitutes a federal action.

(v) The development of final plans, specifications and engineering, and right-of-way acquisition and construction may be performed only after this final environmental approval is granted.

Authority. Arkansas Code § 27-65-107.

Subpart 2. Policy Applicability

27 CAR § 95-201. Generally.

(a)(1) An access point is defined as an entrance or exit point on the freeway mainline, including locked gate access.

(2) For example, a diamond interchange configuration has four (4) access points.

(3) A proposal to revise or modify the existing access or the interchange configuration is considered a change even though the number of actual points of access may not change.

(4) For example, replacing one (1) of the direct ramps of a diamond interchange with a loop or changing a cloverleaf interchange into a fully directional interchange is considered an access modification.

(b)(1) All proposals for additional or modified access must comply with federal regulations, policies, and applicable design standards, such as the American Association

of State Highway Transportation Officials' A Policy on Geometric Design of Highways and Streets and A Policy on Design Standards – Interstate System, as well as Arkansas Department of Transportation policies and practices.

(2) Exceptions to these regulations, policies, and design standards must be documented and are subject to the approval of the department and the Federal Highway Administration.

(3) Final project designs are subject to review and approval by the department and the Federal Highway Administration, if applicable.

(c)(1) The applicant must follow all National Environmental Policy Act of 1969, 42 U.S.C. § 4321 et seq., and other applicable federal regulations such as the Section 106 process of the National Historic Preservation Act of 1966 and should consider environmental and social impacts during the project development process.

(2) The National Environmental Policy Act of 1969 process must be completed before final access approval can be given.

(3) Final compliance with National Environmental Policy Act of 1969 procedures may either precede or follow a determination of engineering acceptability and feasibility.

Authority. Arkansas Code § 27-65-107.

Codification Notes. Section 106 of the National Historic Preservation Act is codified at 54 U.S.C. § 306108.

27 CAR § 95-202. Actions requiring Federal Highway Administration approval.

The following actions require Federal Highway Administration approval:

(1) New freeway-to-freeway interchange;

(2) New service interchanges providing access between a nonfreeway local roadway network (arterial, collector, or local road) and the freeway;

(3) Modification of freeway-to-freeway interchange configuration, for example:

(A) Adding new ramp or ramps;

(B) Abandoning/removing ramp or ramps;

(C) Completing basic movements; and

(D) Reconstruction of structures;

(4) New partial interchanges or new ramps to-from continuous frontage roads that create a partial interchange;

(5) Modification of existing interchange configuration, such as adding a loop to a diamond interchange;

(6) Completion of basic movements at partial interchange, for example, completing a partial diamond interchange by adding a ramp;

(7) Locked gate access, e.g., access via locked gates for emergency response;

(8) Abandonment of ramps or interchanges;

(9) Access to special use lanes such as HOV, high occupancy toll, or truck only lanes (from the street network) within the freeway system should be treated similarly to any other access;

(10) Relocation of a ramp terminus to a different local road; and

(11) Changes in operation of managed-lane access to general-purpose access to the freeway.

Authority. Arkansas Code § 27-65-107.

Codification Notes. "HOV" means high occupancy vehicle.

27 CAR § 95-203. Actions not requiring Federal Highway Administration access approval.

(a)(1) Although access approval may not be needed, coordination with the Arkansas Division of the Federal Highway Administration is recommended to determine if any analysis is required based on the context of the project.

(2) If it is determined these changes may require an analysis of the planning, environmental, design, safety, or operations of the proposed improvements, the

Arkansas Department of Transportation will coordinate with the Arkansas Division of the Federal Highway Administration to determine the type and extent of analysis required.

(b) The following changes to freeway facilities may not require approval under this part:

(1)(A) Shift of a ramp's location within the same interchange configuration, which results in ramp spacing that meets the Federal Highway Administration's design criteria.

(B) If the interchange is reconfigured in such a way that the travel patterns change with the same number of access points, coordination of the project should be performed with the Arkansas Division of the Federal Highway Administration to determine the type of review.

(C) Changing the location of a ramp could result in changes to the safety and operational performance of the freeway system;

(2)(A) Addition of lanes to an on-ramp may not require a freeway system access change request be submitted.

(B) However, based on coordination with the Federal Highway Administration, analysis of the potential consequences of this change on the safety and operational performance of the freeway may be required;

(3) Addition of left-turn storage lanes, right-turn storage lanes, and through travel lanes at the terminus of existing ramps;

(4) Relocation or shifting of the existing on-ramp or off-ramp termini, i.e., moving the ramp end that connects with the local road, along the same roadway;

(5) Addition of a single auxiliary lane between two (2) adjacent interchange ramps where the single auxiliary lane does not function as a mainline travel lane;

(6) Modification of the length of acceleration or deceleration lanes involved with any ramp;

(7) Improvement of traffic signals at ramp termini with local roads do not require approval but should be reviewed to ensure that the changes in the signalization do not result in queue spillback into the mainline lanes of the freeway and that sufficient storage is provided;

(8) Implementation of ramp metering or other active control of vehicles entering the freeway system;

(9) Construction of new signing, striping, and/or resurfacing of a freeway on-ramp or off-ramp where geometric features are not changed;

(10) Installation of roadside guardrail and concrete barriers such as for resurfacing and safety projects;

(11)(A) Construction of overpasses or grade separation structures without ramps along freeway facilities.

(B) The approval of air-rights over freeway facilities is addressed as part of the location and design concept acceptance with the National Environmental Policy Act of 1969, 42 U.S.C. § 4321 et seq., process and approval of plans, specifications, and estimate; and

(12) Changes in access between managed lanes and general purpose lanes on the freeway.

(c) The department and the Arkansas Division of the Federal Highway Administration will jointly determine the applicability of this part to any circumstances not specifically listed above.

Authority. Arkansas Code § 27-65-107.

Subpart 3. Procedure for Approval Request

27 CAR § 95-301. Generally.

(a) A request for new or revised freeway access is a two-step process that consists of:

(1) A finding of engineering and operational acceptability; and

(2) Final approval.

(b) The purpose of a two-step process is to help the entity requesting the access change manage risk and provide flexibility.

(c) It is intended to identify fatal flaws and to help ensure the investments in the

subsequent phases of production, including any environmental documents, are not wasted.

(d)(1) A finding of engineering and operational acceptability and final approval is valid for an eight-year period based upon the original scope and purpose of the proposal.

(2) See 27 CAR § 95-105.

(e) A request for new or revised freeway access should be accompanied by an Interchange Justification Report that supports the request and addresses the Federal Highway Administration policy requirements.

(f) This section is written as if the proposing entity is not the Arkansas Department of Transportation.

(g) If the proposing entity is the department, the same process would still follow.

(h) The basic process for this approval procedure is shown in Figure 1.

Authority. Arkansas Code § 27-65-107.

27 CAR § 95-302. Procedure summary.

(a)(1) The typical process begins within the statewide or metropolitan planning process.

(2) Ideally, the change in access has been through a transportation planning process that has involved the stakeholders to ensure the project is in the appropriate transportation plan and a system or corridor study has been completed.

(3) The work completed in this transportation planning process can be used to define the initial scope and nature of the project.

(4) This can include an interchange access in an MPO's MTP, but its inclusion in the plan should not be interpreted as approval and should not be the basis for justification in the access request.

(b) Before making a formal request for new or revised freeway access, early coordination between the entity proposing the access change, the Arkansas Department of Transportation, the Arkansas Division of the Federal Highway Administration, the

MPO (if applicable), and appropriate stakeholders (if applicable) should happen as soon as possible in order to refine the scope of the required analysis and to discuss the reasonability of the proposed project in accordance to this part.

(c)(1) If the proposed project appears reasonable, the proposing entity will prepare an IJR.

(2) It is recommended that there is close coordination with the department and Federal Highway Administration through the IJR development process.

(3) Once complete, the IJR is formally submitted to the department with a request for a finding of engineering and operational acceptability.

(4) If the department concurs, the request is sent to the Arkansas Division of the Federal Highway Administration with a recommendation of approval.

(5) If the Federal Highway Administration determines the request is acceptable in accordance to this part, the project may proceed to the development of final design and right-of-way plans and eventually final approval.

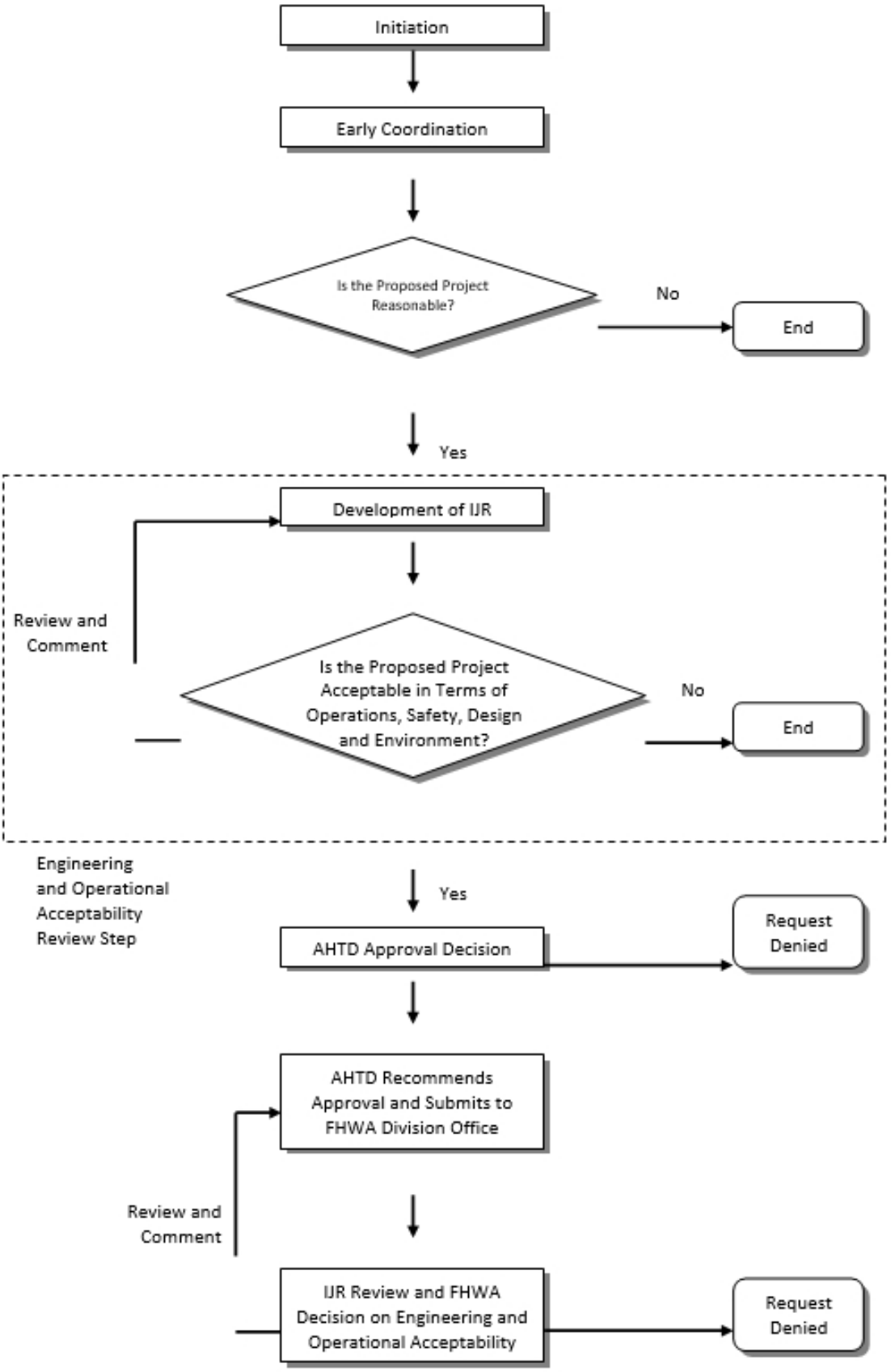
(6) Completion of the IJR does not guarantee approval of any new access or changes to the access, however, it does provide a framework for the analysis of the potential benefits and consequences of the proposed project.

(d)(1) The second step is the final Federal Highway Administration approval which constitutes a federal action, and as such, requires that National Environmental Policy Act of 1969, 42 U.S.C. § 4321 et seq., procedures are followed.

(2) Compliance with the National Environmental Policy Act of 1969 procedures need not precede the determination of engineering and operational acceptability.

(3) Final approval of access can only be granted upon the completion of National Environmental Policy Act of 1969 and the approval of final design and right-of-way plans.

(4) Approval of access is granted as long as there are no changes to the location or design of the accepted concept.


Initiation
Early Coordination
Is the Proposed Project Reasonable?
No
End
Yes
Development of IJR
Review and Comment
Is the Proposed Project Acceptable in Terms of Operations, Safety, Design and Environment?
No
End
Engineering and Operational Acceptability Review Step
Yes
AHTD Approval Decision
Request Denied
AHTD Recommends Approval and Submits to FHWA Division Office
Review and Comment
IJR Review and FHWA Decision on Engineering and Operational Acceptability
Request Denied

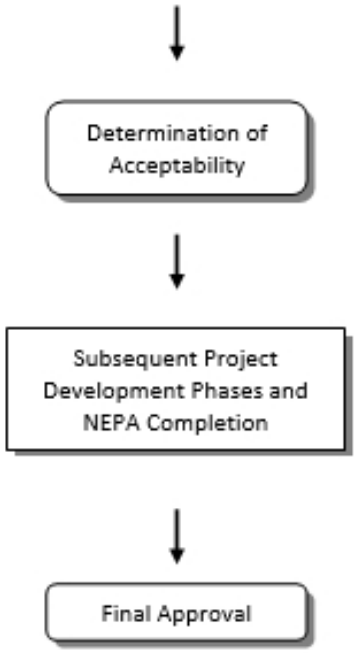


Figure 1. New or Revised Freeway Access Request Approval Process

(e)(1) Regardless of the funding source, since approval is considered a federal action, the project's final approval is contingent on the successful completion of the same process as used in the planning, engineering, and environmental phases for any federally funded project.

(2) The freeway system access change request also must be adopted as part of a conforming transportation plan and STIP and TIP, if applicable, to receive final approval.

(3) Review of the plans, specifications, and estimate is also performed by the Federal Highway Administration prior to construction.

(4) This is the final opportunity to review and approve proposed changes in access.

(5) The final design is the recommended construction plan and should be consistent with the engineering concepts approved under this part.

(6) If the final design is not consistent with the approval under this part, a

reevaluation is necessary.

Authority. Arkansas Code § 27-65-107.

Codification Notes. "MPO" means metropolitan planning organization.

"MTP" means metropolitan transportation plan.

"IJR" means Interchange Justification Report.

"TIP" means metropolitan transportation improvement program.

"STIP" means statewide transportation improvement program.

27 CAR § 95-303. Early coordination.

(a)(1) Coordination with the Arkansas Department of Transportation and the Federal Highway Administration should happen as early as possible in order to avoid unnecessary effort on the part of the proposing entity.

(2) If a consulting firm will be utilized, early coordination should occur as soon as possible to help define the scope of the contract.

(b) An early coordination meeting should include, but is not limited to:

(1)(A) The department.

(B) The Planning and Research Division should coordinate the meeting with appropriate staff, which typically includes representatives from the Roadway Design, Environmental, Bridge, Right of Way, and Surveys Divisions, as well as the relevant district;

(2) The Arkansas Division of the Federal Highway Administration;

(3) The MPO, if applicable;

(4) The entity proposing the new or revised freeway access request;

(5) Transit operators, if applicable; and

(6) Emergency management personnel, if appropriate.

(c) The following issues should be addressed as part of the coordination meeting:

(1) Reasonability of the request in accordance to this part;

(2) Need for department and Federal Highway Administration review and action;

(3) Study area and scope of the analysis;

(4) Defining the purpose and need of the access request;

(5) Performance objectives and measures; and

(6)(A) Technical analysis requirements for the planning, environmental, design, safety, and operations issues.

(B) The appropriate operational analysis tool or tools and a data collection plan should be discussed.

(d) The Planning and Research Division staff will be responsible for documenting the meeting minutes.

Authority. Arkansas Code § 27-65-107.

Codification Notes. "MPO" means metropolitan planning organization.

27 CAR § 95-304. Engineering and operational acceptability review.

(a)(1) Once early coordination has occurred, the proposing entity can begin development of an Interchange Justification Report (IJR).

(2) A scope of work for the IJR should be developed by the proposing entity and coordinated with Planning and Research Division staff and appropriate stakeholders.

(3) The IJR should address the eight (8) Federal Highway Administration policy requirements described in 27 CAR § 95-106.

(4) If the proposing entity is not the department, close coordination with department Planning and Research Division staff should occur.

(5) If the proposing entity is the department, the Planning and Research

Division will be responsible for preparing the document.

(6) If the proposing entity is utilizing a consulting firm, close coordination with the department Consultant Coordinator should take place.

(7) See the appendix for technical resources for additional information and guidance.

(b) The following information is expected in the IJR:

(1)(A) Introduction.

(B) An introduction to the proposed project should be provided that summarizes the following:

(i)*(a)* Project location.

(b) Include an overview map of the proposed project location.

(c) A second, more detailed map should also be included that shows the area of influence (or study area) of the proposed project.

(d) This map should be to scale and can consist of schematic drawings that show distances between interchanges, intersections, and other key features.

(e) The study area should include, at a minimum, the adjacent interchanges on the freeway and the first major intersections along the crossroad as appropriate.

(f) See Figure 2 for an illustration of the area of influence concept.

(g) Factors used to define the study area should be discussed, including:

(1) Interchange spacing;

(2) Signal locations;

(3) Anticipated traffic impacts;

(4) Anticipated land use changes; or

(5) Proposed transportation improvements; and

(ii)*(a)* Background.

(b) Any background or supporting information that explains the

basis for the proposal, e.g., proposed arterial on an MPO's MTP, proposed project from a corridor study, planned private development, known political support, etc.;

(2)(A) Purpose and need.

(B) The project's purpose and need should be identified in this section.

(C) This section should include the following:

(i)*(a)* Existing conditions**.**

(b) This section should identify current conditions.

(c) Text, figures, and tables should be used as appropriate to describe the existing land use, transportation system, demand, performance, and environmental conditions considering the following:

(1)(A) Land use.

(B) Existing land use within and around the study area should be summarized by general land use classifications (residential, commercial, industrial, recreational, etc.).

(C) Nearby major developments should be identified and any local land use plans should be provided as appropriate.

(D) Aerial photos or maps should be utilized as appropriate; and

(2)(A) Transportation network**.**

(B) Roads and highways within and around the study area should be identified by:

(i) Functional classification;

(ii) Numbers of lanes; and

(iii) Other relevant descriptions.

(C) Any nearby relevant transportation projects, under construction, programmed, or planned, should be identified.

(D) Maps, including any local master street plans, should be included as appropriate;

(ii)*(a)* Operational analysis.

(b) The results from an operational analysis of the no-build

alternative including the methodology, assumptions, and conclusions should be summarized.

(c) Current and future year no-build traffic, including average daily traffic and peak hour or peak period traffic, should be shown along with a discussion of the methodology and assumptions of forecasted traffic.

(d) Maps, photos, tables, and figures should be utilized as appropriate.

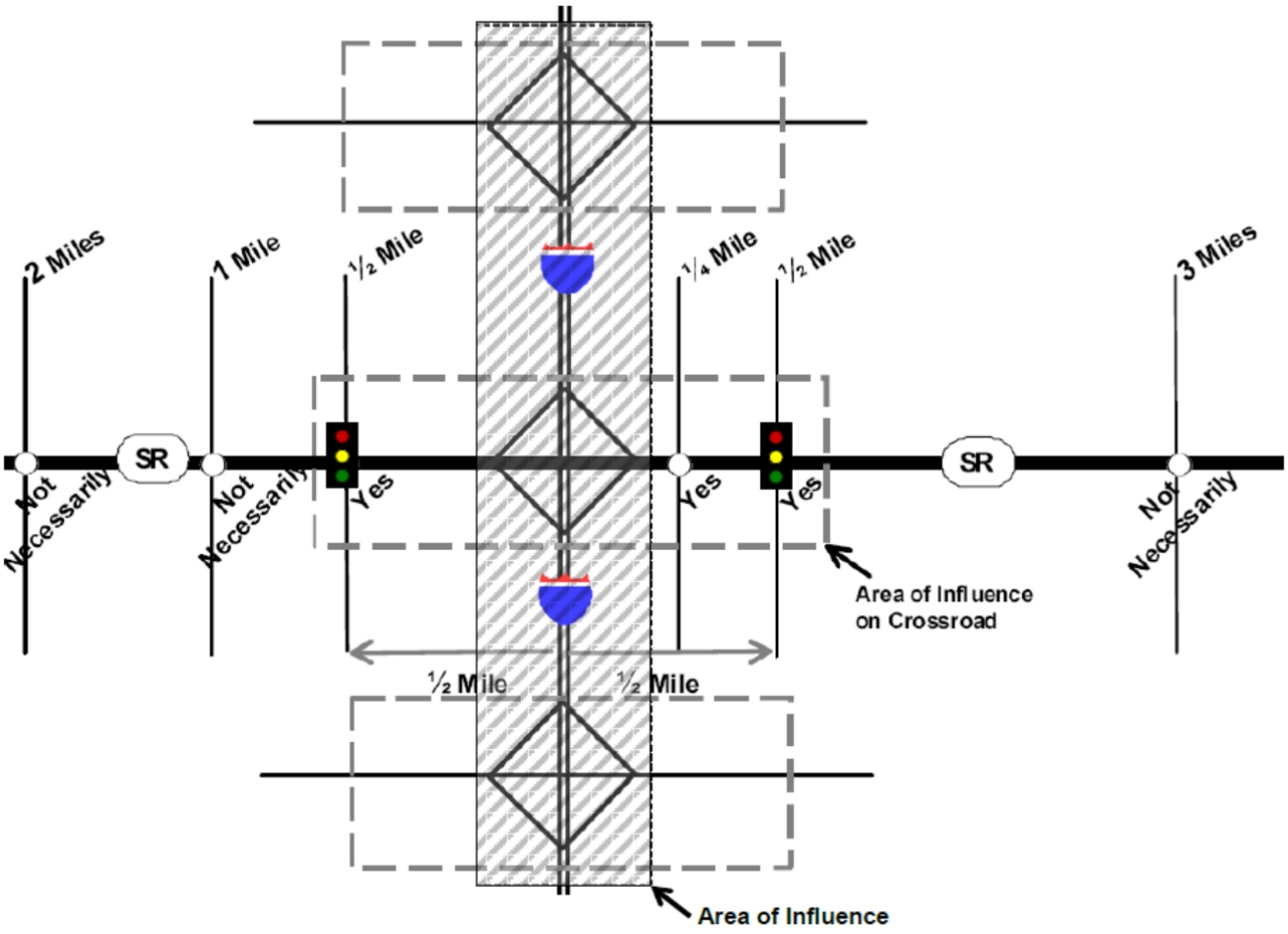
(e) See 27 CAR § 95-401 et seq., for more details; and

(iii)*(a)* Safety analysis.

(b) The results from a safety analysis of the existing conditions, including the methodology and conclusions, should be summarized.

(c) Maps, photos, tables, and figures should be utilized as appropriate.

(d) See 27 CAR § 95-501 et seq., for more details;



Source: Adapted from Florida Department of Transportation, *Interchange Handbook*

Figure 2. Area of Influence (or Study Area)

(3)(A) Environmental constraints.

(B) Any environmental constraints, particularly any potential fatal flaws or areas of concern, within the vicinity of the proposed project should be identified and briefly discussed.

(C) This analysis is not intended to provide extensive examination of environmental and community impact issues that will be accomplished in the National Environmental Policy Act of 1969, 42 U.S.C. § 4321 et seq., process;

(4)(A) Compatibility with transportation plans.

(B) This section will discuss the proposal's relationship to any existing

corridor studies or similar investment studies.

(C) The relationship of the proposed project to the TIP, STIP, or an MPO's MTP should also be discussed, as well as the attainment status of the area for the National Ambient Air Quality Standards established in the Clean Air Act Amendments;

(5)(A) Compliance with policies and engineering standards.

(B) This section will document the consistency with department and Federal Highway Administration policies and engineering standards for design.

(C) Any design exceptions based on the preliminary engineering concepts must also be documented;

(6)(A) Coordination.

(B) Any coordination between stakeholders or any public involvement that occurred should be documented;

(7)(A) Proposed alternatives.

(B) This section should describe each proposed alternative along with an analysis of each, which should include the following:

(i)*(a)* Initial alternatives.

(b) Any initial alternatives that were considered and removed from further analysis should be included.

(c) Reasons why each initial alternative was removed from further consideration should be discussed.

(d) Layouts of any initial design alternatives should be included as appropriate;

(ii)*(a)* Alternatives description.

(b) A description of each alternative carried forward should be included.

(c) Layouts of each alternative on a current aerial photo where one inch equals two hundred feet (1" = 200') should be shown that includes:

(1) Lane and shoulder widths;

(2) Auxiliary lane lengths;

(3) Taper lengths;

(4) Ramp radii;

(5) Intersection turning radii;

(6) Grades; and

(7) Other relevant geometric information.

(d) Existing and proposed right-of-way and control of access limits should also be shown.

(e) Lane configuration schematics should also be included for complex alternatives as needed;

(iii)*(a)* Conceptual signing plan.

(b) A conceptual signing plan layout of each alternative on a current aerial photo where one inch equals two hundred feet (1″ = 200′), or other scale as appropriate, should be provided.

(c) It should include all signs required for each alternative as well as any modifications to existing signage that would be required; and

(iv)*(a)* Alternatives analysis.

(b) The results from an operational analysis of the alternatives should be provided.

(c) Forecasted traffic for the build alternatives should be shown on maps and figures.

(d) Measures of effectiveness, e.g., delay, travel time, queues, LOS, etc., should be described in text, figures, or tables as appropriate.

(e) Other considerations, such as environmental constraints, safety issues, signing, and costs should be discussed as appropriate.

(f) A comparison of each alternative should be included, in either tabular form (e.g., evaluation matrix), discussion of advantages and disadvantages of each alternative, or some other form of evaluation as appropriate;

(8)(A) Funding plan.

(B) A funding plan that includes proposed funding sources, e.g., private development, local, state or federal-aid funds, for all phases of the proposed project should be included; and

(9)(A) Appendices.

(B) Appendices should include operational analysis documentation, master street plans, meeting minutes, or other relevant supporting documents.

(c)(1) Once the IJR is complete, an appropriate number of copies should be submitted to the Chief Engineer of the Arkansas Department of Transportation along with a letter requesting a finding of engineering and operational acceptability.

(2) If the department concurs, the request will be forwarded to the Arkansas Division of the Federal Highway Administration with a copy of the IJR for review and consideration.

(3) If the Federal Highway Administration determines the request is acceptable, project development may continue.

(d)(1) The department and Federal Highway Administration concurrence with the finding of engineering and operational acceptability is valid for eight (8) years.

(2)(A) If the project has not received final approval within that time, or if there is a significant change in conditions or design, a reevaluation must be made through a revised IJR.

(B) See 27 CAR § 95-105.

(3) The process for determining the nature and scope of the revised IJR should be jointly determined by the department, the Federal Highway Administration, the MPO (if applicable), and the proposing entity.

(4) The revised IJR should contain an updated analysis explaining the changes that have occurred since the initial finding of engineering and operational acceptability.

(e)(1) Documentation of the alternatives analysis from the IJR must be included in the environmental documentation.

(2) All feasible and reasonable alternatives must be carried through the National Environmental Policy Act of 1969 process.

(3) The National Environmental Policy Act of 1969 documentation should also include reasons for discarding alternatives.

(4) Although it is only required that the National Environmental Policy Act of 1969 process be completed before final access approval is given by the Federal

Highway Administration, it is recommended that the National Environmental Policy Act of 1969 process and the determination of engineering and operational acceptability through the IJR be accomplished concurrently.

(5) This is to ensure that both the purpose and need and the alternatives analysis meet the needs of the National Environmental Policy Act of 1969 process.

Authority. Arkansas Code § 27-65-107.

Codification Notes. "MPO" means metropolitan planning organization.

"MTP" means metropolitan transportation plan.

"TIP" means metropolitan transportation improvement program.

"STIP" means statewide transportation improvement program.

The Clean Air Act is codified at 42 U.S.C. § 7401 et seq.

27 CAR § 95-305. Final approval.

(a) A request for final approval for a proposed new or revised freeway access can be submitted to the Arkansas Department of Transportation once the appropriate planning, air quality conformity, and environmental processes under the National Environmental Policy Act of 1969, 42 U.S.C. § 4321 et seq., have been completed.

(b) The project should also be included in the TIP/STIP and the MPO's MTP prior to final approval.

(c) The request for final approval should be accompanied by the final design and right-of-way plans for construction.

(d) If the department determines all appropriate processes have been completed and concurs with the request, the department will forward it to the Federal Highway Administration with a recommendation for final approval.

Authority. Arkansas Code § 27-65-107.

Codification Notes. "TIP" means metropolitan transportation improvement program.

"STIP" means statewide transportation improvement program.

"MPO" means metropolitan planning organization.

"MTP" means metropolitan transportation plan.

Subpart 4. Operational Analysis

27 CAR § 95-401. Generally.

(a) The operational analysis should demonstrate the proposed new or revised freeway access will not have a significant or adverse impact on the safe operation of the freeway system.

(b) The operational analysis is integral to understanding the benefits and potential impacts to the freeway system and local roadway network.

(c) A detailed traffic operational analysis must accompany all requests through the IJR.

(d) Defining the scope of the operational analysis will primarily be driven by the purpose and need of study.

(e) The type of operational analysis will primarily be determined by the defined operational performance measures that relate to the purpose and need.

(f) The intent of this section is to present considerations that the proposing entity should address in the operational analysis.

(g) Details of specific analysis tools and technical guidance can be found in the appendix.

Authority. Arkansas Code § 27-65-107.

Codification Notes. "IJR" means Interchange Justification Report.

27 CAR § 95-402. Relation to purpose and need.

(a) Before embarking on any major analytical effort, the purpose and need (or problem, goal, or objective) must be identified.

(b) If the purpose and need, for example, is to reduce the back-of-queue of an adjacent exit ramp from extending onto the freeway main lanes, the operational analysis should be focused accordingly.

(c) The purpose and need will be a major factor in defining the scope and performance measures of the operational analysis and in the selection of an appropriate analysis tool.

(d) The purpose and need should be developed to a level of detail suitable for use in the National Environmental Policy Act of 1969, 42 U.S.C. § 4321 et seq., documentation.

Authority. Arkansas Code § 27-65-107.

27 CAR § 95-403. Scope of analysis.

(a) Once the purpose and need has been identified, the next step is to define the scope of the operational analysis, both geographic and temporal.

(b) This should be accomplished during early coordination before the IJR is developed.

(c) When developing the scope of the operational analysis, several questions should be considered, including:

(1) What are the limits of the proposed project?;

(2) What is the proximity to adjacent interchanges and intersections?;

(3) How does the study area influence operations at adjacent locations within the transportation network?;

(4) What alternatives are likely to be considered?;

(5) What physical elements within the network can be analyzed to support the purpose and need?;

(6) How many hours of congestion are present today, and how will this likely change in the future?;

(7) Will the operational characteristics of the surrounding area change in the future and, if so, will an understanding of how this relates to the study area warrant analysis?;

(8) What degree of precision is required to make an informed decision?;

(9) Will varying travel demand patterns and land use scenarios be considered to assess how robust and flexible the alternatives are?; and

(10) In corridors where the potential exists for future multiple interchange additions, has a corridor study been completed?

Authority. Arkansas Code § 27-65-107.

Codification Notes. "IJR" means Interchange Justification Report.

27 CAR § 95-404. Define the design year and analysis period.

(a)(1) Traditionally, the design year reflects a twenty-year horizon from the anticipated opening date of the project.

(2) A minimum design year based on twenty (20) years following the approval of the plans, specifications, and estimates for a project is required by 23 U.S.C. § 109(b), which states:

> (b) The geometric and construction standards to be adopted for the Interstate System should be those approved by the Secretary in cooperation with the State transportation departments. Such standards, as applied to each actual construction project, should be adequate to enable such project to accommodate the types and volumes of traffic

anticipated for such project for the twenty-year period commencing on the date of approval by the Secretary, under section 106 of this title, of the plans, specifications, and estimates for actual construction of such project.

(b)(1) According to AASHTO's Geometric Design of Highways and Streets (2004), the thirtieth highest hourly volume (30 HV) in the design year is recommended for design.

(2) If year-round traffic counts are available from a nearby count station, it should be utilized to estimate the thirtieth highest hourly volume (30 HV).

(3) If not, it is recommended that at least two (2) typical weeks of traffic data should be obtained for each ramp, crossroad, frontage road, freeway main lanes, etc., as appropriate.

(4) One day's worth of turning movement counts per intersection may be sufficient, however, in many cases it will not.

(5) A traffic data collection plan should be discussed during early coordination.

(c)(1) In addition to the existing and design years, interim years may need to be considered resulting from:

(A) Phased construction;

(B) Changes in land use; or

(C) Other projects within the study area.

(2) With construction phased over an extended period of time, analysis should be provided for each phase to evaluate operations until the next phase will be implemented.

(d)(1) Recognizing that congested conditions may extend beyond a single hour in some cases, analysis of the peak hour may not be adequate for the operational analysis.

(2) For locations and conditions in which a facility is at or near capacity today or in the future, a multi-hour time period would likely be required for proper analysis.

(3) As depicted in Figure 3, while the peak period and peak hour relate to each

other, the average speed and traffic flow vary within each and have different maximums and minimums.

Authority. Arkansas Code § 27-65-107.

Codification Notes. "AASHTO" means American Association of State Highway Transportation Officials.

Source: Traffic Analysis Toolbox Volume IV: Guidelines for Applying CORSIM Microsimulation Modeling Software, January 2007

Figure 3. Selecting a Peak Period for Analysis

27 CAR § 95-405. Define performance measures.

(a) The performance measures for the operational analysis should be discussed and defined during early coordination.

(b) The performance measures can influence the scope of the analysis and the choice of analysis tools, and should relate to the purpose and need of the proposed project, i.e., reducing the queue at an existing nearby off-ramp, improving the LOS at adjacent interchanges, etc.

(c) For the performance measures to be useful, they must ultimately provide information that can be used to make investment and management decisions.

(d) Since every proposal is unique and rarely requires the same level of analysis to make an informed decision, it is up to the proposing entity to establish the appropriate performance measures for the proposal.

(e) Interpretation of the performance measures to distinguish between acceptable and unacceptable traffic operations is also the responsibility of the proposing entity.

Authority. Arkansas Code § 27-65-107.

27 CAR § 95-406. Select an operational analysis tool.

(a)(1) There are many traffic operational analysis tools available for different situations.

(2) These can include deterministic tools such as the Highway Capacity Software based on the Highway Capacity Manual (HCM), or stochastic microsimulation tools such as VISSIM.

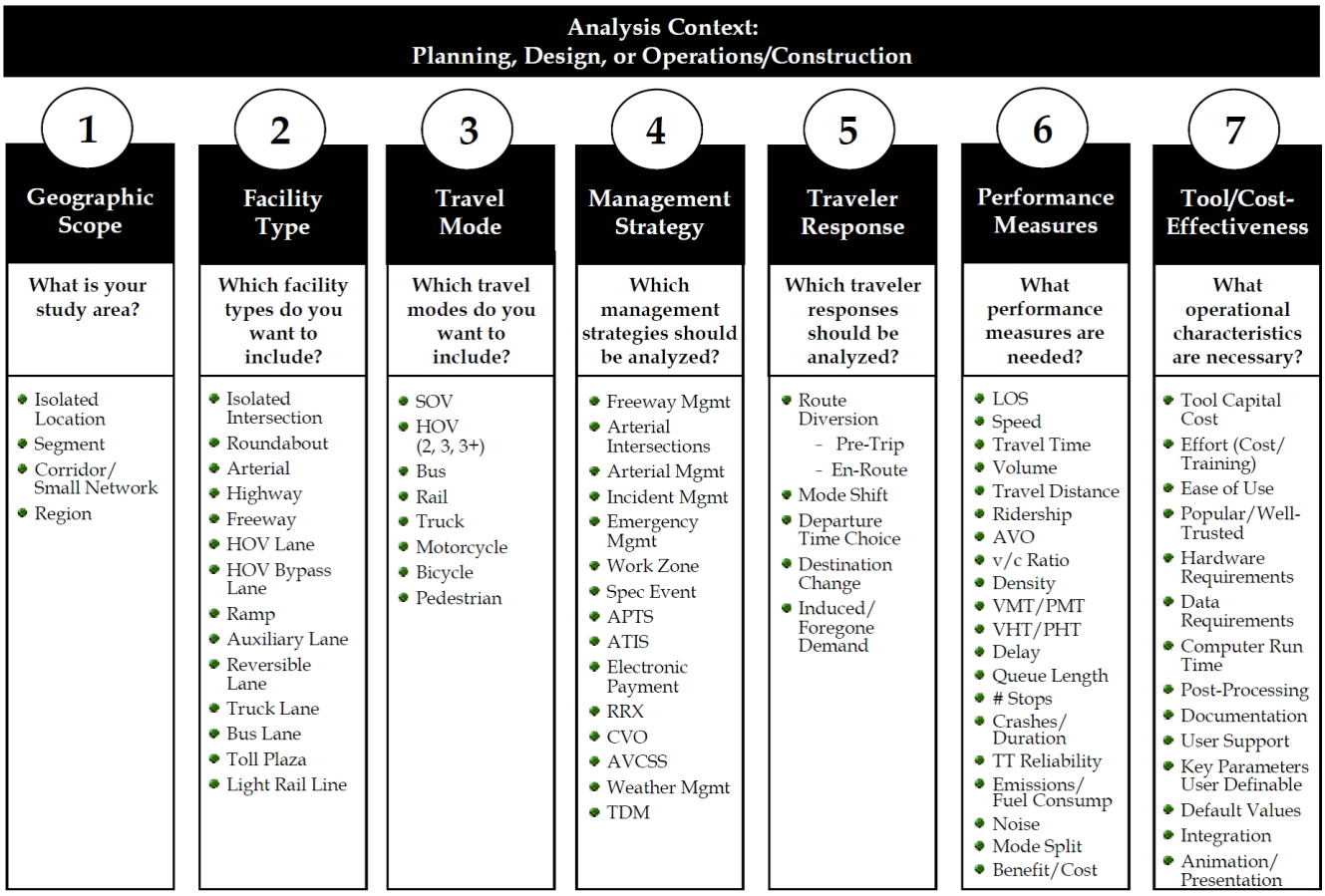
(b)(1) It is widely understood that in many situations around freeway interchanges, particularly in urban areas, the HCM methodology alone is not likely sufficient for appropriate analysis.

(2) To obtain meaningful results from the operational analysis, having a clear understanding of the context for analysis is vital to the selection of the appropriate analysis tool.

(3) Answering the questions identified in Figure 4 about the context for the analysis will assist in defining the needs and requirements of the analysis tool.

(c) It is the responsibility of the proposing entity to make this selection, which should be discussed during early coordination.

(d) Guidance for selecting appropriate tools can be found in the Federal Highway Administration Traffic Analysis Toolbox.



Source: *Traffic Analysis Toolbox Volume II: Decision Support Methodology for Selecting Traffic Analysis Tools*, January 2007

Figure 4. Decision Support Methodology for Selecting Traffic Analysis Tools

(e)(1) Regardless of which tool or tools is selected, it is not only important to understand the limitations of the chosen tool or tools, it is also essential to apply the tool or tools in a manner which supports a verifiable, reproducible, and accurate analysis.

(2) This includes the effective calibration of the chosen tools and proper interpretation of the output.

(f)(1) Figure 5 presents a process for the application of a microsimulation tool.

(2) While developed for microsimulation, the overall framework may be used to support any traffic analysis, regardless of tool type.

Authority. Arkansas Code § 27-65-107.

27 CAR § 95-407. Data collection and preparation.

(a) A data collection plan should be established once the performance measures and analysis tools are selected.

(b) The data collection plan should be discussed during early coordination.

(c) Data collection may include geometric data, existing traffic demand, existing turning movement volumes, origin-destination data, and data to support the calibration of the chosen analysis tool or tools.

(d) Existing databases and studies can assist the proposing entity when considering data collection and should be discussed during early coordination.

Authority. Arkansas Code § 27-65-107.

27 CAR § 95-408. Assessment of existing conditions.

(a)(1) Other than to support the purpose and need by analyzing the no-build alternative, assessing the existing conditions is essential to calibrate the chosen analysis tool or tools.

(2) Any chosen analysis tool must be calibrated.

(3) This applies to tools such as Synchro/SimTraffic, HCS, CORSIM, and VISSIM.

(b) Some of the key issues to calibration include:

(1) Identification of necessary calibration targets of acceptability, i.e., calibrating the through-put turning movement volumes at existing intersections to within ten percent (10%);

(2) Allocation of sufficient time and resources to achieve calibration targets; and

(3) Selection of the appropriate calibration parameters to best match local observations, i.e., saturation flow-rate, travel time, average speed, through-put volume,

etc. (c) Because existing conditions within each proposal study area will be unique and because the level of calibration effort, which can be complex and time-consuming, can depend on the chosen tool, discussion with Arkansas Department of Transportation Planning and Research Division staff should occur during early coordination.

Authority. Arkansas Code § 27-65-107.

Codification Notes. "HCS" means highway capacity software.

27 CAR § 95-409. Alternatives analysis.

(a) Defining the alternatives to be analyzed is an essential part of specifying the scope of the operational analysis.

(b) For any request for new or revised freeway access, the following alternatives should be analyzed:

(1)(A) No-build alternative.

(B) This alternative describes the conditions that will exist if the proposal is not completed.

(C) The alternative should be analyzed in the existing condition and the design year to establish a baseline for the analysis of the potential benefits and impacts of the proposal.

(D) If other improvements such as adding lanes to the freeway or local streets are being considered, then those improvements should be evaluated without the proposal to demonstrate whether or not the new access is necessary.

(E) See 27 CAR § 95-106(b)(1);

(2)(A) TSM and other improvements alternative.

(B) This alternative should clearly show that there are no other alternatives which could meet the needs addressed by the proposal.

(C) This alternative will demonstrate that the need being addressed by the request cannot be adequately satisfied by existing interchanges to the freeway.

(D) This alternative will demonstrate that local streets in the corridor can

neither provide the desired access or be reasonably improved (such as increasing access control, improving traffic control, or adding turn bays) to satisfactorily accommodate design-year traffic demands.

(E) This alternative will also demonstrate that the need being addressed by the request cannot be adequately satisfied by reasonable TSM strategies (such as ramp metering, mass transit, and managed lane facilities), geometric design, and alternative improvements to the freeway without the proposed change in access.

(F) See 27 CAR § 95-106(b)(1) and (b)(2); or

(3)(A) Build alternatives.

(B) Only after the TSM and other improvements have been analyzed to demonstrate that they cannot meet the needs being addressed in the request should new or modified access be considered.

(C) The analysis of these alternatives should consider the operational, safety, design, and environmental consequences of the proposal as compared to the no-build alternative.

Authority. Arkansas Code § 27-65-107.

Codification Notes. "TSM" means transportation system management.

27 CAR § 95-410. Sensitivity analysis.

(a)(1) Because all traffic forecasts are subject to uncertainty, there is inherent risk in any decisions based on the operational analysis (and other analyses as well) of alternatives.

(2) Traffic forecasts for a new interchange may be realized in ten (10) years instead of twenty (20).

(3) Also, changes in land use, such as a new high-traffic shopping center immediately nearby, can have significant impacts on the adequate operation of an interchange.

(b)(1) Realizing that even a slight increase or change in traffic demand could result

in nearly saturated or oversaturated operations, proposed alternatives must be tested under a variety of traffic demand scenarios, commonly referred to as a sensitivity analysis.

(2) It is recommended that at least a ten-percent increase in traffic demand should be included in the sensitivity analysis.

(3) Other factors, such as potential changes in land use and upstream capacity restraints, should be considered on a case-by-case basis.

(c)(1) The main purpose of the sensitivity analysis is to identify any risks associated with any alternatives that should be considered by decision makers.

(2)(A) For example, the sensitivity analysis may show that a ten-percent increase in traffic demand may increase the length of the ninety-fifth percentile back-of-queue for a ramp terminal intersection such that it would exceed the storage space provided between it and a frontage road intersection.

(B) In this example, the risk of such overflow of queuing may be unacceptable because of the potential costs of relocating the frontage road intersection once development occurs.

Authority. Arkansas Code § 27-65-107.

Subpart 5. Safety Analysis

27 CAR § 95-501. Generally.

(a)(1) The safety analysis should demonstrate the proposed new or revised freeway access will not have significant or adverse impact on the safe operation of the freeway system.

(2) If part of the purpose and need for the proposed project is to address existing or future safety issues, for example, to reduce the number of rear-end crashes during peak periods due to an over-saturated exit ramp, then it should be reflected in the purpose and need.

(3) The level of appropriate effort in the safety analysis should be correlated to

the purpose and need of the proposal and to the proposed alternatives themselves.

(b)(1) The intent of this subpart is to present considerations the proposing entity should address in the safety analysis.

(2) Details of specific analysis tools and technical guidance can be found in the appendix.

(3) The safety analysis in the IJR should address the following:

(A) Establish safety area of influence;

(B) Collect traffic, geometric, and crash data;

(C) Analyze crash data;

(D) Identify safety considerations in design alternatives; and

(E) Document the current and anticipated safety performance.

Authority. Arkansas Code § 27-65-107.

Codification Notes. "IJR" means Interchange Justification Report.

27 CAR § 95-502. Establish safety area of influence.

(a) The IJR should include an area of influence that addresses the safety concerns for the proposal and includes at least the adjacent interchanges along the freeway including the roads in the area of influence.

(b)(1) For most cases, this will be the same area as the operational analysis.

(2) See Figure 2.

(c) The area of influence can and should be expanded where crash data suggests the need to do so, such as for high crash locations adjacent to the area.

Authority. Arkansas Code § 27-65-107.

Codification Notes. "IJR" means Interchange Justification Report.

27 CAR § 95-503. Collect traffic, geometric, and crash data.

(a)(1) Crash data for an appropriate safety analysis as part of the IJR should include at least the three (3) most recent years data is available.

(2) The proposing entity should request this data from the Arkansas Department of Transportation.

(b) The type of information that is typically relevant to the safety analysis includes:

(1) Crash location;

(2) Crash frequency;

(3) Crash type;

(4) Crash severity;

(5) Work zone related;

(6) Time of day; and

(7) Weather conditions.

(c)(1) Currently, crash data on nonstate highways in Arkansas is normally not locatable in the crash database.

(2) There is currently a statewide effort through the Division of Arkansas State Police to require the location coding of crashes on functionally classified nonstate highways.

(3) Once this effort is complete, crashes on nonstate highways within the safety influence area of interchanges should be locatable.

(4) Until then, if the crossroad or frontage road is a nonstate highway or not maintained by the department, reliable and useful crash data may not be available.

Authority. Arkansas Code § 27-65-107.

Codification Notes. "IJR" means Interchange Justification Report.

27 CAR § 95-504. Analyze crash data.

(a)(1) Once at least three (3) years of crash data is obtained from the Arkansas Department of Transportation, a cursory analysis of the data should follow.

(2) Crash rates may be calculated and then compared to statewide average

rates for similar facilities, which can also be obtained from the department.

(3) However, in many cases, particularly in congested urban areas, the crash rates within the study area will almost always be higher than the statewide average due to more congestion and more conflicts in and around interchanges.

(4) Therefore, an objective analysis using crash rates alone may not be appropriate.

(b)(1) Once crash rates are calculated, further investigation into the crashes is appropriate, particularly if the crash rates are higher than the statewide average.

(2) The following issues should be considered in this analysis:

(A) Driver workload and decision making;

(B) Consistency in geometric design;

(C) Number of lane changes required by drivers;

(D) Number of conflicts for drivers;

(E) Operational consistency along a system of interchanges; and

(F) Flexible design solutions that can work in a variety of traffic flow volumes and patterns.

(c)(1) Currently, the location information for crashes on freeways, ramps, or frontage roads is normally not adequate to determine the lane in which the collision occurred.

(2) In other words, the location of a crash may be listed on a freeway as route, section, and log mile, but not list the direction of travel or lane where the collision occurred.

(3) Consequently, it may be appropriate to conduct an in-depth crash analysis by examining all possible crash records to determine the location and characteristics of individual crashes.

(4) This additional analysis can be requested from the department or the records can be requested from the department and provided to the proposing entity and should be discussed during early coordination.

(5) Also, coordination with emergency management personnel may be appropriate if further investigation is needed.

Authority. Arkansas Code § 27-65-107.

27 CAR § 95-505. Identify safety considerations in design alternatives.

(a)(1) Once the safety analysis is complete in the purpose and need, safety issues and considerations in the evaluation of conceptual design alternatives should be identified.

(2) The IJR should demonstrate that the proposed alternatives will not have significant or adverse impact on the safe operation of the freeway system.

(3) The IJR should also identify any design features that may result in a higher risk of safety impacts.

(4) Figure 6 shows a table of safety impacts of not implementing certain design features.

(b)(1) Some safety impacts of alternatives are highly dependent on traffic forecasts, such as inadequate turn lane storage or inadequate weaving length.

(2) It is therefore crucial that a sensitivity analysis, as outlined in 27 CAR § 95-401 et seq., should be considered to determine the risk of such impacts.

(3) Conflict areas with significant traffic volumes on the crossroad (such as busy driveways near the ramp terminal intersection) or on the freeway main lanes (such as closely spaced ramps), particularly that can result in a high speed differential, should be identified and considered in the analysis.

Geometric Feature	Operational Effect	Safety Impact
Lack of route continuity	Excessive lane changing Violate driver expectations Increased signing requirements	Moderate
No lane continuity (basic lanes)	Excessive lane changing	Moderate
No lane balance (exit	Increased lane changing	Moderate

entrances)		
Inadequate application of auxiliary lanes	Capacity reduction Increased lane changing	Moderate
Left exits/entrances	Increased lane changing Two-sided weaving (across all lanes) Increased signing requirements	High
Two exits/interchanges	Increased signing requirements Potential driver confusion	Moderate
Exit beyond crossroad	Reduce exit visibility Driver comfort/convenience	Moderate
Inadequate exit/entrance design Short taper/parallel Small radius at exit/entrance gore	Inadequate merge/diverge opportunities Inadequate speed for entering vehicles Exiting vehicles slow on main lanes-speed differential	Moderate
Inadequate exit ramp length	Queuing onto main lanes	High
Inadequate weaving sections Short weaving section Two-sided weaving section	Capacity reduction Excessive lane changing Lane changing across all lanes Speed differential between vehicles-all lanes	High
Inadequate decision sight distance	Driver confusion/indecision Driver comfort/convenience	Moderate

Source: *Freeway and Interchange Geometric Design Handbook*, 2005, ITE

Figure 6. Freeway and Interchange Geometric Features Impacting Operations and Safety

(c)(1) Other safety impacts of alternatives are highly dependent on geometric design, such as the use of a low-speed exit loop ramp that may meet geometric standards but may not be consistent with driver expectations.

(2) Any design exceptions for any alternative that may have a safety impact should be identified in the IJR.

(d)(1) Currently, there is little in the way of widely accepted safety guidance and tools available for agencies to use in the analysis of safety performance of highways.

(2) As a result, safety considerations often carry little weight in the project development process.

(3) However, with continued emphasis being placed on reducing the numbers of fatal and serious crashes on the highway system, new approaches and tools for the quantitative analysis of safety performance are being developed.

(4) For instance, two (2) new tools for the analysis of safety performance that will have a large impact on the development of highway projects will be the Highway Safety Manual and the Interchange Safety Analysis Tool.

(5) The Federal Highway Administration Interstate System Access Informational Guide provides additional guidance regarding safety analyses that may be appropriate in an IJR.

Authority. Arkansas Code § 27-65-107.

Codification Notes. "IJR" means Interchange Justification Report.

27 CAR § 95-506. Document the current and anticipated safety performance.

The documentation related to the safety analysis in the IJR should provide sufficient information for an independent review and usually contains the following:

(1) The safety analysis of existing conditions as related to the purpose and need, which includes:

(A) A description of the performance measures;

(B) The crash data used in the safety analysis;

(C) The type of safety analysis; and

(D) The results of the safety analysis; and

(2) The safety issues and considerations in the alternatives analysis, which includes:

(A) Identification of any potential significant safety issues or considerations; and

(B) Documentation of any design exceptions.

Authority. Arkansas Code § 27-65-107.

Codification Notes. "IJR" means Interchange Justification Report.

Appendix A. Technical Resources

Link:
https://CodeOfARRules.arkansas.gov/docs/CARCodeAppendices/Appendices/249/27CARpt.95Appendix.pdf