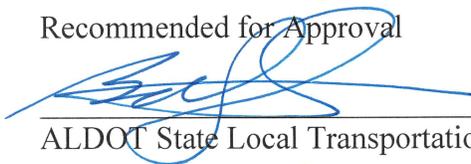


Procedural Guidelines For Local Public Agency Projects

Local Transportation Bureau



Recommended for Approval


ALDOT State Local Transportation Engineer

20 Feb '25
Date

Approved


ALDOT Chief Engineer

2/24/25
Date

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TERMS, DEFINITIONS, AND ABBREVIATIONS

[23 CFR - Title 23 Code of Federal Regulations](#) (CFR) is a codification of the general and permanent rules and regulations (*revised annually*) required in implementing and carrying out the provisions of Federal law relating to the National Highway Traffic Safety Administration and Federal Highway Administration, Department of Transportation.

3R - See Resurfacing, Restoration and Rehabilitation (RRR)

[AASHTO Guide for the Development of Bicycle Facilities \(2\)](#) - Publication by the American Association of State Highway and Transportation Officials (AASHTO) which provides information on the physical infrastructure needed to support bicycling.

[AASHTO Green Book \(A Policy on Geometric Design of Highways and Streets\)](#) - Publication by the American Association of State Highway and Transportation Officials (AASHTO) containing the current design research and practices for highway and street geometric design.

[AASHTO LRFD Bridge Design Specifications](#) - Publication by the American Association of State Highway and Transportation Officials (AASHTO) containing specifications for the design of all bridges in the United States. This provide the minimum standards for highway bridge design according to the Code of Federal Regulations. By Federal Highway Administration (FHWA) policy, all bridges designed after 2007 were required to be designed based on the Load and Resistance Factor Design (LRFD) method.

[AASHTO R 13](#) - Standard practice for conducting geotechnical subsurface investigations which identifies recognized methods by which soil, rock, and groundwater conditions may be determined.

[AASHTO T 206](#) - Standard method of test for penetration test and split-barrel sampling of soils to obtain a representative soil sample and a measure of the resistance of the soil to penetration of the sampler.

AASHTOWare- Software used to generate project cost estimates for ALDOT.

Acquisition - The process of obtaining the Right-of-Way necessary to construct or support a project.

[ALDOT Bridge Bureau Structural Design Manual](#) - This manual contains specific design criteria policies expressed by the ALDOT Bridge Bureau applying equally to ALDOT as well as consultants completing structural designs.

[ALDOT Roundabout Planning, Design. And Operations Manual](#) - This manual provides guidelines and recommended practices for planning and designing roundabouts in the State of Alabama.

Americans with Disabilities Act (ADA) - Under the ADA of 1990. When a LPA constructs any new facility, or alters any part of an existing facility, work shall be performed so that the facility is readily accessible to and usable by individuals with disabilities.

Annual Average Daily Traffic (AADT) - A measure used primarily in transportation planning and transportation engineering. Traditionally, it is the total volume of vehicle traffic of a highway or road for a year divided by 365 days.

Area Office - One of two subdistricts of the Region Office.

Area Local Transportation Engineer - An ALDOT departmental staff member, designated by the Region Engineer, who serves as the primary contact for the Area office for all LPA projects administered by the state.

Authorization - Approval by FHWA to incur future costs on a project.

Average Daily Traffic (ADT) - The average 24-hour volume, being the total volume during a stated period divided by the number of days in that period. Normally, this would be periodic daily traffic volumes over several days, not adjusted for days of the week or seasons of the year.

Back Slope - The sloping surface of a cut, of which the downward inclination is toward the roadbed. The amount of slope in a back slope is the ratio of horizontal distance to vertical distance.

Base - The layer or layers of specified materials of designed thickness placed on a subbase or a subgrade to support a pavement or surface.

Bench Mark (B.M.) - A relative permanent object, natural or artificial bearing a marked point whose elevation is known

Best Management Practices Plan (BMP) - The evaluation of potential sources of sediment and other pollutants at the construction site and the recommended plan procedures that will effectively prevent pollutant discharges to surface and ground waters.

Binder Layer - The lower layer of the surface, consisting of a plant mix of graded aggregate and bituminous material.

Bituminous Concrete - A designed combination of dense graded mineral aggregate filler and bituminous cement mixed in a central plant, laid and compacted while hot.

Borrow - Suitable material from sources outside the roadway prism, used primarily for embankments.

Bridge - A structure, including supports, erected over a depression or an obstruction, such as water, highway, or railway, and having a track or passageway for carrying traffic or other moving loads, and having an opening measured along the center of the roadway of more than 20 feet {6.1 m} between undercopings of abutments or spring lines of arches, or extreme ends of openings for multiple boxes; it may also include multiple pipes, where the clear distance between openings is less than half of the smaller contiguous opening.

Bridge Length - The length of a bridge structure is the over-all length measured along the line of survey stationing back to back of backwalls of abutments, if present; otherwise, end to end of the bridge floor; but in no case less than the total clear opening of the structure.

Bridge Roadway Width - The clear width measured at right angles to the longitudinal centerline of the bridge between the bottom of curbs or guard timber risers.

Betterment - Any upgrading of the facility being improved or relocated that is not attributable to maintenance or reconstruction of the existing facility at its current level of service.

Categorical Exclusion (CE) - Type of environmental document (and Class of Action) that represents minimal impacts to the human and natural environment. Used in the absence of specific impacts and acquisitions under one acre; impacts do not individually or cumulatively have a significant effect on the environment; do not induce significant impacts to planned growth or land use for an area; do not require the relocation of significant numbers of people; do not have a significant impact on any natural, cultural, recreational, historic or other resources; do not involve significant air, noise or water quality impacts; or do not have significant impacts on travel patterns. Actions categorically excluded are exempt from further National Environmental Policy Act (NEPA) requirements to prepare either an Environmental Assessment (EA) or an Environmental Impact Statement (EIS). A Categorical Exclusion must still satisfy all federal environmental laws and executive orders.

Consultant - An individual, public or private organization, or institution of higher learning having expertise in professional disciplines applicable to transportation programs and hired by the State or LPA to perform such work.

Consultant Agreement - A standard ALDOT template agreement used between the LPA and their selected consultant for professional engineering services.

Contractor - The individual, partnership, firm, corporation, or any acceptable combination thereof contracting with the State for performance of prescribed work.

Culvert - Any structure not classified as a bridge which provides an opening under the roadway.

Cultural Resources - A class of resources of historic age (*greater than 50 years old*) that include standing buildings, structures (*such as bridges*), districts (*that include structures and buildings*), and archeological sites. Locations of religious and cultural importance to Indian Tribes also may be cultural resources.

Design Exception - Exceptions from applicable design standards. Design Exceptions for all LPA projects let to contract through State services must be approved in writing by the State Local Transportation Engineer and/or the ALDOT Chief Engineer. There are no exemptions to this policy.

Design Speed - A selected speed used to determine the various geometric design features of the roadway. The selected design speed should be a logical one with respect to the anticipated operating speed, topography, adjacent land use, and the functional classification of the highway.

Disadvantaged Business Enterprise (DBE) - A Federal program that ensures equal opportunity in transportation contracting markets, addresses the effects of discrimination in transportation contracting, and promotes increased participation in federally funded contracts by small, socially and economically disadvantaged businesses, including minority and women owned enterprises. All Federal-aid projects are subject to the legislative and regulatory DBE requirements which provide that a percentage goal of contractual labor and materials be supplied by DBE business enterprises.

Donation - The voluntary conveyance of real property without compensation which may be utilized for an improvement project. Donations of future Right-of-Way can only be accepted if the offer to donate is done voluntarily by the property owner who is advised of the right to receive an appraisal but signs a written waiver of the rights to be compensated. Right-of-Way that is donated must also receive an environmental clearance even if no other Right-of-Way or rights in real property are required for the project.

Draft Environmental Impact Statement (DEIS) - See Environmental Impact Statement (EIS). A draft Class of Action document identifying potential impacts by a project, possible alternatives, and detailed analysis of the potential environmental impacts considered, and proposed mitigation. The DEIS is circulated to other agencies and the public for review and comment.

Easement - The right acquired by public authority to use or control property for a designated utility or transportation purpose. A right created by grant, reservation, agreement, prescription, or necessary implication, which one has in the land of another. It is either for the benefit of the land (*appurtenant*), such as the right to cross A to get to B, or "in gross," such as a public utility easement. Easements remain in existence until; (a) they are terminated by either the grantee or under the conditions set forth by law (*permanent easement*), or, (b) a specified amount of time has elapsed (*temporary easement*).

Eminent Domain (Condemnation) - The governmental power reserved to acquire private property rights by due process of law when the proven necessity for public use arises. When exercising this right, two basic requirements must be met: 1) the use must be public, and 2) just compensation must be paid to the owner prior to taking possession of the property. *[Due to the politically sensitive nature of this topic, the Region Engineer may choose to refer an issue of Eminent Domain in association with an LPA project directly to the Assistant Chief Engineer of Policy and Planning for review.]*

Encroachment - A situation which occurs when improvements are discovered to be on another's property illegally or without permission.

Engineer - A qualified department staff member designated by the Director, acting either directly or through his authorized assistants or representatives, who is responsible for engineering supervision of construction activities.

Engineer of Record (ER) - When engineering work of a technical nature is required, the LPA shall obtain the services of an Engineer of Record (ER). All engineering reports, designs and plans, etc. must be performed under the direction of a licensed professional Engineer in the State of Alabama. This ER will be responsible for all engineering work performed under his license. Some projects, due to the complexity of their nature, may require multiple ERs specializing in different disciplines.

Environmental Assessment (EA) - A second tier environmental document and Class of Action and the base document for which impact studies and analyses are prepared. An EA is required when the significance of the potential environmental impacts by a project are not clearly established or known. The EA provides sufficient analysis and documentation to determine if a Finding of No Significant Impact (FONSI) can be approved by FHWA or if preparation of a Draft EIS (DEIS) is warranted. Typically takes 24 to 36 months to complete, including the FONSI.

Environmental Impact Statement (EIS) - Third tier and highest level environmental document and Class of Action. An EIS is most often associated with projects of considerable size, complexity, or controversy, and is required in the presence of obvious or known potential impacts to the human or natural environment. An EIS will include a detailed written statement of potential adverse project effects on the environment. This term refers to either a Draft or Final Environmental Impact Statement or both, depending on its context. These are generally large documents with supporting narrative, study data, and public involvement records and typically takes 36 to 60 months to complete.

Environmental Document - Any document that identifies the social, economic, and environmental effects of a proposed project as defined by NEPA.

Environmental Technical Section (ETS) - Section within ALDOT's Design Bureau responsible for pre-NEPA and NEPA environmental documentation and mitigation actions in Alabama.

[FHWA \(Federal Highway Administration\)](#) - An agency within the U.S. Department of Transportation that supports State and local governments in the design, construction, and maintenance of the Nation's highway system (Federal Aid Highway Program) and various federally and tribal owned lands (Federal Lands Highway Program).

Final Design - The development of detailed working drawings, specifications, and estimates for transportation projects. Final design follows the receipt of necessary design and/or environmental approval, and it includes Right-of-Way acquisition and utility relocation.

FONSI (Finding of No Significant Impact) - A FONSI is required if an Environmental Assessment determines there are no impacts on environmental quality by the project in question. Typically, such a document (EA) would be approved by FHWA and the maker advised that a FONSI will be required. The FONSI summarizes the findings, the sponsor's alternatives, and any comments received from the public, state or federal agencies, and interested parties. FHWA must approve this document also, before distribution. Distribution/circulation is not required, but document clearinghouses must be advised of availability and notices posted in local newspapers.

Force Account Work - State (ALDOT) or LPA equipment, material, or manpower used on a project. This is usually construction work that arises unexpectedly, is not covered in the contract documents, and not amendable by a change order. ALDOT must approve all such work prior to performing the work. The work must be in the public interest, shown to be cost effective, or done in an emergency.

Front Slope (Fore Slope) - The sloping surface of an embankment or roadway side ditch of which the downward inclination is away from the roadbed. The front slope extends from the outside of the shoulder to the bottom of the ditch. The amount of slope in a front slope is the ratio of horizontal distance to vertical distance.

Functional Classification - Roadway classifications referenced in this manual are the classifications shown on the official Federal Functional Classification maps maintained by the ALDOT Metropolitan Planning Section (*e.g., principal arterial, minor arterial, collector*). For roadway planning purposes, in the State of Alabama, certain formal planning documents, associated network mapping, and network computer modeling must include all roads, highways, streets, and thoroughfares shown on the Federal Functional Classification Maps.

Functionally Obsolete - A bridge is generally considered functionally obsolete if it is unable to properly accommodate traffic due to poor roadway alignment, insufficient width, low structural evaluation, or inadequate clearances above the waterway.

[Guidelines for Grading LPA Roads](#). - ALDOT guidelines for the inspection process and grading criteria for all LPA projects completed using federal and/or state funds.

Historic Significance - The quality of a property or place, fifty (50) or more years of age, by its association with one or more of the following: (a) important events in the past; (b) associations with important persons; (c) importance in design or construction; or (d) for the potential to provide important information about the past. The presence of this quality along with sufficient integrity are the criteria considered in deciding whether a property is or is not eligible for the National Register of Historic Places.

K Factor - The percentage of the Average Daily Traffic that is estimated to occur in the peak hour.

[Load and Resistance Factor Design \(LRFD\)](#) - A design method used in structural engineering. A limit state is a condition of a structure beyond which it no longer fulfills the relevant design criteria.

Local Match - Portion of a project's cost paid for with LPA funds.

Local Public Agency (LPA) - A municipality, city, county, township entity, or special authority sponsoring a federally funded transportation project and determined to be qualified to assume the administrative responsibilities for such projects by ALDOT.

Local Road or Street - A street or road primarily for access to residence, business, or other abutting property.

LPA Representative - Reference term used throughout this manual, that shall be considered to be synonymous with the designated person overseeing the project, whether they are the LPA Engineer or the Project Administrator.

Local Transportation Bureau (LTB) - ALDOT bureau responsible for the administration of Federal Highway Administration (FHWA), Federal Transit Administration (FTA), and State Road and Bridge Funds allocated to Local Public Agencies (LPAs) within the State of Alabama. The agencies include 67 counties, 14 Metropolitan Planning Organizations (MPOs), 12 Rural Planning Organization (RPOs), municipalities, regional small urban and rural transit providers, and qualifying non-profit organizations. These funds are used for planning, design, construction, operation and maintenance of locally owned and operated transportation facilities.

Maintenance - Work directed toward the preservation of an existing roadway and related appurtenances as necessary for safe and efficient operation.

Infrastructure Investment and Jobs Act (IIJA) - Funding and authorization bill for transportation and infrastructure spending.

MASH (Manual for Assessing Safety Hardware) - The latest uniform set of guidelines for crash-testing permanent and temporary safety highway devices such as guardrail, crash cushions, and end anchors, etc., developed through the National Cooperative Highway Research Program (NCHRP) Project.

Metropolitan Planning Organization (MPO) - An organization designated by the governor for communities with a population greater than 50,000 that is responsible for developing, implementing, monitoring, and updating a variety of transportation plans that are designed to enhance the region's competitive position, promote regional growth, improve personal mobility, and preserve the environment. It serves as the forum for cooperative transportation decision making by principal elected officials of general purpose government.

Minimum Stopping Sight Distance - The minimum stopping sight distance required for the design speed.

[The National Cooperative Highway Research Program Report 230 \(NCHRP 230\)](#) - A widely used document that gives guidance to those involved with researching, developing, evaluating and specifying highway safety appurtenances.

[National Environmental Policy Act of 1969 \(NEPA\)](#) - A law that requires all Federal agencies to consider environmental issues in their planning and decision-making processes. Compliance entails implementing a systematic and interdisciplinary approach in order to account for environmental impacts of any Federal-aid action before transportation improvement actions are taken. An environmental document (Class of Action) must be approved by FHWA before a DOT can begin implementation of an infrastructure project.

[National Highway System \(NHS\)](#) - Those roads and highways defined by the National Highway System Designation Act of 1995 as signed into law on November 28, 1995, plus any subsequent modifications.

[National Register of Historic Places \(NRHP\)](#) - The national list of districts, sites, buildings, structures and objects significant in American history, architecture, archaeology, engineering, or culture. It is maintained by the Secretary of the Interior under authority of Section 101(a)(1)(A) of the National Historic Preservation Act, as amended.

[NCHRP 350](#) - The National Cooperative Highway Research Program (NCHRP) document that contains recommended crash-testing procedures for evaluating a variety of roadside safety hardware, including guardrail and traffic control devices that are used in work zones.

Negotiation - The process of communication whereby an agreement is arrived at for the voluntary transfer of property ownership at terms mutually acceptable to all parties of interest. This is the primary method for acquiring property for a project. It involves explaining items such as details of construction and just compensation, listening to the property owner, and determining the best way to reach an agreement for the sale of property.

New Construction - Often known as New Location or alignment, depending on the project, it is building a new roadway, trail, or structure on substantially new ground or the upgrading of an existing roadway or structure by adding one or more lanes. If 50% or more of the project length involves vertical or horizontal alignment changes, the project is considered new construction. The following types of projects are NOT classified as new construction, and the 3R standards apply:

- Modernization of an existing roadway or bridge by resurfacing, widening lanes, adding shoulders or adding turn lanes at intersections.
- Temporary replacement of a roadway or bridge immediately after the occurrence of a natural disaster or catastrophic failure to restore the facility.

Notice of Intent (NOI) - A notice printed in the Federal Register advising that an Environmental Impact Statement (*EIS*) will be prepared and considered for a proposal.

Off-System Routes - Routes that have a functional classification of rural local, local road or street, or rural minor collector.

On-System Routes - Routes that have a functional classification of urban collector, rural major collector, rural or urban arterial, or expressway.

Plans - The contract drawings, which show the location, character, dimensions, and details of the prescribed work, including layouts, profiles, cross sections, and other details or reproductions thereof.

Plans, Specifications, and Estimates (PS&E) - A preliminary plan review conducted prior to the submittal of plans for Construction Bureau review, to be attended jointly by representatives from the LPA, Area office, Local Transportation Bureau, and other personnel, as needed.

Preliminary Engineering (PE) - Preliminary engineering involves all engineering, design, and environmental studies work performed by the LPA or their consultant prior to bid letting. This involves activities directed by the Local Transportation Bureau on environmental issues (including permits) and the preparation of construction plans, specifications, and cost estimates (PSE) to be used for bidding and building a project. The PE phase of a project ends with the opening of construction bids.

Prequalified Consultant - The selected consultant is prequalified by ALDOT for a particular work category through the submission of credentials and has been chosen by the LPA or ALDOT using a Quality-Based Selection Process. A list of prequalified consultants and prequalification categories is maintained on ALDOT's website.

Prequalified Contractor - The selected contractor is prequalified by ALDOT for a specific work type through the submission of credentials. A list of prequalified contractors and prequalification work types is maintained on ALDOT's website.

Profile Grade - The trace of a vertical plane intersecting the top surface of the proposed wearing surface, usually along the longitudinal centerline of the roadbed. Profile grade means either elevation or gradient of such trace according to the contract.

Programmatic Categorical Exclusion (PCE) - Also known as Nationwide Programmatic Categorical Exclusion. Approach to environmental documentation in which advance concurrence with FHWA on CEs meeting criteria provided in 23 CFR 771.117(d) allows minimal processing on projects with no environmental impacts. Most Transportation Enhancement (TE) projects in Alabama are processed under a Programmatic CE. In an effort to improve project delivery, if an LPA project is determined by the Region Engineer to come under the definition of a PCE during the LPA and project certification process, the Region Engineer will so state in the *Certification Letter* and the project will be processed under those guidelines.

Project - The specified section of the highway together with all appurtenances and construction to be performed thereon under the contract.

Project Administrator (PA) - An individual, either from within the LPA organization or through an interlocal agreement with another LPA, that is designated to oversee the project, including preconstruction, contract letting, and construction engineering and inspection. The Project Administrator will be accountable for all phases of the work and manage the day-to-day operations on the project. The PA will coordinate with the Area office and the Local Transportation Bureau in project decision-making as project development progresses.

Project Agreement - A legal document of understanding between the LPA and ALDOT. They are necessary for administration of each project.

Project Engineering Record (PER) - Project document used as a guide for obtaining the environmental clearance for the project. Design criteria, design exceptions, contract and non-contract items of work, safety improvements, proposed typical section, pavement buildup, etc., that are recommended as part of the “Scope of Work” review should be incorporated in the PER narrative.

Project Manager -The Department’s on-site representative who is in responsible charge of monitoring the Contractor’s daily activities including the inspection of the work and the estimation of payment quantities.

Region - A geographic subdivision of the State for the purpose of executing the Department’s construction, maintenance, and administrative activities. There are five regions within the State. Each Region is further subdivided into two Areas.

Region Engineer - The engineer in charge of one of the five Regions of the State.

Relocation Assistance - The process by which an LPA meets the legal requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act) that provides for relocation services, moving payments, and replacement housing payments for all eligible individuals, families, businesses, farms, and nonprofit organizations, which are displaced by a project.

Resurfacing, Restoration and Rehabilitation (RRR) - Work undertaken to extend the service life of an existing highway and/or enhance highway safety. This includes the placement of additional surface materials and/or other work necessary to return an existing roadway to a condition of structural and functional adequacy.

Resurfacing - Work to place additional layers of surfacing on highway pavement, shoulders, and bridge decks, and necessary incidental work to extend the structural integrity of these features for a substantial time period.

Restoration - Work to return the pavement, shoulders, and bridges over a significant length of highway to an acceptable condition to ensure safety of operations for a substantial time period. This work may include the following: grinding and repair of joints of Portland cement concrete pavement, sealing of shoulders and pavement joints in conjunction with other work, placement of a skid resistant surface

treatment, correction of minor drainage conditions, and work to prepare a bridge deck for an overlay.

Rehabilitation - Work to remove and replace a major structural element of the highway to an acceptable condition to extend the service life of a significant segment for a substantial period of years commensurate with the cost to construct. This work may include the following: replacement of bridge deck, pavement, or shoulders without significant widening; recycling of pavement and shoulder materials; replacement of the individual bridge elements to correct a structural deficiency; and minor subgrade work incidental to other work.

Right of Entry - A document used to obtain permission to enter and perform some activity prior to the effective date of a Right-of-Way contract or an Order for Possession. It may be used to certify control of Right-of-Way in rare instances such as emergency situations. Solicitation of Rights of Entry prior to the appraisal process should be restricted to circumstances which are exceptional or emergency in nature. Ordinarily, the Right of Entry will not displace people or impact improvements of a significant nature. In all instances when a Right of Entry is secured, the document must explain the provisions for use, disposal, amount, and the time period.

Right-of-Way (ROW) - Land acquired for, or devoted to, transportation purposes. ROW is granted by deed or easement for construction and maintenance of the designated use, which may include trails, roadways, or other public uses.

Right of Way Cost Estimate - This document should include an estimated value of takings, any damage costs, incidental costs (such as appraisal fees, negotiator fees, title fees, etc.), relocation expenses, possible condemnation costs, and demolition fees on a tract-by-tract basis.

Road - A general term denoting a public way for purposes of vehicular travel including the entire area within the right of way.

Roadbed - The graded portion of a highway within top and side slopes, prepared as a foundation for the pavement structure and shoulder. The top surface of the roadbed is the subgrade.

Roadbed Material - The material below the subgrade in cuts and embankments, and in embankment foundations extending to such depth as affects the support of the pavement structure.

Roadside - A general term denoting the area adjoining the outer edge of the roadway. Extensive areas between the roadways of a divided highway may also be considered roadside.

Roadway - The portion of the highway within the limits of construction. A highway may have more than one roadway.

Roadway Width - Portion of a street or road between curbs or including shoulders intended for vehicular use.

Running Speed - The speed at which an individual vehicle travels over a highway section. The running speed is the length of the highway section divided by the running time for the vehicle to travel through the section.

Scope of Work - Early process of identifying issues and alternatives for a transportation improvement project. The project scope of work reflects the basic intent of the LPA and determines the overall level of improvement.

Seal Coat - A thin treatment consisting of bituminous material, usually with cover aggregate, applied to a surface course. The term includes, but is not limited to, sand-seal, chip-seal, slurry seal, contrast seal and fog seal.

Section 106 - Section of the National Historic Preservation Act of 1966 (*in 36 CFR 800*) which governs the identification, evaluation, and consideration of historical and archaeological resources affected by State and Federal transportation projects.

Section 401 Water Quality Certification - Provisions required by the Federal Clean Water Act for projects involving the discharge of materials into surface waters, including wetlands.

Section 404 - Section of the 1972 Federal Clean Water Act, as amended in 1977, which addresses discharge of dredged or fill materials into wetlands, or waters of the United States, and the permitting processes for same.

Section 4(f) of the U.S. Department of Transportation Act, as amended (49 USC 303) - Provides protection for public parks and recreation areas, wildlife and waterfowl refuges, and significant historic sites on publicly owned land.

Section 6(f) - A provision in the Federal Land and Water Conservation Fund Act that protects public recreational properties, developed or enhanced, using Federal funding supplied to states or municipalities under the act, by requiring replacement of lands converted to non-recreational uses. Proposed transportation projects which affect such lands require a study and an analysis of alternatives to serve as the basis for a Section 6(f) finding by the U.S. Department of the Interior.

Sidewalk - The surfaced portion of the street between the edge of the traveled way, surfacing, or curb line and the adjacent property line, intended for the use of pedestrians.

Site Inspection - A site visit conducted to gather or verify data, define scopes of work, perform analyses, and make decisions for specific projects.

Skew Angle / Skew - The complement of the acute angle between two centerlines which cross. For a drainage structure, the skew angle will be designated as left ahead, left back, right ahead, or right back, and is determined by the outfall end of the pipe in relation to the centerline in the direction of the project stationing.

Special Provisions - Additions and revisions to the Standard Specifications applicable to an individual project. Special Provisions shall prevail over Standard Specifications and plans.

Standard or Special Drawing - Drawings approved for repetitive use, showing details to be used where appropriate.

Standard Specifications (ALDOT Standard Specifications for Highway Construction) - A book of specifications approved for general application and repetitive use to be used on LPA projects, specifying the provisions, and requirements for the performance of the work, and for the quantity, quality, and proportioning of materials.

Statewide Transportation Improvement Program (STIP) - ALDOT Statewide Transportation Improvement Program, which sets forth all projects that have been approved for funding under the various programs administered by the Department. As a general statement, the STIP is made up of, but not limited to, all projects for which ALDOT is responsible, and all MPO TIP projects.

Station - One hundred feet measured horizontally.

Street - A general term denoting a public way for purposes of vehicular travel, including the entire area within the right of way applicable to travel ways in urban areas.

Structures - Bridges, culverts, basins, drop inlets, retaining walls, cribbing, manholes, endwalls, buildings, sewers, service pipes, underdrains, foundation drains and other features which may be encountered in the work and not otherwise classed herein.

Subbase - A layer or layers of specified or selected material of designed thickness placed on a subgrade to support a base or rigid pavement.

Substructure - All of the part of the structure below the bearings of simple and continuous spans, skewbacks of arches and tops of footings of rigid frames; including backwalls, wingwalls, and wing protection railings.

Sufficiency Rating - A numerical rating of a bridge based on its structural adequacy, safety, serviceability, functional obsolescence, and whether essential for public use.

Superintendent - The Contractor's authorized representative in responsible charge of the work.

Superstructure - All that part of a structure above, and including, the bearings of simple and continuous spans, skewbacks of arches and top of footings of rigid frames; excluding backwalls, wingwalls, and wing protection railings.

Supplemental Agreement - A written agreement with the Contractor covering changes in the plans, specifications, or quantities or any combination thereof, within the scope of the contract and establishing the basis of payment and time adjustments for the work affected by the changes.

Surface Width - Portion of a street or road between curbs or shoulders that is used by moving vehicles, including turning lanes, but excluding parking lanes and/or shoulders.

Surface - One or more layers of a material designed to accommodate the traffic load, the top layer of which resists skidding, traffic abrasion and the disintegrating effects of climate. The top layer is generally called the wearing layer and the lower layer the binder layer.

Surface Treatment - One or more applications of bituminous material and cover aggregate or thin plant mix on an old pavement or any element of a new pavement structure.

Terrain Classifications - Terrain classifications pertain to the general character of a specific route corridor. Routes in valleys, passes, or mountainous areas that have all the characteristics of roads or streets traversing level or rolling terrain should be classified as level or rolling. In general, rolling terrain generates steeper grades than level terrain, causing trucks to reduce speeds below those of passenger cars; mountainous terrain has even greater effects, causing some trucks to operate at crawl speeds.

Level Terrain - Terrain where highway sight distances, as governed by both horizontal and vertical restrictions, are generally long or could be made to be so without construction difficulty or major expense.

Rolling Terrain - Terrain where the natural slopes consistently rise above and fall below the road grade and occasional steep slopes offer some restriction to normal horizontal and vertical roadway alignment.

Mountainous Terrain - Terrain where longitudinal and transverse changes in the elevation of the ground with respect to the road are abrupt, and benching and side hill excavations are frequently required to obtain acceptable horizontal and vertical alignment.

TL-2 - MASH or NCHRP 350 crash testing standards for low-speed roadways, 45 MPH or less.

TL-3 - MASH or NCHRP 350 crash testing standards for low-speed roadways, greater than 45 MPH

Transportation Alternatives (TA) Set-Aside - Introduced in MAP-21 (Section 1122) as the Transportation Alternatives Program (TAP); changed to the TA Set-Aside under the FAST Act and continued under IIJA. This program is a consolidation of some existing programs and additional program funding for the following:

- Pedestrian and bicycle facilities
- Turnouts, overlooks and viewing areas
- Community improvement activities
- Environmental mitigation

Transportation Improvement Program (TIP) - A Transportation Improvement Program issued by a Metropolitan Planning Organization (MPO) is the short-range component of the existing Metropolitan Transportation Plan and comprises a listing of prioritized and funded

(financially constrained) projects to be constructed within the four-year short-range cycle. This listing includes projects funded using State and/or Federal programs, including the LPA projects.

Traveled Way - The portion of the roadway for the movement of vehicles, exclusive of shoulders and auxiliary lanes.

Truck Average Daily Traffic (TADT) - The percentage of the average daily traffic that is estimated to be heavy truck traffic.

Truck Design Hourly Volume (TDHV) - The percentage of truck traffic that will be traveling during the peak hour.

Typical Section - That cross section established by the plans which represents, in general, the lines to which the Contractor shall work in the execution of his contract.

Uniform Act - Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.

Urban or Urbanized Area - In terms of population, a built up or more densely populated area of a Metropolitan Planning Area (50,000 population) or Transportation Management Area (200,000 population), as opposed to a Rural Area, an area of less density. In cartography, land area within the boundaries of the federally-designated urban areas (population over 5,000), as shown on an official ALDOT urban area map.

V (Design Speed) - The speed of the roadway that will govern the degree of curvature, superelevation, stopping sight distance, and other design parameters.

Walkway - Continuous way designated for pedestrians and separated from through traffic lanes by a curb, space, pavement marking, or barrier.

Wetlands - Those areas that are inundated or saturated by shallow surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, natural ponds, wet meadows, river overflow, and similar areas.

ABBREVIATIONS

3R	Resurfacing, Restoration, Rehabilitation
AASHTO	American Association of State Highway and Transportation Officials
AHC	Alabama Historical Commission
ADA	American's with Disabilities Act
AADT	Annual Average Daily Traffic
ADT	Average Daily Traffic

ADEM	Alabama Department of Environmental Management
ALDOT	Alabama Department of Transportation
BIN	Bridge Identification Number
BMP	Best Management Practices
BR	Bridge Replacement
CE	Categorical Exclusion
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulation
CIA	Community Impact Assessment
CPMS	Comprehensive Project Management System (ALDOT Main Database)
DBE	Disadvantaged Business Enterprise
DEIS	Draft Environmental Impact Statement
DHV	Design Hourly Volume (Traffic)
e_{\max}	Maximum Super Elevation Rate
EA	Environmental Assessment
EPA	Environmental Protection Agency
ER	Emergency Relief Program
ETS	Environmental Technical Section (ALDOT Design Bureau)
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
FPPA	Farmlands Protection Policy Act
FWS	Fish and Wildlife Service
GIS	Geographical Information System
HRRRP	High-Risk Rural Roads Program
HSIP	Highway Safety Improvement Program
LRFD	Load and Resistance Factor Design
LPA	Local Public Agency
LTB	Local Transportation Bureau
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding

MPA	Metropolitan Planning Area
MPO	Metropolitan Planning Organizations
MUTCD	Manual on Uniform Traffic Control Devices
NBIS	National Bridge Inspection Standards
NCHRP	The National Cooperative Highway Research Program
NEPA	National Environmental Policy Act [of 1969]
NHS	National Highway System
NOI	Notice of Intent
NOR	Notice of Registration
NPS	National Park Service
NPDES	National Pollution Discharge Elimination System
NRHP	National Register of Historic Places
NRI	Nationwide Rivers Inventory
NSBP	National Scenic Byways Program
NTP	Notice-to-Proceed
NWP	Nationwide Permit
PA	Project Administrator
PE	Preliminary Engineering or Professional Engineer
PER	Project Engineering Record
PS&E	Plans, Specifications, and Estimates
RE	Region Engineer
ROW	Right-of-Way
RR	Railroad
SHPO	State Historic Preservation Office
SRTS	Safe Routes to School Program
STD	State Transportation Department [used in Codes of Federal Regulations]
STIP	State Transportation Improvement Program
STP	Surface Transportation Program
TADT	Truck Average Daily Traffic
TA	Transportation Alternatives Set-Aside Program
TCB	Temporary Concrete Barrier
TCP	Traffic Control Plan

TDHV	Truck Design Hourly Vehicles
TE	Transportation Enhancement
TIP	Transportation Improvement Program
TRB	Transportation Research Board
USC	United States Code
USFWS	US Fish and Wildlife Service
USFS	US Forest Service
UZA	Urbanized areas with populations over 50,000, as determined by the U.S. Census.

CHAPTER 1 GENERAL GUIDELINES

SECTION 1(a) - INTRODUCTION

The ***Procedural Guidelines for Local Public Agency Projects*** manual is intended to provide Local Public Agencies (LPAs) sufficient guidance to successfully manage transportation projects containing Federal Aid or State Road & Bridge funds that are administered through the Alabama Department of Transportation's (ALDOT) Local Transportation Bureau (LTB). Chapters 4 and 11 of this manual will aid sponsors with procedures for letting a project locally and the process for acquiring right-of-way whenever federal funds are used. The manual's purpose is to provide clear guidance in the project development process, promote uniformity in design standards, and serve as a general guide for the preparation of LPA roadway and/or bridge plans. Every effort has been made to make this documentation complete and accurate in order to address the most common project types; however, not every possible project type, nor the specifics of every project, can be anticipated or addressed in detail. ALDOT reserves the right to modify the guidelines presented in this manual to meet individual project requirements as they may present themselves. Contact ALDOT Local Transportation Bureau for guidance concerning unique project types and/or specific project details and for clarification regarding any aspect of project development.

Engineers, transportation planners, and technicians should follow these guidelines and use sound engineering judgment in unique circumstances or situations not specifically addressed in this manual. Additionally, all engineers, planners, and technicians are responsible for ensuring that these guidelines are implemented accurately and that the plans reflect the necessary information completely, clearly, and legibly.

SECTION 1(b) - LOCAL PUBLIC AGENCIES

LPA's are considered to be local governments and agencies (towns, cities, counties), local government members of Metropolitan Planning Organizations (MPOs), state-approved universities and private non-profit entities, or state-certified Special Authorities. If an LPA is to receive federal funding for any portion of work on a project, all phases of that project must comply with federal and state requirements.

Any federal aid Local Public Agency (LPA) project shall be processed in accordance with the policies and procedures as outlined in this manual and the design criteria as shown in the [*Alabama Department of Transportation, Local Public Agency Road Design Policies*](#) (Chapter 10 of this manual).

To become a certified LPA, the entity must submit an [*LPA Application and Financial History*](#) and request a meeting with the ALDOT Region Office. Following a successful completion of this application and review, the LPA will be certified in a probationary status. After the completion of two projects at minimum, ALDOT may determine that the LPA is fully certified.

SECTION 1(c) - PROJECT ADMINISTRATOR

The LPA must designate one individual, either from within the LPA organization or through an interlocal agreement with another LPA, to oversee the project. This person will be designated as the **Project Administrator (PA)**. The LPA has the option to use a consultant to be designated as the PA. The LPA may choose to contact the Area office for a list of ALDOT preapproved consultants. The LPA does not abdicate its responsibilities or approval authority when it elects to use consultant services.

The PA will be accountable for all phases of the work and manage the day-to-day operations on the project. The PA will coordinate with the Area office and the Local Transportation Bureau in project decision making as project development progresses. They should carefully monitor all phases of the project, including preconstruction, design, contract letting, and construction engineering and inspection.

SECTION 1(d) - ENGINEER OF RECORD

When engineering work of a technical nature is required, the LPA shall obtain the services of an **Engineer of Record (ER)**. All engineering reports, designs and plans, etc. must be performed under the direction of a licensed Professional Engineer in the State of Alabama. This ER will be responsible for all engineering work performed under his license. Some projects, due to the complexity of their nature, may require multiple ERs specializing in different disciplines. The PA and ER may be the same individual. Contact ALDOT Local Transportation Bureau for further guidance to determine whether a separate ER is needed on any individual project.

Note - The term “LPA Representative,” as used throughout this manual, shall be considered to be synonymous with the designated person overseeing the project, whether they are the LPA Engineer or the Project Administrator.

SECTION 1(e) - PRELIMINARY ENGINEERING BUDGETS

Special work authorization (SWA) accounts can be established and will be used to pay for general engineering costs incurred by ALDOT personnel, at no cost to a specific project. When requested by an LPA, ALDOT personnel may provide survey, environmental, geotechnical, bridge design, etc. services without the need for the establishment of individual specific preliminary engineering projects. SWA accounts are generally established by a \$2,000 deposit paid by the LPA to ALDOT, which is deposited into the LPA's SWA account. When the balance in the SWA account drops below \$1,000.00, the LPA will be invoiced for the amount required to bring the balance back up to \$2,000.00.

Individual Preliminary Engineering (PE) projects will be required for each individual LPA project that includes federal or state funds for project phases other than construction (PE, ROW, Utilities).

CHAPTER 2 PROJECT & PLAN DEVELOPMENT

The following procedures are intended as a general guide for project development and to aid Local Public Agencies, by providing uniformity, clarity, and accuracy in the plan development process. This chapter outlines key project development concepts and provides a fundamental understanding of the design policies and procedures from project initiation to project authorization. It provides a general overview of plan development and identifies the information which is to be included in each plan review submission. Additional chapters in this manual provide a more detailed guide for specific project development and required submittals.

SECTION 2(a) - PRELIMINARY PROCEDURES

Project Initiation

The LPA shall initiate a proposed project through the appropriate Area office. The initiation package should include, at a minimum, the following information:

- Any LPA assigned project number
- The route number and/or name of the roadway
- Descriptive geographical limits of the project
- A description of the project improvements
- The project length
- If Right-Of-Way or Temporary Construction Easements are required
- If the project includes any pipe or culvert extensions
- If the project has a railroad crossing within its limits
- If there is any utility work anticipated
- The requested month and year for the project letting
- Project design criteria (route classification & the Average Annual Daily Traffic (AADT))
- Estimated project cost
- STIP/TIP date
- Title sheet containing the project description

Other required project initiation data is project specific, depending on the type of project and if additional right-of-way is being acquired. A general guide list of required data submittals is shown on page 2.2. Refer to Chapters 5 through 7 for more detailed information on project initiation data submittals. An example of the “Initiating Data Submittal Checklist” is shown on page 2.3.

All federal aid LPA projects require a RESOLUTION of the LPA governing body setting up the project. The original resolution, with all required signatures, should be forwarded to the Local Transportation Bureau and a copy furnished to the Area Local Transportation Engineer for their files (see examples on pages 16.49 - 16.52).

Project Initiation Data Submittal Guide

Required Project Initiation Data Submittal Guide				
Initiating Data	Type of Project			
	Pavement Preservation	Resurfacing, Restoration, & Rehabilitation	Bridge Replacement	Other
Resolution	✓	✓	✓	✓
USGS Maps	✓	✓	✓	✓
Title Sheet	✓	✓	✓	✓
Request for Bridge Hydraulic Design			✓	
Pictures for Bridge Hydraulic Design			✓	
Typical Section and Plan & Profile Sheet(s) for Bridge Hydraulic Design			✓	
Pictures for Alabama Historical Commission		✓ ^①	✓	✓ ^{①②}
Letter of Involvement (4-F Lands, Etc.)	✓	✓	✓	✓
Airport Involvement Letter (if applicable)	✓	✓	✓	✓
Right-of-Way Recording Data Letter	✓	✓	✓	✓
ROW-RA-1 Form		✓ ^①	✓ ^①	✓ ^①
Traffic Count Information	✓	✓	✓	✓ ^③

- ① Required for projects involving right-of-way acquisition
- ② Required for Bridge Maintenance projects
- ③ Not required for Bridge Maintenance projects

Traffic Counts and Crash Data

- Project design criteria is based primarily on two factors, design speed and design year traffic. Project sponsors are encouraged to seek count(s) within their project limits from [ALDOT's website](#). If count(s) are found, the sponsor should furnish a screen print of the count from the website as part of their project initiation package. If no count(s) can be found within 2 miles of the projects limits, this information should be furnished by the LPA utilizing the "[Traffic Request Form](#)" on ALDOT's website, in accordance with the "Standards for Traffic Classification Counts" as shown in Chapter 13, or the LPA can request that ALDOT furnish the counts. The Local Transportation Bureau will provide the crash data needed for the project.

INITIATING DATA SUBMITTAL CHECKLIST

(Date)

Region Engineer

Dear Sir:

RE: SPONSOR NO. _____
COUNTY _____

Attached is the following data to initiate the subject project:

- () ● Resolution (Location Map)
- () ● USGS Map
- () ● Title Sheet in order to obtain completed project number
- () ◆ Request for Bridge Hydraulic Design/Review
- () ◆ Pictures for Hydraulic Design/Review
- () ◆ Typical Section, and Plan & Profile Sheet(s)
- () ■◆ * Pictures for Alabama Historical Commission
- () ● Letter of Involvement (4-F Lands, etc.)
- () ● Traffic Counts or Letter to Request Traffic Counts by ALDOT
(Excludes Bridge Maintenance Projects)
- () ● Airport Involvement Letter, if applicable
- () ● ROW Recording Data Letter
- () ■ ROW-RA-1 Form
- () Other _____

Project Design Criteria (Check one)

Pavement Preservation () RRR ()
New Construction and Reconstruction () Other ()

Project Letting (Check one)

State Contract () Force Account () Combination ()

Requested Letting Date: _____ Estimated Cost: _____
Project Length: _____ STIP/TIP Date: _____
Railroad Involvement: Yes () No ()
Anticipated Utility Work: Yes () No ()
ROW or Easements Required: Yes () No ()
Any pipe or culvert extensions anticipated? Yes () No ()

Please contact this office if additional information is required.

LPA Representative

- All Projects
- If ROW is acquired
- ◆ Bridge Replacement Projects
- * Bridge Maintenance Projects

Note: The Area Local Transportation Engineer should send this package to the Local Transportation Bureau Preconstruction Section's attention when it is submitted.

Environmental Clearance

Upon receipt of the Initiating Data Submittal Checklist (page 2.3), the Local Transportation Bureau, Preconstruction Section, will review the initiating data for accuracy. If additional information is needed, an email detailing the additional information required will be sent to the Area Office and the Project Sponsor. Environmental procedures are outlined in detail in Chapter 9 of this manual.

ACQUISITION OF RIGHT-OF-WAY PRIOR TO APPROVAL OF THE ENVIRONMENTAL DOCUMENT WILL MAKE THE PROJECT INELIGIBLE FOR FEDERAL FUNDS.

Scope of Work Review / Hydraulic Site Inspection

As soon as the traffic counts and crash data are received by this office, the Area Local Transportation Engineer will be notified to schedule a “Scope of Work” review for all projects, as applicable. This review should be conducted jointly by representatives from the Area office and the LPA. During the scope of work review the designer should make recommendations for proposed safety improvements, design standards, proposed pavement buildup, etc., based on the design policies as detailed in Chapter 10. This information should be included in a written report prepared by the LPA and submitted to the Area Local Transportation Engineer and the Local Transportation Bureau.

A Hydraulic Review is required for all bridge replacement projects in accordance with Chapter 7, Section 7.1(d). This review is to be conducted jointly by the Bridge Bureau Hydraulic Engineer and representatives from the Area office and the LPA.

Project Engineering Record (PER)

When the Scope of Work Review or Hydraulic Report has been completed, the designer shall submit a Project Engineering Record (PER) to the Area Local Transportation Engineer (**excluding Pavement Preservation Projects**). Design criteria, design exceptions, contract and non-contract items of work, safety improvements, proposed typical section, pavement buildup, etc., that are recommended as part of the Scope of Work review should be incorporated in the PER narrative.

After the PER is approved by the State Local Transportation Engineer, the LPA Representative will be advised to proceed with final plan preparation. Approved copies of the final document will be distributed to the LPA Representative and the Area Local Transportation Engineer. **Please note that [Preservation Scope of Work Form](#) will serve as the PER for Pavement Preservation projects the Pavement.**

If the LPA determines during the development of plans that there are circumstances that may make it impracticable to meet the applicable design criteria, then the LPA shall make a written request to the State Local Transportation Engineer for a “design exception.” If possible, any design exceptions should be included in the PER. If design issues are noted in the later stages of the project development, a separate design exception request will need to be submitted for approval as a Project Engineering Record Addendum. **Final plan preparation should not begin until the PER is approved.**

Materials Report

The LPA should prepare a materials report and submit it to the Area Local Transportation Engineer for review by the Area Materials Engineer. Any requested waivers to the material specifications shall be included in the materials report. The report must be signed by the LPA Representative. The materials report will be reviewed and approved at the Area level by the Area Materials Engineer. An example “Materials Report” is shown on pages 16.30 - 16.38. **The materials recommendations for Pavement Preservation projects are included in the Pavement Preservation Scope of Work Form and are not required to be submitted to the Area Materials Engineer for approval.** A copy of the approved materials report will be sent by the Area office to the Local Transportation Bureau and the Construction Bureau.

SECTION 2(b) - PLAN PREPARATION

This section is intended to be used as a guide for the preparation of LPA plans for all projects let to contract through state services. It is written to aid the designer by establishing consistency in the content, assembly, and format of roadway plans, and should be used to provide uniformity, clarity, and accuracy to the plans developed by the LPA under the oversight of ALDOT. Every effort has been made to make the documentation complete and accurate in order to address the most common project types; however, not every possible project type, nor the specifics of every project, can be anticipated or addressed in detail. ALDOT reserves the right to modify the guidance presented in this manual to meet individual project requirements as they may present themselves. Contact ALDOT Local Transportation Bureau for guidance concerning unique project types, specific project details, and/or for clarification regarding any aspect of project development.

PLAN ASSEMBLY - GENERAL GUIDELINES

Plan sheets for final plan submittals must be printed on 22” x 34” sheets with the exception of letter size plan submittals. All sheets may be on paper, with the exception of the title sheet, which is required to be on Mylar. Title sheets on paper are acceptable for letter size plan submittals.

Preliminary plan submittals (Bridge Bureau design, 30% review, Plan-In-Hand review, PS&E review, Construction Bureau review, etc.) are typically printed or copied as half size plan sheets (11” x 17”) for review purposes. The designer should ensure that all design elements, topo features, text, stationing, etc. are legible when reduced to half size.

Text annotation should be orientated to be read from the bottom or right side of the plan sheet as much as possible.

All plan assembly sheets should have the sheet type shown at the top center of the sheet in a large text size (e.g., Title Sheet, Index to Sheets, Plan and Profile Sheet, Paving Layout Sheet, etc.).

Bar scales should be shown on all applicable sheets.

Any sheets displaying a horizontal geometric control line (centerline of construction and/or, baseline) must show a north arrow, preferably in the upper right portion of the plan view.

The following sheet order and format should generally be used for all plan assemblies submitted to the Local Transportation Bureau for letting through state contract.

Recommended Plan Sheet Order for Plan Assemblies

SHEET NO's.	SHEET TYPE
1 to 1★	Title Sheet Index to Sheets Index to Special & Standard Drawings Plan Legends & Abbreviations Geometric Layouts
2 to 2★	Typical Sections Special Typical Details (Open cut trench, pavement transitions, undercut details, underwater embankment, modified curb, truck aprons, concrete islands, splitter islands, etc.) Project Notes TCP Notes Other Applicable Note Sheets (Signals, Lighting, ITS, etc.)
3 to 3★	Summary of Quantities (Main summary and box summary sheets)
4 to ___	Plan & Profile
___ to ___	Paving Layouts
___ to ___	Striping
___ to ___	Signing Sign Cross Sections Sign Face Details
___ to ___	Bridge Plans Bridge Notes Bridge Special Details Borings
___ to ___	Utilities Utility Special Details
___ to ___	Signals / Lighting / ITS
___ to ___	Erosion & Sediment Control Legend Erosion & Sediment Control Details
___ to ___	Miscellaneous Special Project Details
___ to ___	Traffic Control Plan - Summary of Quantities Sequence of Construction Traffic Control Plan Details
___ to ___	Drainage Sections
___ to ___	Cross Sections
◆	Earthwork Summary

- ★ Hyphenated alpha numeric sequence using capital letters (e.g., 2-A, 2-B, 2-C, etc.)
- ◆ Must be the last sheet in the plan assembly. Do not insert any sheets between the Cross Section sheets and the Earthwork Summary sheet. Use numeric sheet reference only. Do not use alpha numeric sheet reference.

Example Sheet Index

SHEET NO.	DESCRIPTION
1	Title Sheet
1-A	Index to Sheets
1-B	Index to Special & Standard Drawings
1-C to 1-D	Plans Legend & Abbreviations
1-E to 1-F	Geometric Layout Sheets
2 to 2-C	Typical Sections
2-D	Project Notes
2-E	Traffic Control Notes
3 to 3-F	Summary of Quantities
4 to 10	Plan & Profile Sheets
11 to 17	Paving Layout Sheets
18 to 24	Striping Sheets
25 to 33	Signing Sheets
34 to 35	Sign Face Details
36	Omitted
37	Omitted
38	Omitted
39 to 39-M	Bridge Sheets
51 to 51-C	Boring Sheets
52 to 56	Utility Sheets
57	Omitted
58	Omitted
59 to 68	Erosion & Sediment Control Sheets
69	Special Project Detail - Slotted Drain Connection
70	Special Project Detail - Guardrail Curb Connection Detail
71	Omitted
72	Omitted
73	Omitted
74	Traffic Control Plan - Summary of Quantities
75 to 80	Traffic Control Plans
81 to 85	Drainage Sections
86 to 94	Cross Sections
95	Earthwork Summary Sheet

Each special project detail sheet shall be listed separately with the appropriate description.

It is not necessary to list each plan sheet within the plans separately. It is preferred that similar plan sheets be shown on the Index Sheet as a plan sheet group. Plan & Profile Sheets, Paving Layout Sheets, Utility Sheets, Erosion and Sediment Control Plan Sheets, etc., are some examples of index sheet groups.

A random insertion of "Omitted Sheets" should be inserted in the plan assembly between some of the sheet types beginning after the plan and profile sheets. These sheets should be numbered and listed individually as shown above.

The last sheet in the plan assembly shall end in a whole number and shall not be an "OMITTED" sheet.

TITLE SHEET - GENERAL GUIDELINES

Heading of the Title Sheet

- Show the project number that typically identifies the funding type, the county in which the work will be performed, fiscal or award year, and agreement number (Federal Aid projects) centered in the middle of the title sheet.
- Define the major item of work in the description and the project location; for example, "Bridge Replacement and Approaches on CR-55 Over Dry Creek," or "Widening and Resurfacing on CR-1 from CR-32 to CR-14." For projects with railroad involvement, the name of the railroad must be included in the project description. The county in which work is to be performed shall be labeled directly underneath the project description.
- Project descriptions with U.S. routes should show the state route identification with the U.S. route shown in parenthesis; for example, "Resurfacing on CR-53 from SR-3 (US-31) to CR-27." On U.S. routes with more than one state route identification, use the lowest state route number assigned to the route.
- If a county road has a locally used name, in addition to a county route number, use both in the description; for example, "Widening and Resurfacing on Gin Mill Road (CR-27) from the Morgan County Line to CR-16." An example format is shown below:

<p>ALABAMA DEPARTMENT OF TRANSPORTATION PLANS OF PROPOSED PROJECT NO. HRRR-4123(251) SAFETY IMPROVEMENTS (2' SAFETY WIDENING, SCORING, STRIPING, AND GUARDRAIL IMPROVEMENTS) ON CR-38 FROM PINE LAKE ROAD (CR-16) TO SR-2 (US- 72) LEE COUNTY</p>

Project Identification Box

The project identification box, located in the upper right corner of the title sheet, should show the following project information as shown in the example below:

STATE	REFERENCE PROJECT NO.	FISCAL YEAR	SHEET NO.	LAST SHEET NO.
AL	STPMN-XXXX()	2024	1	21

CONTRACT ID _____

Note: The contract ID number will be completed by the Office Engineer Bureau.

The project identification box for the remaining sheets should only list the “Reference Project Number,” “Fiscal Year,” and “Sheet No.” as shown in the example below:

REFERENCE PROJECT NO.	FISCAL YEAR	SHEET NO.
STPMN-XXXX()	2024	3

- Complete the preliminary project number and code numbers below the project identification box. The code number will be the charge number for PE services, such as the PE budget for the project or the sponsor’s SWA account.

Design Designation Box

In the “Design Designation” box, the current and design traffic counts and years, TADT, design speed, and stopping sight distance must be shown. The traffic counts should indicate current and 10-year counts for 3R and pavement preservation projects and current and 20-year counts for new construction and reconstruction projects. Traffic counts are based on calendar year, not fiscal year.

Summary of required information

- ADT (Calendar Year) - the highest two-way direction average daily traffic volume for the calendar letting year on the mainline. The year should be labeled within the parenthesis.
- ADT (Design Year) - the highest two-way direction average daily traffic volume for the design year on the mainline - 10-year counts for 3R and pavement preservation projects and 20-year counts for new construction and reconstruction projects. The year should be labeled within the parenthesis.
- K (K Factor) - The percentage of the ADT that is estimated to occur in the peak hour.
- D (D Factor) - The percentage of the hourly traffic that is estimated to travel in one direction.
- TDHV - The percentage of the truck traffic that will be traveling during the peak hour.
- TADT - the percentage of the average daily traffic that is estimated to be heavy truck traffic.
- V (Design Speed) - the speed of the roadway that will govern the degree of curvature, superelevation, stopping sight distance, and other design parameters.
- Min Stopping Sight Dist. - the minimum stopping sight distance required for the design speed. If the minimum stopping sight distance for the design speed of any roadway within the project limits is not met a design exception may need to be processed.

An example box is shown below:

DESIGN DESIGNATION	
ADT (2024)	780
ADT (2034)	950
K	10%
D	55%
TDHV	3%
TADT	6%
V (DESIGN SPEED)	45 MPH
MIN. STOPPING SIGHT DIST. (FT.)	360

The following statement should be shown below the Design Designation box:

“These plans have been prepared to conform to the Alabama Department of Transportation Standard Specifications for Highway Construction, 20__ Edition.”

Project Location Maps

- Show the State of Alabama map with a callout leader identifying the project location in the upper left-hand corner of the title sheet. The callout leader shall be labeled “Index to Project.”

The project vicinity map must include the following information:

- The stations of the “begin and end work” and the “begin and end project” (specified to two (2) decimal places). Three (3) decimal places must be utilized if using mile posts for project limits.
- Show Section, Township, Range, and County lines, together with the Section, Township, and Range numbers. The size of the map should be chosen so that it will not interfere with other features on the Title Sheet. Other boundaries that should be shown are national forests, city limits, military bases, etc. County maps typically should be used for rural projects, whereas city maps may be appropriate for projects within an urban area.
- On the location map, show the begin work/begin project stations and the end work/end project stations. In place bridges, or bridge culverts, should be flagged on the location map and labeled on the left side of the title sheet. For bridge replacement projects, the required bridges, or bridge culverts, should be identified on the map and labeled on the left side of the Title Sheet (see bridge information below).
- The location of station equations and exceptions should be identified on the map and labeled on the left side of the title sheet. The station equations and exceptions will be numbered consecutively from the beginning of the project to the end. The symbol used should be a circle and the station equation and/or exception number should be placed inside the circle (see equation and exception information on page 2.12).
- The project location map must be orientated with a displayed north arrow pointing up, located preferably on the right side of the title sheet below the “Design Designation” box.

- Show the destination of major roads outside the borders of the vicinity map.
- The proposed construction route should be shown (a reasonable amount of exaggeration is permissible for clarity) with a bold line or some distinguishable line symbology.

Bridge/Bridge Culvert Information

The location of existing and required bridge structures and/or bridge culverts must be identified on the map and labeled on the left side of the title sheet.

Use a triangle (\triangle) to identify existing or required bridges. Existing bridge structures shall be identified by a letter designation and required bridge structures identified by a numeric designation. The bridge structures shall be numbered/lettered consecutively from the beginning of the project to the end with the alpha/numeric symbols placed inside the triangles.

Use a diamond (\diamond) to identify existing or required bridge culverts. Existing bridge culvert structures shall be identified by a letter designation and required bridge culvert structures identified by a numeric designation. The bridge culvert structures shall be numbered/lettered consecutively from the beginning of the project to the end with the alpha/numeric symbols placed inside the diamonds.

Note that ALDOT Standard Specifications defines a bridge as **“a structure, including supports, erected over a depression or an obstruction, such as water, highway, or railway, and having a track or passageway for carrying traffic or other moving loads, and having an opening measured along the center of the roadway of more than 20 feet between undercopings of abutments or spring lines of arches, or extreme ends of openings for multiple boxes; it may also include multiple pipes, where the clear distance between openings is less than half of the smaller contiguous opening.”** Any structures 20’ or less should not be shown on the title sheet and will have no effect on the project stationing.

- Show the station to station limits and length for both in place and required bridges. When a bridge structure is shown as "in place" on a resurfacing type of project, indicate in parenthesis any work to be done (e.g., "Stripe Over Only", "Plane and Resurface," "Stripe Over and Guardrail Replacement"). Appropriate dispositions for other project types may include "Retain", "Replace", "Extension", or "Pave Over" (culverts). The "Net Length of Bridges" shown in the mileage box will be equal to the total bridge(s) length.
- Show the bridge identification number (BIN) for the existing and required structure(s). Structures not meeting the length requirements for a bridge structure, as defined above, will not have an assigned BIN and should not be shown on the title sheet. The LPA shall submit a BI-1 form requesting a new BIN for the proposed structure to the Local Transportation Bureau. This must be submitted before or with the PER.
- For bridge culverts (existing and required), include the culvert size, e.g., CD-10’X10’.
- When there are no existing and/or required bridges within the project limits, it should be noted by inserting “NONE” next to the applicable heading.

Equations and Exceptions

List the station location of equations and exceptions. “Station Equations” are required whenever a re-alignment of the existing roadway will result in changes to the existing stationing, when stationing errors occur, and/or when alignments with different stationing are connected. In such cases, the “station back” is shown first, followed by the “station ahead,” e.g., Station 100 + 25.00 Bk. = Station 100 + 50.00 Ah. “Station Exceptions” are the station to station limits and lengths that are excluded from a project due to no work of any nature being performed, such as crossing a major highway. The exceptions should be listed with the station to station limits, and supplemented with a location description, e.g., Exception Station 100 + 25.00 to Station 101 + 25.00 = 100.00’ (SR-145). When there is not a station equation or exception within the project limits, it should be noted by inserting “NONE” next to the “Equations and Exceptions” heading. Station equations and exceptions shall be numbered consecutively from the beginning of the project to the end. The symbol used shall be a circle, and the station equation and exception number shall be placed inside the circle.

Project Stationing Information

The following guidelines should be used for project/work limits and stationing:

- All Projects shall be stationed in a general direction of south to north for odd numbered routes and west to east for even numbered routes.
- **Bridge/Bridge Culvert - No Approach Work** - Use the actual bridge or bridge culvert stationing for the begin project and end project limits. Note that the centerline length of a bridge culvert is measured from the inside faces of the exterior walls along the centerline of the project. This length must be reflected throughout the plans. The begin work and end work limits should be set to allow for guardrail placement (if part of contract), plus an additional 10 to 25 feet buffer zone.
- **Bridge/Bridge Culvert - With Approach Work as Part of Contract** - The project limits should be based on either the vertical or horizontal ties to the existing roadway or profile. The greater limits shall dictate the project limits. If the horizontal approach work is on new alignment and ties to the present alignment with a horizontal curve, the PC or PT of the curve should be used for the project limits, but the superelevation runoff distance should be considered in establishing the work limits.
- **Grade, Drain, Base, & Pave (New Alignment)** - The same guidelines as noted above for “Bridge or Bridge Culvert with Approach Work” will apply.
- **Pavement Preservation & 3R Projects**- Typically, the work limits and project limits will be the same. Station limits should be based on the paving limits as shown on the typical section.
- **Multiple Sites** - Multiple “begin/end” project limits are not permitted within a single plan assembly. Projects with multiple site locations, within a single set of plans, should indicate only the “**Begin Work**” and “**End Work**” limits at each site, unless the sites are

on the same route and are in proximity (for example, a main channel structure and a relief structure), and the proposed project limits will encompass both sites.

- **Duplicate Stationing** - Duplicate station ranges should not be used where work is required on more than one roadway or site within a project. For example, on an intersection improvement project, where work is being done on both intersecting roads, station 100+00 can be assigned as the “begin work” station on one roadway and station 200+00 as the “begin work” station on the other roadway.

Mileage Box

Below is an example of the mileage box as shown in the lower left-hand section of the “Title Sheet.”

	FEET	MILES
TOTAL STATIONING OF PROJECT	545.00	
EQUATIONS AND EXCEPTIONS	0.00	
NET LENGTH OF PROJECT	545.00	0.102
NET LENGTH OF BRIDGES	45.00	0.008
NET LENGTH OF ROADWAYS	500.00	0.094

The following guidelines should be used for the calculation and display of the lengths as shown in this box:

- **Total Stationing of Project** - This length is based on the actual project length expressed to two (2) decimal places and is shown in the “Feet” column. This length is not shown in the “Miles” column.
- **Equations and Exceptions** - List the net effect of any equations or exceptions. This length should be expressed to two (2) decimal places and shown only in the “Feet” column. This length is not shown in the “Miles” column.
- **Net Length of Project** - This length as shown in the “Feet” column will be the same length as shown in the “Total Stationing of Project” unless there are equations or exceptions that effect the net length of the project. This length should be expressed to two (2) decimal places and shown in the “Feet” column. **Do not use this as the basis for calculating the net length as shown in the “Miles” column.** This length will be the sum of the “Net Length of Roadways” and the “Net Length of Bridges.” Mileage lengths for the bridge and roadways are truncated at three (3) decimal places without rounding. It is recommended to set your calculator to 5 (five) decimal places for calculation purposes. In the example on page 2.10, if calculations are set to 3 (three) decimal places, the 500’ roadway length would convert to 0.095 miles instead of 0.094 miles as shown.
- **Net Length of Bridges** - This is the actual stationing of the bridge structures (bridges and/or bridge culverts) expressed to two (2) decimal places and shown in the “Feet” column. This length should be shown in the “Miles” column expressed to three (3) decimal places (no rounding).

- **Net Length of Roadways** - This is calculated by subtracting the net length of bridges from the net length of project. This length should be expressed to two (2) decimal places and shown in the “Feet” column. This length should be shown in the “Miles” column expressed to three (3) decimal places (no rounding).

Mileage Box - Multiple Sites

	SITE 1		SITE 2		SITE 3		TOTAL	
	FEET	MILES	FEET	MILES	FEET	MILES	FEET	MILES
TOTAL STATIONING OF PROJECT	120.56		200.65		370.00		691.21	
EQUATIONS AND EXCEPTIONS	0.00		0.00		0.00		0.00	
NET LENGTH OF PROJECT	120.56	0.022	200.65	0.037	370.00	0.069	691.21	0.130
NET LENGTH OF BRIDGES	50.25	0.009	64.25	0.012	44.92	0.008	159.42	0.030
NET LENGTH OF ROADWAYS	70.31	0.013	136.40	0.025	325.08	0.061	531.79	0.100

Miscellaneous

- On final plans, the title sheet **MUST** have the signatures of the LPA Representative and the Region Engineer when received by the Local Transportation Bureau. Any plans that have been prepared by a consulting engineering firm **MUST** have the registered Engineer’s signature and professional stamp affixed to the title sheet. A consultant logo adjacent to the signature area for the Professional Engineer is optional. The signature and stamp on the title sheet applies to the entire plan assembly unless a separate signature and seal is shown on another sheet in the plan assembly. The State Local Transportation Engineer's signature will be added in this office. The Chief Engineer's and Transportation Director's signatures are obtained by the Bureau of Office Engineer.
- A three-digit agreement number, assigned by the Bureau of Office Engineer, is required within the parenthesis field for the project number when federal funds are used. This number appears in the heading for the title sheet, typical sections, summary of quantities sheets, etc. and the project identification box (upper right-hand corner of all sheets).
- In the note referencing the Alabama Department of Transportation specifications book, ensure that the current edition is shown.
- Show the “Sponsor Project Number” in the upper right corner of the title sheet below the project identification box. City projects may not have this number. If this is the case, the city may leave this blank or show the Preliminary Engineering (PE) project number in its place.
- Show the “Code Number” below the “Sponsor Project Number.” This is the PE budget charge number assigned to the project.

- The ALDOT official seal should appear on the right-hand side of the title sheet, preferable directly above the signature block.
- A combination bid note is required for any project wholly or partially financed by the town, city, or county in accordance with subarticle 102.08(b) of the Standard Specifications, or applicable special provision.

INDEX TO SPECIAL & STANDARD DRAWINGS - GENERAL GUIDELINES

- List all applicable special and/or standard drawings pertaining to the project in accordance with the current edition of [ALDOT Special & Standard Highway Drawings Book](#).
- Three columns should be used to provide a full description of each special and standard drawing in the plan set. The 1st column should be titled “INDEX NO.”, followed by a 2nd column titled “DRAWING NO.”, followed by a 3rd column titled “DESCRIPTION.” The descriptions must match verbatim the description shown on the “Index to Standard and Special Drawings,” as listed in the front of the drawing book. The Bureau of Office Engineer does not allow any deviation in the spelling, abbreviations, or punctuation from what is listed in the indexes.
- A note stating, “THE FOLLOWING ARE SPECIAL OR STANDARD DRAWINGS CONTAINED IN THE ALABAMA DEPARTMENT OF TRANSPORTATION SPECIAL AND STANDARD HIGHWAY DRAWING BOOK (U.S. CUSTOMARY UNITS OF MEASUREMENT) DATED (Year of Current Edition) WHICH APPLY TO THIS PROJECT,” should be inserted above the listing of drawings.
- List all ESC drawings even if no erosion control pay items are set up unless a project note is provided stating the sponsor will provide all erosion and sediment control items at no cost to the project. If a note is not provided, the contractor is responsible for mitigating any erosion control issues that may arise on the project.

PLANS LEGEND AND ABBREVIATION SHEETS - GENERAL GUIDELINES

- The PLANS LEGEND SHEET and the PLANS LEGEND SHEET ABBREVIATIONS shall match the latest version supplied on the ALDOT website.

GEOMETRIC LAYOUT SHEETS - GENERAL GUIDELINES

Typically, Geometric Layout sheets are not needed for resurfacing and minor widening projects. They are useful for projects that involve realignment, intersection improvements, bridge replacements, etc.

- Horizontal and vertical survey datum information should be shown on all geometric layout sheets where applicable.

- Show the centerline or baseline of construction for all mainline and side road alignments in their entirety. The designer is to determine what scale should be used to clearly show all information.
- Show Begin/End Project and Begin/End Work limits for the mainline alignment. Show Begin/End Work limits for any side roads where work is to be performed.
- Control points should be listed on each applicable sheet. This information should include the point name or number, northing, easting, elevation, station, offset, and point description.
- Include a correctly oriented north arrow.
- On each roadway alignment label the bearing information, curve identifier (C-1 for example), alignment name, intersecting angles, intersecting stations, and project/work limits.
- PC and PT points of horizontal curves shall be indicated by small circles with short radial lines drawn from these points and identified. Curve data shall be displayed for each horizontal curve using the following format:

P.I. Station	P.I.	=
Degree of Curve	D	=
Deflection Angle (left or right)	Δ	=
Radius	R	=
Tangent Length	T	=
Curve length	LC	=
Superelevation Rate (e)	e	=

- Label equation stations.
- Match lines should be utilized to show alignments continuing to the bottom of the sheet or to the subsequent sheet.

TYPICAL SECTION SHEETS - GENERAL GUIDELINES

- The order of typical section sheets by roadway type should be the following:
 - a. Mainline
 - b. Side roads
 - c. Ramps
 - d. Driveways
 - e. Special Ditches
 - f. Other (open cut details, pavement transitions, underwater backfill/embankment, concrete island details, truck apron details, curb ramp and sidewalk details, soft soil stabilization details, etc.)

- Typical sections are not scaled drawings, but it is beneficial when drawing the typical to utilize some degree of horizontal scale; with an exaggerated vertical scale. “NTS” or “Not to Scale” should be labeled within the sheet border at the bottom right of the plan sheet (this is where the bar scale is located on a plan view sheet).
- Show the required build up by material layer. All layers of all materials should be shown as stated in the approved materials report or Pavement Preservation Scope of Work Form; however, do NOT show patching, spot leveling, or tack coat on the typical section. Identification numbers for required materials should be displayed within a circle and progress sequentially from top to bottom with the top layer typically identified as 1. When leveling is used at a specific rate on a project, it should be shown on the typical section and the approximate rate shown in parenthesis. An application rate range may also be shown.
- Dashed lines should be used to depict the in-place pavement layers, slopes, etc. Solid lines should be used for the required items.
- The “Required and In-Place Materials Legend” should include the complete item number (unique number) for each required item, the complete item description (as shown on the Summary of Quantities Sheet) for required items, the description of each layer of the materials buildup, the width for all items paid for by the square yard, and thicknesses (laydown rates) for items paid by the ton or cubic yard that do not have universal standard thicknesses. Use consistent legend numbers for the same item number throughout all typicals shown in the plan set. Numerical legend numbers (1, 2, 3, 4, etc.) are to be used for required items and should be placed within a circle. Alphabetical letters (A, B, C, D, etc.) are to be used for in place items and should be placed within a square. The same material item may be required to be placed at different rates on separate typicals or on the same typical. If this occurs the first reference to this material item should be a number and subsequent references to this same material item to be applied at different rates should be referred to using a sequencing numeric/alpha character (1, 1A, 1B, 1C, etc.). The legend should only reflect the material items utilized on that typical section sheet.
- All typical components should be shown as "In Place" or "Required," e.g., roadbed, bituminous treatments, base and subbase course items, etc. Indicate the disposition of all existing components (retain, remove, partial removal, plane, etc.), as appropriate. Approximate poundage rates and widths (if necessary) should be indicated in the item description.

Example: Required Improved Bituminous Concrete Wearing Surface Layer, ____ in. Maximum Aggregate Size Mix, ESAL Range ____ (approximately ____ Lbs./Sq. Yd.).

- When more than one project typical is required, show the “Station to Station” limits that apply to each typical and ensure the entire project limits are covered by a typical section. Clearly identify the roadway if there is more than one roadway included in the project.

- Show equation and/or paving exception stations (bridges, railroads, major route crossings, etc.). Add a detail depicting the pavement tie-in transition requirements. Unless a specific pay item (such as planing) is set up for pavement removal, then the removal and disposal of the pavement, as depicted in the tie-in sketch, should be addressed as shown in the example note below:

Remove existing pavement so as to construct a uniform thickness of bituminous concrete wearing surface. The cost for removal and disposal of the existing pavement shall be a subsidiary obligation of Item 424A-____.

This note may be shown on the project note sheet and keyed to the pavement removal on the typical section.

- Show equation or paving exception stations and a note stating transition requirements, if needed. Symbols can be used to relate features with project or general notes.
- List only applicable GN-2 notes and “Project Notes” that are relevant to the typical(s) on that particular typical section sheet. For turn lanes with a materials buildup the same as the mainline, add a note to see paving layout sheets for dimensions, tapers, etc. For turn lanes with a different materials build-up than the mainline, a turn lane typical section is required.
- Provide typical roadway ditch depth and width. If the roadway contains any curb and gutter sections, provide a curb and gutter detail showing material placement and thickness. Provide details for any modified curb sections. A modified curb is defined as a curb with dimensions that differ from the standard dimensions as shown on Special Drawing 623-XY.
- Display normal cut and normal fill sections as a solid line on each typical, e.g., left side cut and right side fill.
- Special ditch liners should be shown as ditch typical sections with dimensions. Pay items should be specified on typical sections. A special ditch box should be added to the quantities sheets that show station ranges, slopes, etc.
- Note all dimensions of roadbed, lanes, and shoulder widths and provide a dimension from the roadway centerline or base line. Decimals should be used when incremental horizontal dimensions need to be denoted, not inches. Examples of proper horizontal dimensioning are 12’ not 12.00’ or 2.5’ not 2’ - 6.” Vertical dimensions are typically in inches (18”, not 1’ - 6” or 1.5’).
- Label the approximate pavement thickness of in place roadway pavement and shoulder pavement that will be removed or retained. This should be noted in parenthesis at the end of the in-place layer description shown in the “Required and In-Place Materials Legend.”

Pavement Slopes

- Indicate the cross slope for all required layers of surface, base, subbase, widening, and shoulders. Display a small circle at slope breaks for the top material layer. The required pavement cross slope should be labeled as “**Match Existing,**” unless the LPA plans to correct substandard pavement cross slopes as part of the scope of work for the project. For minor cross slope corrections due to rutting, settlement, etc., the following project note may be added to the plans:

THE LOCATION AND RATE OF PLACEMENT OF LEVELING SHALL BE AS DIRECTED BY THE ENGINEER.

- If the LPA plans to correct the pavement cross slopes as an overall part of the project, then the typical section should indicate the required cross slope; e.g., 2% or “e.” The required superelevation drawing(s) should be indexed, or superelevation diagrams should be provided at the top of the profile view on the Plan and Profile sheets.
- Horizontal curve data should be included in the plans. A box summary should be provided that indicates the following items: ① Station to station limits for the cross slope corrections, ② Existing superelevation or cross slope rate, ③ Required superelevation or cross slope rate, ④ Estimated leveling quantity required for cross slope corrections. See Chapter 10, pages 10.21 and 10.22, for guidance on evaluating superelevation corrections for horizontal curves.
- Proposed front slopes and back slopes should indicate the maximum slopes, e.g., 3:1 Max. If a cut and/or special ditch is required, show this on the typical section, and detail the ditch appropriately (i.e., front slope, back slope, width, and depth). **Please Note - Front slopes steeper than 3:1 are considered critical. If slopes steeper than 3:1 are proposed, they should be stabilized with erosion control product or riprap and protected with guardrail and guardrail end treatments per the “guardrail warranty for embankment criteria” found in the applicable [ALDOT Special and Standard Highway Drawings](#).**
- Indicate the profile grade (PG) with a callout. Divided highways may have a profile grade for each roadway direction.
- Provide a detail (station limits, width(s), depth(s) and required materials) for any undercut that may be required.
- Reference **GN-2 notes** pertaining to the typical section only. List all applicable GN-2 notes on the typical section sheet, if there are no plan & profile sheets in the plan assembly.

PROJECT NOTES SHEET - GENERAL GUIDELINES

Number all notes according to the following schedule:

200 - 299	Typical Section Notes
300 - 399	Summary of Quantity Sheet Notes
400 - 499	Plan/Profile Sheet Notes
500 - 599	Signal Sheet Notes
600 - 699	Electrical Sheet Notes
700 - 799	Traffic Control Sheet Notes
800 - 899	Utility Sheet Notes
900 - 999	Railroad Notes / ALDOT Environmental Notes (Project Notes 900 - 906 are reserved for specific environmental project notes) / Any notes that apply to other specific sheets
1000 Series	Sign Notes
1100 Series	ITS Plan Notes
1200 Series	Traffic Monitoring Notes

- The project note number sequence shall be numbered consecutively with no skip(s) in sequence within a project note series. For example, the 200 series project notes, 300 series project notes, 400 series project notes, etc. are all considered separate project series.
- An “OMITTED” designation can be used for project note numbers to maintain a consecutive number sequence. This will allow apply to 900 series notes that are reserved for certain items that may not be needed in a given project.

All numbered notes are to be placed under the appropriate category on a special project note sheet. The project notes sheet(s) should be placed after the typical section sheet in the plan assembly. Do NOT list GN-2 notes on the project note sheet. **Leave space between each project note category** so that additional notes may be inserted if needed.

The following project notes are recommended for use on LPA projects, as applicable:

Drainage Sump Excavation (quantities under 500 cu. yds.)

ANY REQUIRED DRAINAGE SUMP EXCAVATION SHALL BE PERFORMED IN ACCORDANCE WITH SUBARTICLE 665.04(o) OF THE STANDARD SPECIFICATIONS. THIS WORK SHALL BE PAID FOR AS UNCLASSIFIED EXCAVATION. (reference to “Standard Specifications” in this note may require modification if any general application special provisions apply).

Erosion Control Notes

EROSION AND SEDIMENT CONTROL ITEMS HAVE BEEN SET UP TO BE USED AS DIRECTED BY THE ENGINEER.

THE LPA WILL PROVIDE AND MAINTAIN ALL NECESSARY EROSION AND SEDIMENT CONTROL ITEMS IN ACCORDANCE WITH STANDARD SPECIFICATIONS AND/OR APPLICABLE SPECIAL PROVISIONS AND ESC DRAWINGS AT NO COST TO THE PROJECT. AT THE COMPLETION OF THE CONTRACTOR’S WORK, THE LPA SHALL ASSUME RESPONSIBILITY FOR THE MAINTENANCE AND REMOVAL OF ALL EROSION AND SEDIMENT CONTROL ITEMS. (Applicable for BR projects when the LPA is completing the approach work)

Guardrail Notes

FILLS SHALL BE WIDENED TO ACCOMMODATE GUARDRAIL INSTALLATION AS SHOWN ON APPROPRIATE GUARDRAIL AND GUARDRAIL END ANCHOR DRAWINGS. THIS WORK WILL BE PERFORMED BY LPA FORCES AT NO COST TO THE PROJECT. THIS WORK SHALL INCLUDE ALL EROSION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH STANDARD SPECIFICATIONS AND/OR APPLICABLE SPECIAL PROVISIONS AND ESC DRAWINGS.

REQUIRED GUARDRAIL WHICH IS TO BE BENT TO A ___' RADIUS, SHALL BE SHOP-FORMED. THE RAIL SHALL BE INSTALLED USING BREAKAWAY WOOD POST WITHOUT BLOCKOUTS THROUGH THE LIMITS OF THE RADIUS. GUARDRAIL THROUGH THE LIMITS OF THE RADIUS, INCLUDING THE COST OF BENDING, SHALL BE PAID FOR UNDER ITEM 630A-_____. THE GUARDRAIL SHALL BE TERMINATED WITH A " ___★ ANCHOR" AS DETAILED ON SPECIAL DRAWING GA-630-_____.

★Note: Type 8 MASH anchors shall be used on residential or private drives only. The steel tube option is recommended due to right-of-way constraints. Type 8 MASH anchors should not be used on public roads.

Leveling Note - (when not shown as a full width layer on the typical section)

THE LOCATION AND RATE OF PLACEMENT OF LEVELING SHALL BE AS DIRECTED BY THE ENGINEER.

Precast Bridge Notes (approach work by LPA)

ITEM 210D-_____ HAS BEEN SET UP FOR THE CONTRACTOR'S USE IN CONSTRUCTING THE REQUIRED FILL FOR THE WIRE ROPE ABUTMENT ANCHOR ASSEMBLIES. THE CONTRACTOR SHALL FILL BRIDGE ENDS, EXTENDING FROM WINGWALL TO WINGWALL AND FROM ENDS OF BRIDGE TO A MINIMUM OF 10 FEET BEHIND TIEBACK PILING. FILL SHALL BE PLACED AND COMPACTED BY THE CONTRACTOR TO REQUIRED SUBGRADE ELEVATION, OR ONE FOOT ABOVE TIEBACK CABLES, WHICHEVER IS LESS. COST SHALL BE A SUBSIDIARY OBLIGATION OF ITEM 507A-000, WIRE ROPE ABUTMENT ANCHOR ASSEMBLY.

THE CONTRACTOR SHALL CONSTRUCT ABUTMENT FILL AT BRIDGE ENDS, EXTENDING FROM WINGWALL TO WINGWALL AND FROM ENDS OF BRIDGE TO A MINIMUM OF 10 FEET BEHIND TIEBACK PILING WITH FILL PROVIDED BY THE _____ (COUNTY/CITY). THIS MATERIAL WILL BE PROVIDED BY THE LPA AT NO COST TO THE PROJECT. FILL SHALL BE PLACED AND COMPACTED BY THE CONTRACTOR TO REQUIRED SUBGRADE ELEVATION OR ONE FOOT ABOVE TIEBACK CABLES, WHICHEVER IS LESS. COST SHALL BE A SUBSIDIARY OBLIGATION OF ITEM 507A-000, WIRE ROPE ABUTMENT ANCHOR ASSEMBLY. THE CONTRACTOR SHALL GIVE _____ HOURS (_____ DAYS) NOTICE TO THE LPA PRIOR TO NEEDING THE MATERIAL.

Railroad Notes

Applicable railroad notes should be listed under the 900 series Project Notes. Please note that Project Notes 900 - 906 are reserved for specific environmental project notes. The general project notes are applicable for all project plans with railroad involvement. Other notes listed below under the individual railroad company are subsidiary to the standard general notes and should be applied as needed.

LEGEND:

- ✓ Applicable for bridge replacement projects.
- ☐ Applicable for any resurfacing and minor widening projects or for new and/or reconstructed roadway projects.
- ∅ Applicable, as needed, for projects where work is being performed by the railroad.

GENERAL PROJECT NOTES

- ✓ ☐ ∅ THE CONTRACTOR SHALL REVIEW THE RAILROAD PROJECT SPECIAL PROVISION FOR ADDITIONAL INFORMATION, PROCEDURES, AND COMPLIANCE.
- ✓ ☐ THE CONTRACTOR FOR THE STATE SHALL NOTIFY THE RAILROAD COMPANY IN WRITING A MINIMUM OF 10* DAYS BEFORE WORK IS TO BE STARTED ON OR NEAR THE RAILROAD'S RIGHT-OF- WAY. REFERENCE THE RAILROAD PROJECT GENERAL APPLICATION SPECIAL PROVISION FOR CONTACT INFORMATION.

(*For Norfolk Southern, BNSF and CSX Railroad projects change 10 days to 30 days.)
- ✓ ☐ THE CONTRACTOR SHALL CONTACT THE RAILROAD FOR INFORMATION ON RAILROAD SAFETY TRAINING AND ALL PERSONS WORKING ON OR OVER THE RAILROAD'S RIGHT-OF-WAY MUST COMPLY WITH RAILROAD SAFETY RULES.
- ∅ THE RAILROAD SHALL FURNISH AND INSTALL ALL MATERIALS FOR 2-30' CANTILEVER SIGNALS, 2-35' GATES, BELLS, THE 81' OF CROSSING SURFACE AND MOTION DETECTORS AND INVOICE THE STATE FOR THE ACTUAL COST THEREOF.
- ∅ THE RAILROAD COMPANY SHALL NOTIFY THE STATE IN WRITING A MINIMUM OF 10 DAYS BEFORE WORK IS TO BE STARTED ON THIS PROJECT.
- ∅ THE RAILROAD SHALL FURNISH AND INSTALL ALL MATERIALS FOR RAILROAD SIGNALS AND CROSSING SURFACES AND INVOICE THE STATE FOR THE ACTUAL COST THEREOF.
- ∅ ALL NECESSARY TRAFFIC CONTROL DEVICES (SIGNS, CONES, FLAGGERS, ETC.) WHICH ARE REQUIRED WHEN WORK IS BEING PERFORMED BY THE RAILROAD SHALL BE FURNISHED BY THE CONTRACTOR AND PAID FOR UNDER THE APPROPRIATE ITEMS OF WORK.
- ✓ ☐ ∅ THE CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO PROTECT ALL EXISTING CROSSING SIGNALS, GATES, & ANY OTHER CROSSING RELATED EQUIPMENT FROM DAMAGE FOR THE DURATION OF THE PROJECT.

NORFOLK SOUTHERN RAILROAD SPECIFIC PROJECT NOTES

- ✓ ☐ ALL WORK ON, OVER, UNDER, OR ADJACENT TO NORFOLK SOUTHERN (NS) RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH THE NORFOLK SOUTHERN "PUBLIC PROJECT MANUAL".
- ✓ ☐ "ONE CALL" SERVICES DO NOT LOCATE BURIED RAILROAD SIGNAL AND COMMUNICATIONS LINES. THE CONTRACTOR SHALL CONTACT THE RAILROAD'S REPRESENTATIVE SEVEN (7) DAYS IN ADVANCE OF THOSE PLACES WHERE EXCAVATION, PILE DRIVING, OR HEAVY LOADS MAY DAMAGE RAILROAD UNDERGROUND LINES ON RAILROAD PROPERTY. UPON REQUEST FROM THE CONTRACTOR OR AGENCY, RAILROAD SIGNAL FORCES WILL LOCATE AND PAINT MARK OR FLAG RAILROAD UNDERGROUND SIGNAL, COMMUNICATION, AND POWER LINES IN THE AREA TO BE DISTURBED FOR THE CONTRACTOR. THE CONTRACTOR SHALL AVOID EXCAVATION OR OTHER DISTURBANCE OF THESE LINES WHICH ARE CRITICAL TO THE SAFETY OF THE RAILROAD AND THE PUBLIC. IF DISTURBANCE OR EXCAVATION IS REQUIRED NEAR A BURIED RAILROAD SIGNAL, COMMUNICATION, OR POWER LINE, THE LINE SHALL BE POTHOLED MANUALLY WITH CAREFUL HAND EXCAVATION BY

THE CONTRACTOR AND PROTECTED BY THE CONTRACTOR DURING THE COURSE OF THE DISTURBANCE UNDER THE SUPERVISION AND DIRECTION OF A RAILROAD SIGNAL REPRESENTATIVE.

- ✓ NORFOLK SOUTHERN WILL BE PROVIDED AS-BUILT DRAWINGS SHOWING THE ACTUAL CLEARANCES AS CONSTRUCTED. DEPTH, SIZE, AND LOCATION OF ALL FOUNDATION COMPONENTS SHALL BE SHOWN ON THE DRAWINGS.
- ✓ PRIOR TO COMMENCING WORK, THE CONTRACTOR MUST REQUEST FROM THE RAILROAD AND FOLLOW THE LATEST VERSION OF THE "SPECIAL PROVISIONS FOR PROTECTION OF RAILWAY INTERESTS".
- ✓ ALL UTILITY INSTALLATIONS OR RELOCATIONS THAT ARE REQUIRED IN CONJUNCTION WITH THIS PROJECT CAN BE INSTALLED OR RELOCATED AS PART OF THE PROJECT PROVIDED THE CONSTRUCTION IS PERFORMED BY THE PROJECT CONTRACTOR OR PROJECT CONTRACTOR'S SUBCONTRACTOR. HOWEVER, THE UTILITY MUST SUBMIT AN APPLICATION FOR THE INSTALLATION OR RELOCATION TO NS PIPE AND WIRE FOR APPROPRIATE HANDLING FOR LICENSE AGREEMENT AND APPLICABLE FEES. FOR UTILITY APPLICATIONS GO TO: WWW.NSCORP.COM>REAL ESTATE>NS SERVICES>WIRE, PIPELINE, AND FIBER OPTICS PROJECTS. NOTE: LICENSE AGREEMENT MUST BE EXECUTED PRIOR TO UTILITY BEING INSTALLED OR RELOCATED.

CSX TRANSPORTATION SPECIFIC PROJECT NOTES

- ✓ ALL WORK ON, OVER, UNDER, OR ADJACENT TO CSXT RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH THE CSXT SPECIAL PROVISIONS, WHICH CAN BE FOUND WITHIN THE CSXT PUBLIC PROJECTS MANUAL, AVAILABLE AT:
[HTTPS://WWW.CSX.COM/INDEX.CFM/LIBRARY/FILES/ABOUT-US/PROPERTY/PUBLIC-PROJECT-MANUAL/](https://www.csx.com/index.cfm/library/files/about-us/property/public-project-manual/)
- ✓ RAILROAD INSURANCE IS REQUIRED PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES ON CSXT RIGHT OF WAY. SUBMIT RAILROAD INSURANCE TO CSXT AT INSURANCEDOCUMENTS@CSX.COM FOR CSXT REVIEW AND APPROVAL. WORK WILL NOT BE ALLOWED WITHIN THE CSXT RIGHT OF WAY WITHOUT THE INSURANCE APPROVAL FROM CSXT AND A RAILROAD FLAGMAN CANNOT BE SCHEDULED. NOTE APPROVAL OF INSURANCE CAN TAKE UP TO 30 TO 45 DAYS.
- ✓ THE ENGINEER SHALL BE KEPT AWARE OF THE CONSTRUCTION SCHEDULE. THE CONTRACTOR SHALL PROVIDE TIMELY COMMUNICATION TO THE ENGINEER WHEN SCHEDULING THE WORK SUCH THAT THE ENGINEER MAY BE PRESENT DURING THE WORK. THE CONTRACTOR'S SCHEDULE SHALL NOT DICTATE THE WORK PLAN REVIEW SCHEDULE, AND FLAGGING SHALL NOT BE SCHEDULED Prio TO RECIEPT OF AN ACCEPTED WORK PLAN.
- ✓ NO WORK SHALL TAKE PLACE WITHIN 50 FEET OF THE CENTERLINE OF THE CSXT TRACK WITHOUT A RAILROAD FLAGMAN BEING PRESENT. PROVIDE THE CSXT FIELD REPRESENTATIVE WITH AT LEAST THIRTY (30) BUSINESS DAYS ADVANCE NOTICE OF BEGINNING WORK WITHIN THIS AREA TO ALLOW FOR THE SCHEDULING OF THE RAILROAD FLAGMAN.
- ∅ ALL WORK WITHIN 5 FT OF THE CENTERLINE OF TRACK AT THE CROSSING WILL BE PERFORMED BY THE RAILROAD OR THEIR SUB-CONTRACTOR.
- ✓ THE CONTRACTOR SHALL MAINTAIN ALL DITCHES AND DRAINAGE STRUCTURES FREE OF SILT OR OTHER OBSTRUCTIONS THAT MAY RESULT FROM THEIR OPERATIONS. THE CONTRACTOR UPON COMPLETION OF THE PROJECT, SHALL LEAVE CSXT PROPERTY IN A NEAT CONDITION, SATISFACTORY TO THE CSXT REPRESENTATIVE.
- ✓ THE CONTRACTOR MAY NOT USE CSXT RIGHT-OF-WAY FOR STORAGE OF MATERIALS OR EQUIPMENT DURING CONSTRUCTION WITHOUT PRIOR APPROVAL FROM CSXT.

BURLINGTON NORTHERN SANTA FE RAILROAD SPECIFIC PROJECT NOTES

- ✓ THE CONTRACTOR FOR THE STATE SHALL EXECUTE BNSF RAILWAY'S EXHIBIT C AND C1 AGREEMENT IDENTIFYING CONTRACTOR REQUIREMENTS.
- ✓ THE CONTRACTOR WILL BE REQUIRED TO SUBMIT PLANS ACCORDING TO BNSF GUIDELINES FOR APPROVAL. THESE PLANS INCLUDE, BUT ARE NOT LIMITED TO, SHORING, FALSEWORK, DEMOLITION, ERECTION, AND DRILLING SHAFT PLANS.

ILLINOIS CENTRAL RAILROAD SPECIFIC PROJECT NOTES

- ✓ IN ACCORDANCE WITH SPECIAL PROVISION 22-RR0004, SECTION 7 FLAGGING SERVICE, THE COUNTY WILL CONTRACT DIRECTLY WITH WATCO AND PAY THE RAILROAD DIRECTLY FOR FLAGGING SERVICES. THE CONTRACTOR SHALL PROVIDE AT LEAST ONE MONTH'S NOTICE PRIOR TO THEIR FIRST USE OF FLAGGERS.

CANADIAN PACIFIC KANSAS CITY and WATCO RAILROAD SPECIFIC PROJECT NOTES

- ✓ THE CONTRACTOR SHALL INSTALL THE NECESSARY EROSION CONTROL ITEMS TO PREVENT THE FILL SLOPES FROM CONTAMINATING THE RAILROAD BALLAST.

Required Shoulder Work Note - LPA Forces

ALL REQUIRED SHOULDER WORK, INCLUDING SHOULDER WIDENING FOR GUARDRAIL, WILL BE PERFORMED BY LPA FORCES AT NO COST TO THE PROJECT. THIS WORK SHALL BE COMPLETED WITHIN 15 DAYS OF COMPLETION OF THE PAVING OPERATIONS BY THE CONTRACTOR. ALL OTHER ITEMS OF WORK DEEMED NECESSARY FOR THE SATISFACTORY COMPLETION OF THE PROJECT FOR WHICH PAY ITEMS ARE NOT SHOWN SHALL BE PERFORMED BY THE LPA AT NO COST TO THE PROJECT.

Right of Way Markers Note

ALL REFERENCES TO "ALDOT" SHOWN ON THE REQUIRED RIGHT-OF-WAY MARKERS, AS DETAILED ON SPECIAL DRAWING M-602, SHALL BE CHANGED TO "TOWN/CITY OF _____" (OR "_____ COUNTY"). COST OF THIS WORK SHALL BE CONSIDERED A SUBSIDIARY OBLIGATION OF ITEM NO. 602A-000.

Roadbed Processing and Widening Notes

The following project note should be shown for resurfacing projects **with no widening**:

ROADBED PROCESSING IS WAIVED FOR PAVED TURNOUTS AT UNPAVED INTERSECTING ROADS AND DRIVEWAYS. SUBGRADE IS TO BE BLADED, SHAPED, AND COMPACTED TO THE SATISFACTION OF THE ENGINEER. ASPHALT USED FOR THESE TURNOUTS SHALL BE COMPACTED TO THE SATISFACTION OF THE ENGINEER. COST TO BE A SUBSIDIARY OBLIGATION OF ITEM _____.

The following three project notes should be shown for any projects **with minor widening**:

- (1) WIDENING OPERATIONS SHALL BE LIMITED TO ONE SIDE OF THE ROAD AT A TIME.
- (2) ROADBED PROCESSING IS WAIVED IN WIDENING AREAS AND AT UNPAVED INTERSECTING ROADS AND TURNOUTS. SUBGRADE IS TO BE COMPACTED TO THE SATISFACTION OF THE ENGINEER. ASPHALT USED FOR THESE TURNOUTS SHALL BE COMPACTED TO THE SATISFACTION OF THE ENGINEER. COST TO BE A SUBSIDIARY OBLIGATION OF ITEM _____.

- (3) CONTRACTOR SHALL SCHEDULE HIS WORK WHERE CUTTING OUT OF THE SHOULDERS DOES NOT EXCEED THE AMOUNT OF WIDENING COMPLETED EACH DAY.

Salvageable Material Notes

MATERIAL DEEMED SALVAGEABLE BY THE ENGINEER DURING REMOVAL OF THE BRIDGE SHALL BE STOCKPILED ON THE PROJECT RIGHT-OF-WAY AT A LOCATION AS DIRECTED BY THE ENGINEER. COST TO BE A SUBSIDIARY OBLIGATION OF ITEM 206A- _____. ALL OTHER MATERIALS IN THE EXISTING BRIDGE TO BE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR UPON REMOVAL.

THE LPA SHALL RETAIN POSSESSION OF THE EXISTING GUARDRAIL AND POST TO BE REMOVED. THE GUARDRAIL AND POST SHALL BE STOCKPILED ON THE PROJECT RIGHT-OF-WAY AT A LOCATION AS DIRECTED BY THE ENGINEER TO BE PICKED UP BY LPA FORCES.

Utility Notes

Applicable note for projects with no plan sheets and no conflicts:

THERE ARE NO KNOWN UTILITY CONFLICTS INVOLVED WITH THIS PROJECT.

Applicable note for projects with plan sheets and/or utility sheets:

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE VARIOUS UTILITY OWNERS AND DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES ON THIS PROJECT WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. THE LOCATION OF ANY REQUIRED RETAINING WALL, SIGNS, FOOTING OF ANY NATURE AND/OR ELECTRICAL/COMMUNICATIONS CONDUITS MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER TO PREVENT ANY CONFLICTS WITH THESE UTILITIES. (Note: When there are no known utility conflicts you should add, "There are no known utility conflicts involved with this project" to the beginning of the above written 800 series note).

SUMMARY OF QUANTITIES SHEET - GENERAL GUIDELINES

- The first summary sheet shall have the sheet number "3". Successive sheets will be 3A, 3B, etc.
- All text on these sheets shall be all upper-case.
- Show the unique item number, description, and unit exactly as written on the Alabama Department of Transportation Item Description List. This list can be obtained from the [Bureau of Office Engineer web page](#).
- A table with grid lines shall be used to separate columns and pay items.
- A column titled "Project Notes" shall be on the right side of the "Item Description." In this column list the relevant project note number from the Project Note Sheet for the pay items a project note has been specified for.

- List required items in numeric/alpha order by ALDOT pay item and unique number (e.g., 210A-000, 210A-002, 210B-001, 214A-000).
- Do not show decimals or commas in the quantity columns, except for “Lump Sum” pay items, when the quantity is prorated based on multiple sites within a project, or another project is included in the bid proposal.
- Separate bridge quantities from roadway quantities. An exception is permitted for bridge replacement projects with no approach work when the roadway items are incidental to the bridge or bridge culvert construction, e.g., guardrail, rip-rap, silt fence, hay bales, etc. If two (2) or more bridges are involved in the project, a summary box must be provided indicating quantities for each bridge and the total for each item shown on the main summary sheet.
- Place Bridge and Bridge Culvert items in the Bridge Column (include structure excavation, foundation backfill, concrete, and steel for bridge culverts).
- Removal of Old Bridge is always listed in the Bridge Column on the pay sheet.
- Removal of Old Bridge Culvert is always listed in the Bridge Column on the pay sheet.
- Separate quantities for non-Federal participating and Federal participating.
- Projects using two types of funding must have the quantities separated by funding category and a total column included.
- When quantities are split between two or more categories, a total column is required.

SUMMARY OF QUANTITIES BOX SHEETS - GENERAL GUIDELINES

- A general description should be used for each individual summary box (“REQUIRED ____” or “REQD _____”), with column subheadings showing the item description and unique items number for each specific pay item. List any applicable drawings and project detail sheet numbers that are relevant to the pay items. Include remarks as needed.
- Each box should include similar items (e.g., signs with sign posts) and provide enough information for the items to be located and quantified in the plans.
- Do not place zeros (0) in any column on the box sheets. Decimals may be placed in certain quantity columns, such as guardrail or minor structure concrete, but all total columns shall be whole numbers that have been rounded up. Commas shall not be used to separate numerical digits.
- When quantities for an item appear in two or more places throughout the plans, a cross-referencing statement should be noted, e.g., SEE SHEETS ____ AND ____ FOR ADDITIONAL QUANTITIES.

- Provide total in total columns for items that transfer to the summary of quantities sheet. Two exceptions would be “Concrete Collars” (this item is paid for as minor structure concrete) and “Drainage Sump Excavation” when estimated quantities are under 500 cu. yds. (this quantity is paid for as unclassified excavation - see page 2.28 for additional information). If an item does not have a unique item number, do not provide a column total.
- A summary box is required for bridges and/or bridge culverts when more than one is required within the project limits.
- The cumulative item total shown on all box sheets throughout the plans for a pay item shall be transferred to the Summary of Quantities sheet(s).

Reminders

- Set up precast/cast-in-place alternates for junction boxes, inlets, manholes, pipe end treatments, and culverts unless Chief Engineer approval is obtained to exclude an option.
- Do not set up structure excavation and foundation backfill for side drain pipe. It is included in the bid price.
- If temporary pipe is used under Item 530A, be sure to provide for the removal & disposal of the pipe in the summary box. Structure excavation, foundation backfill quantities, and applicable standard/special drawings shall be included in the box.

Removal of Old Bridge or Bridge Culverts

- A separate unique item number should be provided for each existing bridge structure to be removed. Give a detailed description of the bridge to be removed in a summary box. Include the stations, length and width, number of spans, deck type, superstructure, and substructure types. On the Plan and Profile sheet(s), flag the in place bridge structure, provide the stationing, and indicate that the bridge is to be removed.
- Removal of existing bridges should be paid for under Item No. 206A-____, Removal of Old Bridge, Station _____.
- Removal of existing culverts, or bridge culverts, should be paid for under Item No. 206B-____, Removal of Old Box Culvert, Station _____.

Channel Excavation

- Show a column and the quantity of channel excavation in the roadway culvert and bridge culvert summary boxes, if required.
- Show the traverse and channel excavation limits on the plan view of the plan/profile sheet and include cross sections in the plan assembly.

Permanent Traffic Striping

- A striping summary box should be included for all projects in which striping is to be performed. Quantities for all striping items utilizing “per mile” or “linear foot” units should be shown to two decimal places in the sub-total columns and rounded up to the next even mileage (no decimals) in the total column. The LPA has the option to use 4” centerline and edge line striping. **Refer to the *MUTCD, current edition* for guidance as to when centerline and edge line striping is required.**

Temporary Traffic Striping

- Temporary striping is not required on LPA federal aid projects with current ADT’S less than 3000. While the use of temporary striping is encouraged, it is optional and will be based on the LPA Representative’s recommendation. Quantities should be rounded as noted under the “Permanent Traffic Striping” guidelines.

Traffic Control Markings and Legends

- Show locations for “Traffic Control Markings” (stop lines, yield lines, railroad markings, pavement arrows, etc.) and/or “Traffic Control Legends” by station locations (left or right) or location description, e.g., Stop Line - Station 145+00 Left, or Stop Line - Hailey Road Intersection.

Erosion and Sedimentation Control Box

- Show stations, items, quantities, and special drawings columns. See pages 2.36 - 2.42 for “Erosion and Sediment Control Procedures.”
- When the item of “Drainage Sump Excavation” (Item 665K-000) is required, **the Construction Bureau has requested that the pay item ONLY be set up for projects involving quantities of 500 cubic yards or greater.** If less than 500 cubic yards of drainage sump excavation is anticipated during construction, the quantity will be paid for under the item of “Unclassified Excavation.” The column heading in the box summary should contain the heading “Drainage Sump Excavation,” but not show the unique item number. In such cases, the quantity should be keyed and referenced to the sump excavation project note (see page 2.20).
- The estimated quantity should be clearly noted in the plans. If cross sections are included in the plans, the earthwork summary should show a separate estimated quantity for the drainage sump excavation under the unclassified excavation totals, as shown in the example below.

Unclassified Excavation (Cross Sections)	1365 Cu. Yds.
Unclassified Excavation (Drainage Sump)	<u>325 Cu. Yds.</u>
Total Unclassified Excavation	1690 Cu. Yds.

PLAN AND PROFILE SHEETS - GENERAL GUIDELINES

- When the plan view and profile views are broken on two different sheets the title “Plan Sheet” and “Profile Sheet” shall be used as the title on the respective sheet.
- The first plan/profile sheet should always be sheet no. 4 in the plan assembly.
- The order of plan/profile sheets by roadway type should be the following:
 - a. Mainline
 - b. Side roads
 - c. Ramps
 - d. Driveways
 - e. Other
- Show any GN-2 notes and “Project Notes” that are applicable to the plan & profile portion of the plans on the **first plan and profile sheet only** (sheet number 4). **Do not list any GN-2 notes that apply to the typical section sheet(s).**
- Show names, addresses, phone numbers, and contact person (optional) for all utilities located within the project limits on the first plan and profile sheet (sheet number 4), if **separate utility sheets are not included in the plans**. When separate utility sheets are included in the plan assembly, the utility contact information should be excluded from the plan and profile sheet and be shown on the first utility sheet.
- The plan/profile sheet displays the project's horizontal and vertical alignments in reference to existing elements and illustrates a majority of the required items of work. When possible, the sheet should display the plan view along the top of the page with the profile view, representing the same station to station limits, shown on the bottom portion of the same page. When the required scales result in a plan view or profile view that is too big to fit both on the same page, then the sheet number of the profile view will be the plan view sheet number with the suffix of “A.” For example, if the plan view of sheet 5 displays the horizontal alignment from station 135+00 through station 160+00 then sheet 5A will display the profile view from station 135+00 through station 160+00.
- Plotting should typically be performed at a horizontal scale of 1" = 50' on a full-size plan sheet (22" x 34"). A scale of 1" = 100' can be used on a full-size plan sheet when there are limited topographic features and the information can be clearly displayed. As a general rule, bridge replacement projects, with limited approach work, should be plotted on scale of 1" = 50' if it can be fitted on a single plan sheet. Scales should be noted for both plan and profile views by use of a bar scale. This enables an accurate estimate of distances or scaled measurements in case the scale of the plans has been altered by electronic copying. Please note that full size plan sheets are reduced and copied to half size plan sheets (11" x 17") when plan proposals are sold. Therefore, all elements shown and labeled on a full-size plan sheet must be legible when reduced to half size.

Plan View General Guidelines

- The baseline survey and/or centerline of construction should be centered in the plan portion of the sheet. For North/South roadways, the roadway shall be stationed from south to north, with the southernmost station beginning on the left side of the plan sheet. For East/West roadways, the roadway shall be stationed from west to east, with the western most station beginning on the left side of the plan sheet. For resurfacing projects, simple projects, or sections of a project without a profile view, "stacking" multiple plan views on one sheet is generally permitted if clarity and legibility are maintained. When multiple plan views are shown on a plan sheet, they shall be stacked from top to bottom with a line dividing the two views.
- Stationing should be noted by a "major tick" mark placed perpendicular and across the centerline at every 500' station. In addition, "intermediate tick" marks should be placed at 100' stations. Intermediate ticks shall begin at the centerline and be placed perpendicular to it. The intermediate tick marks should be half the length of the major tick marks.
- Station numbers should be placed close to tick marks for scales up to and including 1" = 50' and outside the right-of-way lines for smaller scales. Place station numbers at 500' stations.
- A north arrow shall be shown at a point of maximum visibility, preferably in the upper right portion of the plan view.
- PC and PT points of horizontal curves shall be indicated by small circles with short radial lines drawn from these points and identified. **Unless already shown on geometric layout sheets**, curve data shall be displayed for each horizontal curve using the following format:

P.I. Station	P.I.	=
Degree of Curve	D	=
Deflection Angle (left or right)	Δ	=
Radius	R	=
Tangent Length	T	=
Curve length	LC	=
Superelevation Rate (e)	e	=

- Care must be taken in the clipping of plan sheets to properly orient the horizontal curves within the plan view. In cases where the curve extends over more than one sheet, the curve data should be repeated on each sheet showing the curve.
- The project construction limits should be shown and labeled. **Construction limits are defined as proposed earthwork limits (with no offset buffer) with modifications made to these limits for other work such as the construction of drainage structures, channel diversions, sedimentation/detention basins, ditches, energy dissipation structures/devices, etc.** Basic erosion/sediment control items and clearing and

grubbing are not considered most of times when setting initial construction limits; however, an adequate buffer should be considered that will allow drainage detention and sediment basin placement at larger cross-drains. As a general rule, it will be the point at which the fill slope, or back slope in a cut section, ties into natural ground as depicted on the cross sections.

- Label and flag the beginning/ending work limits and beginning/ending project limits on the mainline, and the end work limits on side roads, ramps, etc.
- Existing right-of-way shall be labeled as “Present ROW” (PRES ROW). Required or additional right-of-way shall be labeled as “Acquired ROW” (ACQD ROW). The limits of the right-of-way should be displayed with notation of the incremental station distance and offset distance from the project centerline when changes to the present right-of-way and/or acquired right-of-way transition distances occur. Right-of-way dimensions should be shown a minimum of two (2) times on each plan sheet (once on the left side of the sheet and once on the right side of the sheet) even in areas where the right-of-way width remains constant, and no transitions occur. When the acquired right-of-way connects with the present right-of-way, do not label the right-of-way point as “Tie to Present ROW.” Always use a station and offset distance to describe an acquired right-of-way point and/or when tying to the existing right-of-way. Except in unusual situations, right-of-way should be shown as a whole station (e.g., 16+32) and horizontal offsets in whole feet (+50). When not shown as above, the degree of accuracy should not exceed 1/100.
- Show and label construction easements and/or drainage easements (temporary or permanent) using a station and offset distance as noted above.
- Show property lines and property owners.
- All major existing topography should be shown. Existing roads, streets, drives, buildings, walls, curbs, pavements, fences, railroads, bridges, drainage structures, control points, and related items shall be plotted and labeled. Refer to ALDOT [“Plan Legends”](#) sheets for appropriate abbreviations and line symbology for topography features. Existing topography within the right-of-way shall be labeled as “existing” or “in place.” Label the disposition of existing topography, such as “retain,” “remove,” “partially remove,” etc. Label structures to be removed with appropriate symbol and structure number. Streams, wetlands, ponds, lakes, wooded areas, ditches, and all other physical features shall also be shown. Existing gasoline storage tanks within limits of topographical survey shall be located and labeled. Hazardous material site(s) shall be shown and labeled. Existing topographic survey data may be shaded so that required elements are easier to view. Existing pavement shall be shaded appropriately as designated on the “Plans Legend Sheet.”
- Required items shall be shown and labeled as “Required” (REQD).
- Bearings, in the direction of stationing, shall be shown for all tangent sections.

- Station equivalencies, angles with mainline centerline and/or bearings in the direction of stationing of the crossroad shall be shown for all roads and streets intersecting or crossing the project.
- All the survey control points shall be shown.
- Label any exceptions and/or equations.
- Proposed roadway cross drain pipes, side drain pipes, inlets, manholes, junction boxes, etc., shall be shown. Roadway cross drain pipe sizes and type shall be shown. All required roadway cross drain pipe and storm sewer pipe shall be flagged at each end by a circle with the index number in the top half of the circle and the drainage sheet number that contains the detailed drainage section within the lower half of the circle. The index numbers shall be assigned with the lower number at the inlet and the larger number at the outlet. Side drains pipes shall have the letters “SD” in the top half of the identification circle with the drainage structure index number in the lower half of the circle (see ALDOT “Plans Legend” sheet for guidance).
- Required special ditches (ditches that deviate from the typical section ditch horizontally or vertically or have a special liner shall be shown.
- Box culvert size and length shall be shown. Box culverts (single or multiple) of 20 feet total span or more (measured from the extreme ends of openings along the centerline) shall be designated as bridge culverts and shall be identified by both a Bridge Identification Number (BIN) and a drainage structure number. The beginning and ending stations (inside wall to inside wall) shall be flagged and labeled.
- Proposed bridges and approach bridge end slabs shall be shown by simple outline. Bridges shall be identified by BIN, length of bridge, and the beginning and ending stations noted by station flags. The beginning and ending stations of bridge end slabs shall be labeled.
- The required guardrail (class and type) and the required type of end anchors should be shown and labeled on this sheet. This information can be omitted from the plan sheets and shown on the paving layout sheets when they are included in the plan assembly.
- Limits of wetlands shall be shown based on permit or regulatory requirements.
- **Unless already shown on Geometric Layout sheets**, bench mark data shall be shown on the plan sheet for all bench marks within the station limits shown on the first plan sheet. Bench mark data is normally shown in the top-left corner of the first plan sheet. Bench marks may be labeled by station and offset or northing and easting.
- Every known roadway name shall be labeled. Label the roadway as “unnamed” if it does not have a designated name or route number.
- Show all hydraulic data included in the Bridge Bureau’s site inspection report on the bridge general elevation plan sheet or the culvert drainage section.

Profile View General Guidelines

- Provide a horizontal and vertical bar scale for the profile portion of the sheet. The horizontal scale shall be the same as that used for the plan portion. Station limits of the profile shall correspond to those of the plan portion of each sheet. Station numbers shall be placed across the bottom of the sheet just above the inside sheet border. Intervals for profile stations shall be the same as those in the plan view.
- Vertical elevation datum selected shall be such that the profile will not crowd either the upper or lower limits of the profile format and allow for labeling of the profile. A general guideline is the vertical scale should be exaggerated using a 10:1 ratio. A vertical scale of 1" = 10' should normally be used if the horizontal scale is 1" = 100' and a 1" = 5' vertical scale should be used if the horizontal scale is 1" = 50'. Elevation data shall be shown on both the left and right sides of the profile grid.
- Vertical curve PVC's and PVT's shall be indicated by small circles and PVI's by a small triangle with short sections of tangent shown on each side of the PVI.
- Percent of grade to 2 significant digits shall be shown on the tangent line.
- Superelevation diagrams depicting critical stations (NC, RC, "e", etc.) shall be provided at the top of the profile view when superelevation rates, transition lengths, or the distribution of the transition lengths have been altered from what is provided in the special and standard highway drawings book.
- The existing ground line profile shall be shown and labeled "Existing Ground." All high-water elevations affecting base clearance of roadway grades shall be shown and labeled. Show the most critical minimum vertical distance of bridge girders below and/or above roadway, railroad tracks, vehicle passageway, etc., if applicable.
- Required special ditches that deviate horizontally, vertically, or have special liners shall be profiled. Percent grades (2 decimal places) shall be provided where grades change along with station and elevation information. The locations of these ditches (left or right) shall be labeled.
- Station equations and/or exceptions shall be labeled and flagged.
- The beginning and ending stations for bridges and/or bridge culverts and the beginning and ending work stationing and project stationing for the roadway shall be labeled and flagged.
- The profile grade line identified on the typical sections shall be drawn with a solid line to represent the elevation of the roadway on the profile grade. The roadway profile grade shall be labeled "Profile Grade" or "PG".
- Vertical lines shall be extended from the PVC and PVT points and a dimension line placed between these lines indicating the length of the vertical curve and the K factor that is a

measure of the available sight distance. Normally, the curve length with dimension lines and profile grade elevations shall be placed and labeled above the grade line for sag vertical curves and below the grade line for crest vertical curves. The PVC and PVT stations and elevations shall be indicated on the vertical lines.

- The location of existing and required bridges, bridge culverts, culverts, and roadway cross drain pipes shall be shown to scale on the profile view. The proper symbol shall be used. The flow line elevation at the centerline shall be calculated (if not provided in survey) and the size and type of drainage structure labeled.
- Vertically label existing ground and profile grade elevations at least every 100' station. This is normally done at the bottom of the profile grid. Label the profile grade elevation to the left of station grid line and the existing ground elevation to the right of station grid line.

PAVING LAYOUT / STRIPING / SIGNING SHEETS - GENERAL GUIDELINES

Paving Layout, Striping, and Signing sheets should be included in the plan assembly immediately following the Plan and Profile sheets. Horizontal alignment for all roadways must be provided on these sheets to include stationing, PC's and PT's for all horizontal curves, station equations, intersection ties, etc.

Paving layouts should provide a plan view of the finished roadway, with dimensions clearly shown to depict the individual lane widths, overall pavement widths (edge of pavement to edge of pavement), pavement transitions, tapers, inside and outside shoulders (paved and unpaved), island(s), median(s), crossover(s), radii for intersections, driveway turnouts, etc. All dimensions and station information should be based off the appropriate horizontal alignment.

Required items, such as guardrail, guardrail end anchors, bridges, bridge end slabs, etc. should be shown on the paving layout with station and dimension information provided. Curb ramps should be identified by type along with detectable warning surfaces.

Striping information can be shown on the paving layout sheet(s) or shown separately on a striping layout sheet(s) if the addition of the striping details results in the paving layout sheets being difficult to read. Striping sheets should provide a plan view of all final traffic lines, pavement markings and legends, and may include raised pavement markers, object markers, channelizers, and delineators used to provide directional traffic information to the traveling public. This should include, but not be limited to, striping for centerlines, lane lines, and edge lines, channelizing lines for medians, islands, etc., crosswalks, yield and/or stop lines. A legend shall be provided to clearly identify the type of striping, markings, legends, pavement markers, etc.

Signing sheets should be shown separately from the paving layout sheets when existing signs are to be removed and/or relocated, or if new signs are required. The disposition of any existing signs should be clearly noted. The signing sheets do not require a great deal of roadway detail. The centerline alignment, stationing and edge of the roadway is normally all that is required for two lane highways. For multi-lane highways, additional detail and roadway information may be required. A signing legend may be used to illustrate the

placement of signs by using an alpha or numeric character identifier. Each sign shall be identified by the appropriate MUTCD designation. For signs being relocated, show both the original and new location for signs that are to be relocated using different line styles.

Sign face details are required for all non-standard signs containing the following information:

- Layout information for the sign including text font, size, and height.
- Total height, width, and area of each sign.
- Sign colors and sheeting type (background, border, arrows, legends, symbols, etc.)
- Corner radii and mounting type

UTILITY SHEETS - GENERAL GUIDELINES

Any existing utilities and proposed utility adjustments and/or relocations should be shown for all projects which include plan and profile sheets in the plan assembly. These sheets show the contractor the approximate locations of existing, proposed and relocated utilities.

These features may be shown on the roadway plan and profile sheets or separate utility plan sheets depending on the overall complexity of the project, the general nature of the topographic features (sparse or dense), and the number of utilities affected. Separate utility plan sheets should be included in the plan assembly for those projects where the overall topographic features, text placement, pavement and shoulder edges, construction limits, drainage features, ditches, flumes, etc. shown on the plan and profile sheet(s) interfere with being able to distinguish the utilities. Separate utility sheets should also be utilized for projects where extensive or complex utility work is included in the roadway contract items of work.

All major utilities that have been field verified shall be labeled in accordance with the ALDOT “[Plans Legends and Abbreviations](#)” sheets as shown in the current edition of the [ALDOT Special & Standard Drawings](#). Utilities include water, sanitary sewer, gas, underground and aerial power, telephone and CATV lines, along with their utility poles, towers, and other apparatuses.

Utility owner names, addresses, phone numbers, and contacts (optional) should be shown on the first utility sheet, if included in the plans. If not, show the contact information on the first plan and profile sheet (sheet 4).

The utility sheets should be prepared from CADD files generated for the plan and profile sheets and produced at the same scale unless directed otherwise. Generally, only the plan view needs to be shown; however, the profile view should be included in cases where the elevations of underground utilities (water, gas, sewer, etc.) needs to be shown. Any information and graphic data that is not deemed necessary for the utility sheets may be removed by turning off the appropriate level(s) on which the data is stored. This will help ensure that information pertinent to utility adjustments is clearly denoted and legible.

The utility sheets should show the following information as a minimum:

- Baseline and/or centerline of survey.
- Begin and end work/project limits.
- Station Numbers.
- Street/road numbers and/or names.
- Right-of-way limits (proposed and acquired) and any construction, utility, or drainage easements.
- Property lines.
- Construction limits.
- North Arrow.
- All proposed bridges and/or culverts, including footings, wingwalls, rip rap, etc.
- Applicable GN-2 and project notes (first utility sheet).

The sheets should show all existing and proposed utilities with proper annotation (line symbology, abbreviations, etc.) Proposed utilities should be shown bolder than existing utilities.

The disposition of all existing utilities (e.g., To be Removed, To be Relocated, To be Abandoned, To be Retained) should be clearly noted.

Define utility work as to which is to be done by the Department's contractor and which is to be done by others. Utilities to be relocated (or removed) prior to construction shall be labeled on the plans as "To be relocated (or removed) by others prior to contractor mobilization."

See Chapter 14 for information on required utility agreements and applicable utility project notes.

EROSION & SEDIMENT CONTROL PLAN SHEETS - GENERAL GUIDELINES

In order to address the Alabama Department of Environmental Management (ADEM) regulations regarding stormwater runoff on construction sites, and to comply with all requirements of the "National Pollutant Discharge Elimination System" (NPDES), the following erosion control procedures shall be used for all LPA projects let to contract through the Alabama Department of Transportation, regardless of the funding source.

Importance of Compliance

Full compliance with both the ADEM Stormwater regulations and ALDOT procedures are required to protect the quality of water and the quality of life during any phase of roadway and/or bridge construction. Any noncompliance with the requirements constitutes a violation and is grounds for potential enforcement actions by the ADEM, and the U.S. Environmental Protection Agency (EPA). An enforcement action could include, but not be limited to, a warning letter, notice of violation, consent or administrative order with monetary penalty, civil or criminal litigation, monetary fines imposed by the ADEM, or an order to stop work on the site.

The ADEM Stormwater Regulations require that the stormwater runoff from construction activities be protective of water quality to the maximum extent practicable. To accomplish this goal, the regulations require that all site operators of NPDES Construction Sites develop and fully implement and maintain effective and applicable “Best Management Practices” (BMPs). “NPDES Construction Sites” are construction activities that are required to obtain NPDES permit coverage under the ADEM regulations and are defined as the following:

- Construction activities with land disturbance that will disturb 1 acre or greater or activities with a land disturbance less than 1 acre that have a reasonable potential to be a significant contributor of pollutants to a water of the State, as determined by ADEM.
- Construction activities that will disturb less than 1 acre but are part of a larger common plan of development or sale whose land-disturbing activities total 1 acre or greater.

NOTE: Construction activities that will disturb less than 1 acre may not be required to obtain NPDES permit coverage but are still required to implement the appropriate BMPs to protect water quality. The continual assessment of the compliance status of an NPDES Construction Site is the responsibility of the construction site NPDES permit holder. This is accomplished through the full implementation of the Construction Best Management Practices Plan (CBMPP) and the inspection and maintenance activities required by the ADEM regulations and [ALDOT Standard Specifications](#) . Because ADEM has primary regulatory authority of NPDES permitting of regulated construction activities in Alabama, permitting, compliance, and enforcement are all under the ADEM NPDES jurisdiction. Permitting and enforcement are under the ADEM Water Division.

Stormwater Permit (Construction vs. Maintenance)

A summary of some fundamental ADEM and ALDOT interpretations are outlined below.

- Limited blading or placing fill next to a road that has been repaved to ensure safe grade transition to existing shoulder of the roadway for safety purposes, or routine blading to regularly maintain the grade of an existing safety shoulder (with immediate stabilization as needed) is considered normal maintenance and not construction. Blading or placing fill next to a road to widen the road, shoulder, or adding a new safety lane is considered construction.
- Adding width to the road, shoulder, or adding/lengthening a turn lane is considered new construction and is not normal maintenance.

Erosion and Sediment Control Plan Sheets

The purpose of the Erosion and Sediment Control Plan Sheets are to illustrate the best management practices (BMPs) used on site for temporary erosion and sediment control during construction.

Erosion and Sediment Control Plan sheets must provide details for the following three phases of work in addition to normal plan view requirements:

- Initial Phase - As clearing begins and prior to any grubbing or grading work. Some examples of what to include are:

BMPs	NON-BMPs
Silt fence	Existing Contours (grey scaled – GS)
Stabilized Construction Entrances (SCEs)	Required Roadway Items (GS)
Temporary Berms/Sediment Retention Barrier (show detail of berm)	Proposed Drainage Items (GS)
Sedimentation Basins	Horizontal Alignments
Temporary diversion ditches	Construction Limits
Ditch checks (in existing ditches only)	ROW Limits
Vegetative filter strips	Discharge Points
	Ditch flow arrows

- Intermediate Phase - As needed. As work is ongoing and advancing toward completion. Some examples of what to include are:

BMPs	NON-BMPs
Silt fence	Construction Limits and ROW Limits
SCEs	Required Roadway Items (GS)
Temporary Berms/Sediment Retention Barrier (show detail of berm)	Proposed Drainage Items (GS)
Slope Drains	Horizontal Alignments
Inlet Protection (Stage 1 and 2)	Temporary easements
Ditch Checks	Ditch flow arrows
Temporary diversion ditches	Discharge Points
Vegetative Filter strips	
Sedimentation Basins	

- Final Phase - As work is completed and permanent vegetation is established. Some examples of what to include are:

BMPs	NON-BMPs
Slope protection	Required Roadway Items (GS)
Solid sodding	Proposed Drainage Items (GS)
Erosion Control Product (ECP)	Horizontal Alignments
Hard surface (concrete, riprap, etc.)	Temporary easements
Permanent Basins	Ditch flow arrows
Infiltration Ditch Swales	Discharge Points
Inlet Protection	Construction Limits and ROW Limits
Sand Bag Ditch Checks	

All three phases of the ESC Plan Sheets must identify the locations of Stormwater Primary, Secondary, and Background Points where appropriate.

Primary Discharge Points (PDPs) - Locations where channelized construction stormwater discharge or water of the state leaves the ALDOT ROW or project.

- o Identified by an integer that represents where the concentrated flow leaves followed by a zero (example 1.0).

Secondary Discharge Points (SDPs) - Locations where channelized flow enters a blue line stream or equivalent within ALDOT ROW Limits.

- o Identified by an integer which is the same as the associated PDP following by a letter in the decimal place (example 1.A).

Background Points (BPs) - Locations where a channelized stormwater discharge or water of the state enters the ALDOT ROW or project.

- o Identified by an integer which is the same as the associated PDP following by a non-zero number in the decimal place (example 1.1)

The following examples, although not all inclusive, provide some general guidelines:

Bridge Replacement Projects (Includes Cast-In place, Precast, & Bridge Culverts)

The LPA (or consultant under contract with the LPA) should provide a **complete “Erosion & Sediment Control Plan”** showing the proposed location and type of **all erosion & sediment control items needed to complete the contract items of work**. All ESC Drawings, as listed in [*ALDOT Special and Standard Drawing Book*](#), shall be indexed.

1. **Bridge Replacement - Approach Work Included in Contract.** - The contractor shall be responsible for all erosion and sediment control measures, and these items should be shown as part of the erosion and sediment control plan and included in the pay quantities for the project.
2. **Bridge Replacement - Approach Work Done by LPA Forces.** - The contractor shall be responsible for only the erosion and sediment control measures within the project limits at the bridge or culvert site. The LPA will be responsible for all erosion and sediment control items associated with the approach fill. A note should be placed in the plans that states the county will assume responsibility for the erosion and sediment control measures at the time they begin this work. An example note is shown below.

LPA FORCES WILL COMPLETE THE ROADWAY APPROACHES, INCLUDING THE SHOULDER WIDENING FOR GUARDRAIL INSTALLATION (if applicable). AT THE BEGINNING OF THE APPROACH CONSTRUCTION, THE LPA WILL ASSUME RESPONSIBILITY FOR THE MAINTENANCE AND REMOVAL OF ALL EROSION AND SEDIMENT CONTROL ITEMS.

Resurfacing Projects

As a **general** rule, no erosion control plan or pay items are required for a **typical** resurfacing project. This in no way absolves the LPAs of complying with ADEM “Best Management Practices” (BMPs) requirements.

- Based on the previously referenced interpretations from ADEM and ALDOT, any blading along the side of an existing road that has been repaved to raise (but not widen) the shoulder elevation to that of the roadway is considered “maintenance” and not “construction.” This bladed area should be stabilized (grassing, aggregate surfacing, etc.) **immediately**.
- The plans should specifically address erosion and sediment control measures if shoulder widening and additional fill requirements are required prior to the contractor’s installing the guardrail and/or end anchors, especially since these sites are often located at existing bridges or culverts. **According to ADEM, and this office, the additional width of the shoulders and fill are outside of the limits of “maintenance” operations, as defined above, and should be considered as “construction.”** The controlling item(s) of work will again determine whether the contractor or the county is responsible for the erosion control measures.
- It is **recommended** to set up an erosion and sediment control summary box using the approximate guardrail stationing for silt fence limits and determining other erosion control measures that may be needed.

Widening & Resurfacing

As of April 1, 2021, ADEM has authorized an exemption for guardrail, shoulder, and minor improvements associated with roadway pavement resurfacing even if 1 acre or greater will be disturbed. Based on this guidance, the LPA may be exempted on minor widening (1’ or 2’ safety widening for example) and resurfacing projects by notifying ADEM (see example letter in Chapter 16 of the *Procedural Guidelines for LPA Projects*, page 16.42). The LPA would utilize ALDOT Environmental NPDES Permit Note option 2 shown on the following page in their plan assembly.

Widening operations fall outside of the defined limits of “maintenance” and should be considered as “construction” for the purpose of determining whether a stormwater registration is required. The following guidelines should be used to determining disturbance acreage:

1. The additional paved lane width times the length of the project should be used to calculate the total disturbance area. If there is significant pavement edge raveling, then this should also be factored into the total width of the widening. The example below is based on a 2.5-mile project with one foot of pavement widening on each side **and no increase in the shoulder width**. NOTE: The construction staging areas, including equipment parking areas, should be also considered as part of the total disturbance acreage.

Pavement Widening ↓
 $(2.5 \text{ miles} \times 5,280') \times 2' = 26,400 \text{ sq. ft.} = 0.61 \text{ acres}$

Construction Staging and Equipment Parking
 $20' \times 250' = 5,000 \text{ sq. ft.} = 0.11 \text{ acres}$

Total Disturbance Area - $0.61 \text{ acres} + 0.11 \text{ acres} = 0.72 \text{ acres}$

The shoulders do not need to be considered as part of the disturbed area **if there is no increase in the final shoulder width**. The total disturbance area in this example is less than one acre and would not require stormwater registration with ADEM.

2. Using the same project length as noted above, if the final shoulder width is being increased from two feet to three feet, then this additional width must also be considered. The total disturbance is now greater than one acre and would require stormwater registration with ADEM.

Pavement Widening ↓ ↓ Shoulder Widening (1' on each side)
 $(2.5 \text{ miles} \times 5,280') \times (2' + 2') = 52,800 \text{ sq. ft.} = 1.21 \text{ acres}$

Please note that the same guidelines pertaining to shoulder widening and fill placement for guardrail, as noted in the “Resurfacing” section, are also applicable for “Widening and Resurfacing” projects.

Multiple Site Projects

The disturbance area for multiple sites within one project does not need to be considered collectively to determining permit requirements, provided there is significant distance and/or time separating the individual sites/activities.

[ALDOT Environmental NPDES Permit Notes](#)

One of the following applicable notes shall be included in all plans as **Project Note No. 900**:

- Option 1: No NPDES Permit Required
NOTE: NPDES PERMIT COVERAGE IS NOT REQUIRED FOR THIS PROJECT.
- Option 2: No NPDES Permit Required but CBMPP Available
NOTE: NPDES PERMIT COVERAGE IS NOT REQUIRED FOR THIS PROJECT. A COPY OF THE CONSTRUCTION BEST MANAGEMENT PRACTICES PLAN (CBMPP) IS AVAILABLE THROUGH OFFICE ENGINEER PRIOR TO BIDDING.
- Option 3: ALDOT NPDES Permittee
NOTE: ALDOT WILL BE THE NPDES PERMITTEE FOR THIS PROJECT. A NOTICE OF INTENT FOR NPDES PERMIT COVERAGE HAS BEEN FILED WITH ADEM. A COPY OF THE CONSTRUCTION BEST MANAGEMENT PRACTICES PLAN (CBMPP) IS AVAILABLE THROUGH THE OFFICE ENGINEER PRIOR TO BIDDING.

- Option 4: LPA NPDES Permittee

NOTE: {INSERT TOWN/CITY/COUNTY NAME} WILL BE THE NPDES PERMITTEE FOR THIS PROJECT. A NOTICE OF INTENT FOR NPDES PERMIT COVERAGE HAS BEEN FILED WITH ADEM. A COPY OF THE CONSTRUCTION BEST MANAGEMENT PRACTICES PLAN (CBMPP) IS AVAILABLE THROUGH THE OFFICE ENGINEER PRIOR TO BIDDING.

When options 1, 2, or 4 are appropriate and utilized as project note no. 900 in the plan assembly, the LPA, under authority of the LPA governing body, is the owner of record for the NPDES Notice of Intent (NOI) and is therefore ultimately responsible for any ADEM citations for noncompliance or unsatisfactory conditions on a project site. The LPA is the ultimate responsible party, whether or not an official “Notice of Intent” is required, so it is to the LPA’s benefit to take all necessary measures to protect the project site, adjacent property, and State waters from contaminated stormwater runoff.

SPECIAL PROJECT DETAIL SHEETS

Construction details that are not covered in the ALDOT Special and Standard Highway Drawings or elsewhere in the plan assembly shall be shown on Special Project Detail Sheets. The Local Transportation Bureau maintains special project details concerning traffic striping & pavement markers, guardrail and end anchors, and traffic control plans on the [ALDOT webpage](#). The Design Bureau also maintains separate details in their [Design Detail Library](#).

- Provide a description of the special project detail. This can be included in the title of the sheet (“Special Project Details - Special Construction Signs” for example).
- Provide a horizontal and vertical bar scale when appropriate or indicate that the drawing is not to scale.

Required Guardrail at Existing Structures

Guardrail needs should be evaluated based on the guidelines as noted in Chapter 10. Any existing guardrail and/or end anchors that are to be reset or any new guardrail and/or end anchors installation must conform to the applicable length of need requirements as noted therein.

Culvert Sites

The following information should be furnished to the Area Local Transportation Engineer and the LTB with the PS&E submittal for any existing culvert sites requiring guardrail and/or end anchors within the project limits:

- (1) Case number (as shown on applicable special drawing).
- (2) Length of parapet wall, station to station.
- (3) Final shoulder width (same as existing if shoulder not being widened).
- (4) Distance from outside edge of final shoulder to first edge at parapet wall.
- (5) Approximate slope from outside edge of final shoulder to first edge of parapet wall.
- (6) Provide the fill height over the structure if the “Case 1” (posts attached to top of culvert) installation is required, or if guardrail posts will be driven across the culvert.

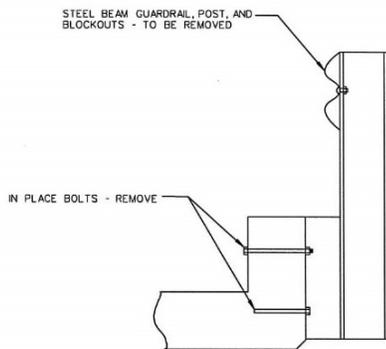
This information should be provided for each side of the structure. It can be shown in column form under the “Required Guardrail” box summary in the plan assembly or furnished separately with the PS&E transmittal letter.

The face of the guardrail should be located a minimum of 4 feet from the edge of pavement (where practical), or at the shoulder, whichever is greater.

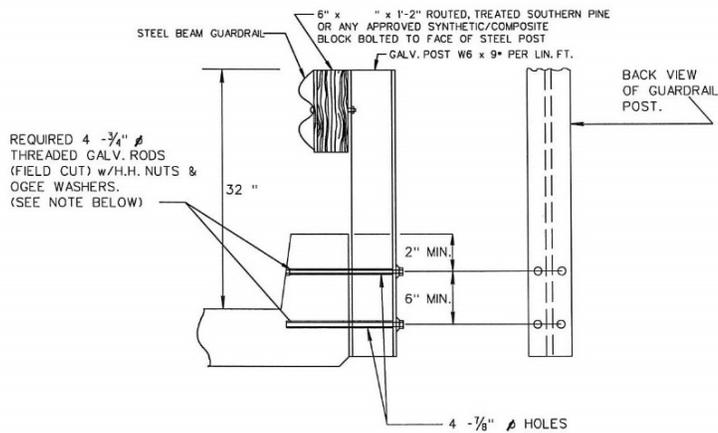
Bridge Sites

Existing bridge structures should be evaluated during the “Scope of Work” review to identify where guardrail and/or end anchors will need to be installed or replaced per guidance found in Chapter 10. In such cases, guardrail and/or end anchors shall be installed or replaced as part of the project or as non-contract items of work. The LTB has several guardrail project detail drawings for specific needs at in place bridges with concrete or metal rail across the structure. These drawings are available at the [ALDOT web page](#).

“Class B” rail is required across the bridge structure. The post spacing, blockout configurations, post-to-structure attachment, and overall guardrail condition should be evaluated for any existing guardrail protection across a bridge during the “Scope of Work” review. Guardrail blockouts should be reconfigured, as needed, in order to align the face of the guardrail approximately flush with the face of the brush curb on the bridge structure. Post spacing across the structure should not exceed 6’-3” on center. A detail sketch should be included in the plan assembly showing the existing post and blockouts, and clearly noting any guardrail elements to be removed and/or retained. A second detail should be include showing the new configuration and all required guardrail elements. A note should be included with the sketch specifying the guardrail attachment details. An example detail is shown below. The sketch and note may be modified based on existing field conditions.



IN PLACE GUARDRAIL - TO BE REMOVED



REQUIRED GUARDRAIL CONNECTION DETAILS

DRILLING, NEW BOLTS, AND POSTS ARE REQUIRED FOR THE ATTACHMENT OF THE REQUIRED GUARDRAIL ON THE BRIDGE. THE SPACING FOR THE REQUIRED GUARDRAIL POST SHALL NOT EXCEED 6'-3" ON CENTER. THE CONTRACTOR SHALL BE REQUIRED TO FIELD VERIFY THE WIDTH OF THE BRIDGE CURB PRIOR TO INSTALLATION OF THE BOLTS. THE TOP BOLT SHALL BE RECESSED ON THE CURB SIDE ADJACENT TO TRAFFIC. THE BOTTOM BOLT SHALL HAVE A MINIMUM LENGTH EQUAL TO THE TOP BOLT AND EMBEDDED IN NON-SHRINK EPOXY GROUT. COST FOR THE DRILLING, EPOXY, AND OTHER INCIDENTAL WORK REQUIRED FOR THE CURB INSTALLATION SHALL BE CONSIDERED A SUBSIDIARY OBLIGATION OF 630A-004. THREADED RODS SHALL MEET THE REQUIREMENTS OF ASTM A325 OR A449. HEX NUTS SHALL MEET THE REQUIREMENTS OF ASTM A563 GRADE "B" OR BETTER. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153.

TRAFFIC CONTROL PLAN (TCP) SHEETS - GENERAL GUIDELINES

The LPA shall be required to furnish a "Traffic Control Plan" (TCP) for any project where work is performed within the public right-of-way. The overall purpose of the TCP is to maintain a safe uniform traffic flow through or around the construction work zone while providing protection for the workers and permitting them to perform the contract items of work efficiently and effectively.

The Traffic Control Plan shall be developed in conformance with the [Manual on Uniform Traffic Control Devices Part 6](#), current edition. The TCP should provide the contractor with adequate details regarding the recommended type, placement, and setup installation of traffic control devices and construction signs for a project. There should be sufficient signage informing road users of the upcoming worksite well in advance of the actual work area. The placement of road signs must be given careful consideration and must be suitable for worksite conditions. All signs are official and enforceable by law.

TCP notes shall be included as the first sheet in the TCP sheet series. For resurfacing and minor widening projects, the LTB has developed a series of TCP special project details and TCP notes. Most of the required traffic control project notes are included on these TCP drawings and should not be repeated on the project note sheet. If additional notes are required, list them on the project note sheet. These drawings are available at the [ALDOT web page](#), and are generally applicable for all of these type projects. The drawings cover lane closure operations utilizing a pilot car and/or cones.

These drawings and notes are not applicable for the more complex projects, such as bridge and/or culvert replacements, grade and drain, roadway realignments, intersection improvements, etc. TCP notes applicable for these type projects are located on the [ALDOT web page](#). These sheets should be downloaded and included in the plan assembly. All applicable notes on these sheets should be circled.

Typically, these more complex project will require the designer to furnish a “Sequence of Construction” which provides general guidelines for all phases of construction and all major items of work and applicable traffic control devices that are applicable during each phase. These items of work should be identified in each phase by “Bullet Points”. Typically, a note is provided on the “Sequence of Construction” stating that any work can be performed concurrently with the approval of the engineer as long as there are no conflicts with another item of work. Quantities for all TCP items should be provided.

Each construction phase shall be identified separately using a chronological listing of Roman numerals.

Separate plan sheets should be provided for each construction phase with the work area delineated by cross hatching. All applicable TCP signs and devices required for each phase shall be shown and labeled or noted by a TCP items legend.

If needed, provide typical section views that show lane widths, channelization drums or barrier rail placement (relative to the work zone edge of pavement), temporary tie slopes, etc. for each phase. Offset distances should be shown based on the centerline or baseline control for the applicable roadway.

When an off-site detour is required for construction, the LPA should furnish a detailed TCP which clearly delineates the detour route, the required signage, and other required traffic control devices (barricades, channelization drums, etc.) that will provide sufficient information for the traveling public to safely maneuver around or through the work zone. All quantities related to the traffic control plans should be shown in a summary box and listed on the main summary sheet.

If the LPA intends to provide and maintain the detour route, this should be stated in a project note. It is understood that the LPA assumes all responsibility for the placement and maintenance of the detour.

When multiple sites or combined projects are involved, the LPA should consider how many sites/projects the contractor will be allowed to work on concurrently. The TCP quantities should reflect the total number of signs and devices that are required based on that number of sites/projects. A project note should be added specifying the following items:

- Number of sites/projects that may be worked on at one time.
- Indicate which sites/projects the TCP quantities are being included in for payment purposes.
- Any signs or devices that will be relocated for other sites/projects.

- Note that the bid price shall cover the relocation and maintenance of the signs and devices for the other sites/projects.
- Which signs are to be left in place while work is being performed at another sites/projects.

An example note is shown below:

THE CONTRACTOR SHALL ONLY BE ALLOWED TO WORK ON ONE SITE (OR PROJECT) AT ANY GIVEN TIME. THE FOLLOWING TRAFFIC CONTROL DEVICES REQUIRED FOR THE LANE CLOSURE OPERATIONS FOR THIS PROPOSAL ARE INCLUDED IN THE QUANTITIES FOR SITE NO. ____ (OR PROJECT NO. _____)

2 - W20-1 (EXPWY/FRWY)
 2 - W20-4 (EXPWY/FRWY)
 2 - W20-7 (EXPWY/FRWY)
 1 - PILOT CAR

THE UNIT BID PRICE FOR THESE ITEMS SHALL REFLECT THE COSTS FOR THE RELOCATION AND MAINTENANCE OF THESE DEVICES FOR SITE NO. ____ (OR PROJECT NO. _____). THE R16-3, R16-3a, R16-3b (if applicable), G20-1, G20-2 SIGNS, AND THE OTHER REQUIRED CONSTRUCTIONS SIGNS, AS SHOWN ON SHEET ____, SHALL REMAIN IN PLACE UNTIL THE CONTRACT ITEMS OF WORK FOR ALL SITES ARE COMPLETED AND ACCEPTED FOR MAINTENANCE. THE CONTRACTOR SHALL ONLY BE PAID FOR THE MAXIMUM NUMBER OF TRAFFIC CONTROL DEVICES PROVIDED AT ANY ONE TIME. SEE SUBARTICLE 740.05(a) OF THE STANDARD SPECIFICATIONS.

HYDRAULIC DATA AND DRAINAGE SECTION SHEETS - GENERAL GUIDELINES

Roadway Pipe or Roadway Culvert Data, Selection, and Summary Boxes

- See [ALDOT Guidelines for Operation, Section 3-22](#) for selection of the type of roadway pipe and possible testing requirements.
- When roadway pipes and/or roadway culverts are required under a road maintained by the LPA, the Engineer of Record may utilize the “Hydraulic Data Sheet” (page 16.14) for each structure to evaluate the appropriate structure size. Pages 16.15 - 16.26 provide additional information needed to complete this form. **When the required structure is located under a state-maintained road or highway, this information shall be furnished as a hydraulic data sheet in the plan assembly and reviewed by ALDOT as part of the PS&E plan submittal.**
- The “Hydraulic Data Sheet” can also be utilized if a structure is to be extended a significant amount. The Area Local Transportation Engineer, in consultation with the LPA Representative, should make this determination.
- Show stations, size and quantity, standard/special drawings, structure excavation, foundation backfill, fill height, and skew columns in the required roadway pipe or roadway culvert box. The summary box should also include required end treatment and end treatment slope columns. Culvert concrete and steel reinforcement columns are required in the roadway culvert box.

- Show gauge on all metal pipes.

Roadway and Bridge Culvert Standard Drawings

- When computing quantities of steel and concrete for roadway and bridge culverts, it will be necessary to use the latest standard drawings. Copies of these drawings will be furnished upon request. Please insert the required culvert standard sheets into the plan assembly prior to forwarding the plans to the Local Transportation Bureau for review.
- To determine the centerline length of a culvert, measure the distance between the inside faces of the exterior walls. The stationing of the culvert throughout the plans must reflect this measurement.
- If the structure is on a skew, the correct centerline length can be obtained by dividing the unskewed length by the cosine of the skew angle. Express the length to two (2) decimal places (feet).
- The culvert width is the barrel length of the structure. If the structure is on a skew, the culvert width can be obtained by multiplying the barrel length by the cosine of the skew angle.

Foundation Backfill - General Information - (from the Alabama Department of Transportation's Construction Manual & Standard Specifications)

- Additional structure excavation (undercut) to provide for placing foundation backfill, will be measured in cubic yards by the cross section and average end area or other accepted feasible methods.
- Foundation backfill will not be measured directly, but the volume will be fixed at 150% of the volume of the excavation which it replaces that lies between the bottom of the structure and the bottom elevation of the trench ordered excavated.
- Where satisfactory structure foundation is provided by the normal process of removing and backfilling unsuitable material under fill areas, during normal grading operations, none of such backfill removed and used when laying pipe, will be classified as foundation backfill.
- Foundation backfill may be defined as material taken from selected grading operations or areas beyond the right-of-way.

Foundation Backfill for Roadway and Bridge Culverts - Recommended Formula:

$$\text{Foundation Backfill (Cu. Yds.)} = L \times (W + 4) \times 1.5^* \div 27$$

L = Average net length of the structure measured along the flowline, tip to tip of wings

W = Outside width of the barrels @ right angle to culvert skew

Figure foundation backfill for culverts from the bottom of the structure to the bottom elevation of the trench. Quantities will be based on replacing this material with 150 percent of foundation backfill material.

***Calculations are based on 1.0 foot of excavation below the bottom elevation of the culvert. If more than 1.0 foot needs to be excavated below the bottom of the structure, the volume of foundation backfill will be fixed at 150 percent of the volume of the excavation which it replaces. Any material to be removed within the limits of the culvert, above or below the flow line will be classified as structure excavation (see Standard Specifications).**

Foundation Backfill for Roadway Pipes 48" or Less - Recommended Formula:

$$\text{Foundation Backfill (Cu. Yds.)} = L \times (W + 3) \times 1.5^* \div 27$$

L = Average net length of the structure measured along the flowline, including end treatments

W = Inside diameter of pipe

Figure foundation backfill for roadway pipes, 48" or less, from the bottom of the structure to the bottom elevation of the trench. Quantities will be based on replacing this material with 150 percent of foundation backfill material.

*** Calculations are based on 1.0 foot of excavation below the bottom elevation of the pipe. If more than 1.0 foot needs to be excavated below the pipe, the volume of foundation backfill will be fixed at 150 percent of the excavation which it replaces.**

Structure Excavation - General Guidelines

Structure Excavation for Roadway and Bridge Culverts - Recommended Formula:

$$\text{Structure Excavation (Cu. Yds.)} = L \times (W + 4) \times \text{Vertical Depth}^{**} \div 27$$

L = Average net length of the structure measured along the flowline, tip to tip of wings

W = Outside width of the barrels @ right angle to culvert skew

****The average vertical depth is from ground elevation or subgrade elevation, whichever is lower, to the bottom of the required bottom slab + 1.0 feet.**

Excavation above subgrade elevation will be classified and paid for as unclassified excavation.

Structure Excavation for Roadway Pipe 48" or Less - Recommended Formula:

$$\text{Structure Excavation (Cu. Yds.)} = L \times (W + 3) \times \text{Trench Depth}^{\blacksquare} \div 27$$

L = Average net length of the structure measured along the flowline, including end treatments

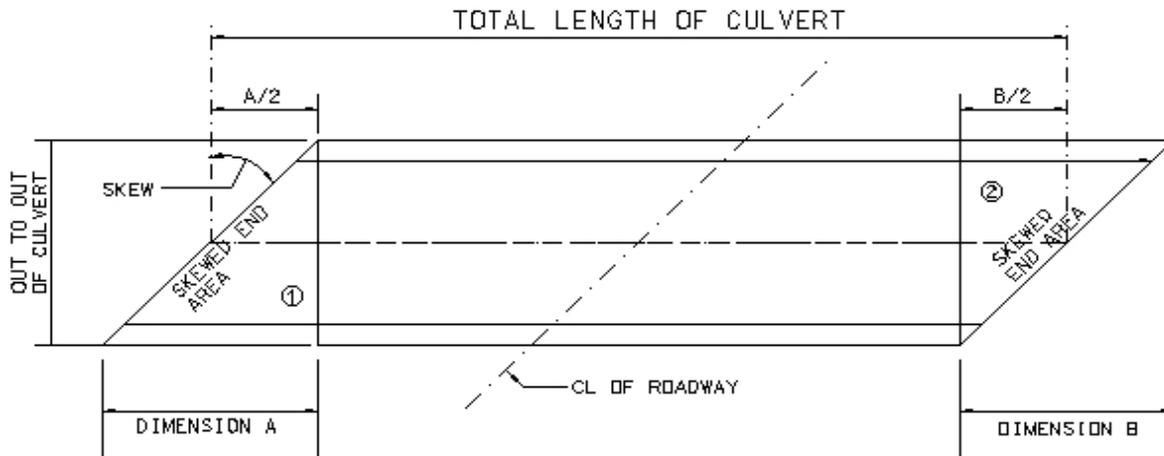
W = Inside diameter of the pipe

▪ Trench Depth - The depth of the excavation for the trench shall extend at least 1 foot above the elevation of the top of the pipe, or from subgrade elevation in cut sections.

Excavation above the subgrade elevation will be classified and paid for as unclassified excavation.

Calculating Steel Reinforcement Quantities for Skewed Culverts

Standard Drawing No. CS-3-1 (Index No. 52401) requires a change in steel bar reinforcement and the spacing of the bars in the "skewed end area" of culverts on skew. This drawing should be referenced for details and a note specifying the bars to be eliminated, their replacement, and spacing.



Calculate the reinforcing steel quantity for the total length of the culvert using the quantities shown on the standard drawing and add the following amounts for the skewed end areas:

$$\text{Dimension A or B (feet)} = (\text{Out to Out Culvert Length}) \times (\text{Tangent of the Skew})$$

$$\text{Additional Steel Reinforcement for Skewed End Area ① - Lbs.} = (\text{Lbs./ft. for the Fill Height on Skewed Area 1}) \times (\text{Dimension A/2})$$

$$\text{Additional Steel Reinforcement for Skewed End Area ② - Lbs.} = (\text{Lbs./ft. for the Fill Height on Skewed Area 2}) \times (\text{Dimension B/2})$$

Calculation Example for Steel Reinforcement Quantities for Skewed Culverts

Given:

Required Bridge Culvert: CQ 16 X 16 X 46 (Cast in Place)
12 Degree Skew Rt. Ahead with 5' of fill

Solution:

Dimension A or B (feet) = (67.58' X Tan 12 Degrees) = 14.36 ft.
Additional Steel Reinforcement for Skewed End Area 1 - Lbs. = (1,537 lbs./ft. X 7.18ft)
= **11,035.66 lbs.** Since Area 2 = Area 1, Additional Steel Reinforcement for Skewed End Area 2 = **11,035.66 lbs.**

Add curb, toe wall, and wing quantities to the above steel reinforcement quantities.

Drainage Section Sheets

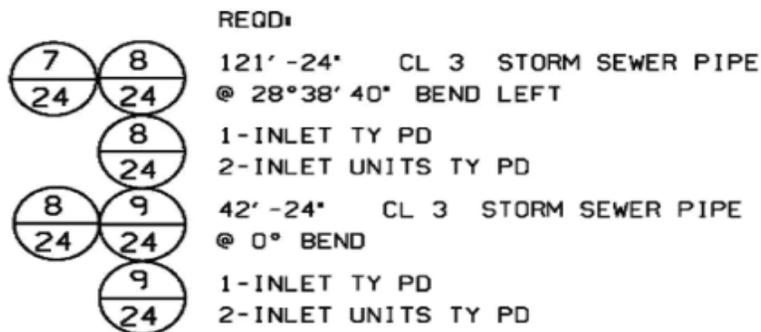
A drainage section shall be required for all drainage structures, including pipe or culvert extensions. NOTE: These sections should be drawn to scale and must be plotted along the skew angle of the structure. The sections should label the inlet and outlet elevation and the flowline elevation at centerline. The percent slope of the structure should also be indicated (2 decimal places). Show the direction of flow with an arrow and show limits of rip rap along with a placement detail.

- Horizontal offset grid lines and annotation shall be shown on the bottom of each transverse drainage section. Horizontal offset grid lines shall only be shown on the actual drainage section, not the entire plan sheet. Offset annotation shall only be provided on the bottom axis of transverse drainage sections and be tied left (-) and right of the alignment.
- Elevation grid lines shall be shown, and the annotation should be present on both the left and right axes of the drainage section. Elevation grid lines shall only be shown on the actual drainage section, not the entire plan sheet.
- Lines representing the existing ground, finished grade surface, and subgrade (if pertinent) shall be shown.
- Provide a horizontal and vertical bar scale.
- The station number, offset distance from the centerline of the designated roadway, and the skew angle of the drainage structure relevant to the centerline of the designated roadway along with the skew direction, shall be placed below the drainage section. Drainage sections shall be arranged so that the lowest station number is at the bottom of the plan sheet with larger station numbers for the same designated roadway progressing chronologically to the top of the plan sheet.
- The drainage structure(s) illustrated on drainage sections shall be shown using the correct ALDOT CADD standard cell symbol and denoted with the standard drainage structure index symbol (see Plans Legend sheet). The identification symbol shall contain a unique index number for the purpose of providing each drainage structure with a unique identity within the plan assembly. The top number of the identification symbol on the Drainage Section Sheet is the drainage structure index number. The bottom number is the main plan/profile sheet number where the drainage structure can be located.
- Numbering Drainage Structures - The initial assignment of index numbers to drainage structures should start in the direction of flow from the beginning of the project and increase chronologically to the end of the project. It is very likely that drainage structures will be added and/or deleted after the initial numbering of drainage structures. If this occurs, in most cases it is not necessary to renumber drainage structures to account for these types of revisions just to keep the sequence of index numbers increasing in the direction of flow and/or project stationing. A number

combined with a letter may be used to index drainage structures so that the flow and/or stationing order is maintained and to prevent the designer from having to repetitively renumber drainage structures when one is added or deleted just to maintain a sequential numeric pattern. It is preferred that drainage structure numbers increase from upstream to downstream flow and from the beginning to the ending of a project. But it is not an absolute requirement that all drainage structures be numbered this way. Drainage structures may be indexed with numeric/alpha characters that do not follow the conventional numbering scheme and it will be acceptable even though the index numbers may not be chronological and/or decrease from upstream to downstream flow.

- The following information is required to be noted for each drainage structure:
 1. size, type and class
 2. length, grade, the number of parallel units
 3. end treatments, flow lines, and completed structure index numbers

Include a complete description of the station, required pipe, end treatment, inlets, junction boxes, stilling basins, concrete collars (for extension pipe), skew (left or right, ahead or back, or zero degree), index numbering, inlet units, J-box units, offset if any, pipe deflection angles, and any other pertinent information. The “In Place” and “Required” drainage structure items should be listed below the drainage cross section, with the structure index numbers referenced. The disposition of the in place items should be clearly noted. The drainage section notes shall always progress chronologically downward by the drainage structure unique index number (see example below). Elevations shall be given for manhole tops, ditch bottom elevations, slotted drains, and the working point elevation of drainage structures. Also, grate elevations for shoulder gutter and edge of pavement elevations for curb and gutter inlets shall be shown.



- All existing/required structures within the drainage section limits shall be shown, e.g., drainage structures, guardrail, barrier walls, retaining walls, curbs, curb and gutter, trench drains, etc. Existing items/structures are shown as dashed lines and required items/structures are shown as solid lines.

Cross Section Sheets

Cross sections depict the existing ground conditions, along with the proposed cross-sectional elements of the new roadway, at set intervals perpendicular to the respective stations along a survey baseline or construction centerline.

- The order of assembling the cross sections in the plans set shall be:
 1. Mainline
 2. Side roads
 3. Ramps, etc.
- The roadway name/designation shall be labeled directly underneath the sheet title that the cross sections are associated with.
- Cross sections should be drawn on standard grid pattern cross section sheets. Grid patterns may be five or ten grid lines per inch, both vertical and horizontal. The recommended vertical scale is 1" = 10'. The horizontal scale shall be such that the entire roadway right-of-way width is shown on the sheet. The recommended horizontal scale is 1" = 10', but a scale of 1" = 20' will be accepted. Cross sections should be plotted to the larger scale if space will permit. Match lines may be used if the entire right-of-way cannot be shown on a single section. A horizontal and vertical bar scale shall be shown at the bottom right corner of the sheet.
- Exclude sections across bridges and bridge culverts where earthwork is not required. It is recommended that a section be shown at the begin/end of the structure to reflect the earthwork calculations more accurately.
- Sections shall be centered on the sheet with the survey baseline or the construction centerline located horizontally in the center of the sheet. The centerline will be shown as "0," with horizontal distances shown at 50' intervals left and right of the centerline or baseline. Vertical elevations should be shown at 10' intervals, beginning with an even 10' contour elevation, e.g., 150, 160, 170, etc., and should be shown on the left and right side of the cross section. The station number of the section shall be located below each section in the center of the section.
- Cross section stationing shall progress from the bottom to the top of the sheet. When right of way is narrow enough and a horizontal scale of 1" = 20' is used, two columns of cross sections may be placed on a sheet. Multiple columns shall be placed from the left to the right.
- Cross sections shall be provided for the project begin and project end stations, exceptions, and begin/end bridge and/or bridge culvert(s). The beginning project station shall be labeled as "Begin Project" and the ending project station shall be labeled as "End Project".

- Lines representing the finish constructed project surface shall be shown as a solid line.
- Annotate the ultimate finish surface elements with cross-slope. Pavement (2 decimals) and shoulder (1 decimal) cross slopes shall be shown as a percentage. All other elements shall be annotated as a ratio (e.g., 4:1).
- Illustrate and label the centerline of the roadway(s) and offset distance from the centerline of construction or baseline for the ultimate finished surface that is to be constructed. Annotate profile grade elevation and offset distance from the centerline of construction. Many times, the centerline of construction and the profile grade are at the same location and the offset distance is zero; therefore, it is irrelevant, and the offset distance is not required to be shown.
- Cross sections should depict additional shoulder width requirements in areas of guardrail and/or guardrail end anchor locations. Guardrail should be depicted on the cross section in these locations.
- The normal interval for cross sections is 100 feet for rural projects and 50 feet for urban projects. Bridge replacement projects with minor approach work (500' or less on both sides of the proposed bridge structure) should utilize 50' cross section intervals. Approach lengths exceeding 500' can utilize 100' cross section intervals. Cross sections are not required if approaches are not part of the contract items of work.
- Illustrate the acquired right-of-way, present right-of-way, and any construction easements.
- Provide match lines and refer to other cross sections, if necessary.
- As a minimum, the existing ground line should be plotted to the right-of-way limits.
- Calculate cut and fill end areas and volumes for each section. These should be shown with the individual sections or in a summary box on the last cross section sheet.
- Reflect undercut that may be required on each applicable cross section.

Earthwork Summary

- The earthwork summary submittal sheet, shown on page 16.5, indicates the method for calculating borrow excavation, unclassified excavation, and topsoil. If these earthwork items are to be a part of the project, this sheet must be submitted as part of the supporting data to the Area Local Transportation Engineer with the plan assembly. This information can also be included as a plan sheet noted to be removed from the final plan assembly.
- An earthwork summary should be shown in the plans on the last cross section sheet. Shrinkage factors will not be shown in the plans (see the [Alabama Department of Transportation Guidelines for Operation, page 3-11](#)). These quantities should be reflected on the main summary sheet. Page 16.4 shows the correct format to use.

SECTION 2(c) - PLAN SUBMITTALS

Plans, Specifications, and Estimate (PS&E) Review

The LPA Representative shall furnish one (1) 11" x 17" (or letter size, if applicable) set of prints to the Area office and one (1) set to the Local Transportation Bureau, for a "Plans, Specifications, and Estimate" (PS&E) review. For projects involving multiple pavement width transitions and/or in which the number of lanes varies throughout the work limits, calculation sheets should also be provided so pavement buildup, striping, markings, legends, and pavement marker quantities can be verified.

The plans should reflect the recommended items of work, as noted in the "Scope of Work" review and conform to the design criteria in the approved PER (or Scope of Work for Pavement Preservation projects). The Local Transportation Bureau will coordinate with the Area office and the LPA to schedule a time, date, and location for the PS&E review. Electronic plan submittals will be acceptable. No signatures on the title sheet are required for the PS&E review.

After the PS&E review is completed, the Area office will prepare a PS&E review letter documenting the date of the review, the attendees, and a summary of the plan corrections and proposed revisions discussed during the review meeting.

The LPA has the option to develop letter size plans based on the following general guidelines:

- Letter size plan submittals are intended solely for minor resurfacing and/or widening projects. Letter size plan submittals **are not permitted** for any projects involving plan & profile sheets, cross sections, etc.
- Make sure all sheets are clearly legible. Use a font size, script type, and line weight that is easy to read.
- Due to the space limitations on the title sheet, the site location map may be shown on a separate sheet if necessary; however, the project site description must be shown on the title sheet. This will also apply to multiple sites.
- Any project detail drawings that must be added to the plans **will be the responsibility of the LPA**. Design file drawings are available for the standard TCP sheets (2 lane closure sketches & TCP notes), details for guardrail protection at culverts, and the "end anchor type special drawings." The LPA will be responsible for replicating all the design detail sketches and applicable notes on letter size sheets.

Construction Bureau Plan Review (Schedule Deadlines)

Revised Plans & Supporting Data Submittal (18 weeks prior to scheduled letting date)

Once the LPA has revised the plans, based on the PS&E review comments, one (1) 11” x 17” (or letter size, if applicable) set of prints and the required supporting documentation, should be furnished to the Area office for review. Refer to Chapters 5 through 7 for a detailed list of the required supporting documentation. No signatures on the title sheet are required at this time.

The Area office will review the plan submittal to ensure that all PS&E review comments have been fully and adequately addressed. The Area office will contact the LPA to discuss any additional corrections or revisions that may be required. Once the Area office has verified that the plans are in compliance with the PS&E review comments, the plans and required supporting documentation should be forwarded to the Local Transportation Bureau.

The LPA will prepare a project cost estimate and submit a copy to the Area office with the plans. The Area office will be responsible for preparing an estimate in “AASHTOWare Project” format and verifying unique item numbers, quantities, and unit bid prices. The “AASHTOWare Project” estimate should be passed electronically to the Local Transportation Bureau. A hard copy of the estimate should be submitted with the Final Back Check submittal.

Final Back Check Submittal (16 weeks prior to scheduled letting date)

Final back check plans and the required supporting data should be submitted by the Area Office to the Local Transportation Bureau. The LTB will conduct a cursory plan review to verify that the PS&E comments were addressed to the satisfaction of this office and to ensure that all required special project detail drawings are properly indexed and included in the plans. The Local Transportation Bureau will contact the LPA to discuss any additional corrections or revisions that may be required.

Construction Review Submittal (14 weeks prior to letting date) (15 weeks for January)

The plans and supporting data are submitted by the Local Transportation Bureau to the Construction Bureau for review. This review is made to ensure that the plans conform to federal and state requirements and there are no apparent construction issues. The Construction Bureau also specifies special provisions to be included in the bid proposal, the percentage of construction fuel allowed, and the recommended working days for completion of the project. Comments from the Construction Bureau will be addressed in a written letter. Both the LPA and the Area office will receive a copy of the comment letter.

Office Engineer Plan Submittal (Schedule Deadlines)

Plan Submittal to the Area Office (11 weeks prior to scheduled letting date)

The LPA will be responsible for the corrections/revisions required as a result of the Construction Bureau plan review. After the LPA has addressed all changes or corrections, one set of final plans should be submitted to the Area Local Transportation Engineer for review and approval. Plan sheets for full size plan submittals may be on paper, with the exception of the title sheet, which is required to be on Mylar. Full size plans must be printed at 22" x 34." Title sheets on paper are acceptable for letter size plan submittals. **The LPA Representative's signature is required on the title sheet.** Any plans that were developed by a consultant will require the designer of record's official seal and signature on the title sheet. Any original signatures on letter size plans should be in **blue ink**.

Plan Submittal to the Local Transportation Bureau (10 weeks prior to letting date)

The Area office should review the plans to ensure that all Construction Bureau review comments have been satisfactorily addressed, and **then have the Region Engineer sign the title sheet.** The Area will then forward the final plans to the Local Transportation Bureau.

The plan transmittal should include a letter addressing the disposition of all the Construction Bureau comments, especially noting any justifications or reasons for not complying with a specific comment. This does not have to be a formal letter. A copy of the Construction Bureau review letter, with legible handwritten notations for each comment, will be acceptable.

Plan submittal to Office Engineer (9 weeks prior to letting date) (10 weeks for January)

A final plan review will be conducted by the Local Transportation Bureau. The plans, along with the required supporting data, will then be transmitted to the Bureau of Office Engineer to be processed for letting.

SECTION 2(d) - PROJECT AUTHORIZATION AND FUNDING AGREEMENTS

The Local Transportation Bureau will prepare a project agreement approximately 4 weeks prior to the scheduled letting date for contract projects. These agreements must be approved by all parties prior to award of the contract. All material is submitted to the Federal Highway Administration requesting authorization 6 weeks (7 weeks for January) prior to the letting date. The Bureau of Office Engineer will issue a notice to contractors 4 weeks prior to the letting date. If plan revisions are necessary after Office Engineer issues a notice to contractors, revisions must be submitted by the LPA in accordance with [Guidelines for Operation, Section 3-5 PLAN REVISIONS](#).

If an LPA chooses to perform certain items of work in advance of a project to be let to contract, the LPA should furnish a "Non-Contract Items of Work Certification" (see Page 16.40) to the Local Transportation Bureau (copy the Area office) prior to project authorization specifying that all applicable non-contract items of work, as noted in the "Scope of Work" (for pavement preservation projects) or the "Project Engineering Record" have been completed by the LPA.

It is helpful if the LPA can have these items completed in time to submit this documentation as part of the final plan submittal. **A PROJECT FUNDING AGREEMENT WILL NOT BE PREPARED UNTIL THIS DOCUMENT IS RECEIVED.**

SECTION 2(e) - PROJECTS LET TO CONTRACT BY STATE SERVICES

As soon as possible after the bid opening, The LPA should notify the Local Transportation Bureau in writing either recommending the award of the project to the low responsive bidder or recommending rejection of the award.

Upon receiving a recommendation of award from the LPA, ALDOT will convene a meeting of the Bid Review Committee, which will either recommend the Transportation Director award the contract to the low responsive bidder, or that the bids be rejected.

After ALDOT's Bid Review Committee recommends that the Transportation Director award a contract, the Local Transportation Bureau will prepare an invoice requesting the LPA to remit the LPA match portion of the project contract price. The LPA's match portion of the project contract cost must be received within 30 days (4 weeks) of the letting date. For early award projects, the LPA's match must be received within 10 days (no DBE goal) or within 15 days (with DBE goal).

IF THE LPA'S MATCH PORTION IS NOT RECEIVED BY THE LOCAL TRANSPORTATION BUREAU BY THIS DEADLINE, THE TRANSPORTATION DIRECTOR WILL NOT AWARD THE CONTRACT. THE BIDS MAY HAVE TO BE REJECTED AND THE LPA'S FEDERAL FUNDS MAY REVERT TO THE DEPARTMENT OF TRANSPORTATION.

After an award is made, the contractor has 15 days (5 days for early awards) to return the contract to the Department of Transportation, and then the Transportation Director and the Governor have 20 days to sign the contract. After the contract is signed by all parties, the Office Engineer has 15 days (5 days for early awards) to issue the Notice to Proceed work order. After the Notice to Proceed work order is issued, the contractor has 15 days (10 days for early awards) to begin work unless modified by a special provision.

SECTION 2(f) - PROJECTS LET TO CONTRACT BY THE LPA

For procedures and project deliverables, see Chapter 4 of this manual.

As soon as possible after the bid opening, The LPA should provide the Area office a copy of the bid tabulations and notify the Area office in writing either recommending the award of the project to the low responsive bidder or recommending rejection of the award.

Upon receiving a recommendation of award from the LPA, the Area office will either concur in awarding the contract to the low responsive bidder, or recommend the bids be rejected.

THE LPA SHOULD NOT AWARD A CONTRACT UNTIL A WRITTEN CONCURRENCE FROM ALDOT AREA OFFICE IS RECEIVED. AWARDING A CONTRACT PRIOR TO RECEIVING A WRITTEN CONCURRENCE FROM THE AREA MAY JEOPARDIZE FEDERAL OR STATE FUNDS.

CHAPTER 3 FORCE ACCOUNT WORK

LPA's may seek approval to perform all, or some, required items of work associated with a Federal aid construction project by LPA forces and seek Federal aid reimbursement. This work may be performed in three manners; (1) complete all the project items of work by LPA forces in its entirety, (2) complete some items of work by LPA forces prior to a contractor award for the remaining items of work, or (3) complete remaining items of work by LPA forces subsequent to the maintenance acceptance of a contractor awarded project.

LPA forces shall not be permitted to mobilize within the limits of any active Contractor awarded project between the issuance of a Notice To Proceed and Maintenance Acceptance, except when preapproved by ALDOT in writing.

The expenditure of Federal funds under force account for work performed by LPA forces will only be approved when the LPA can demonstrate that it is cost effective as defined in the [Title 23 CFR 635 Subpart B Federal Code](#). Requests for LPA force account work should be addressed to the Local Transportation Bureau and shall be reviewed and approved on a case-by-case basis.

SECTION 3(a) - LPA FORCE ACCOUNT FOR COMPLETE PROJECTS

The LPA should include in the initiation documents that force account reimbursement for work performed by a LPA is requested. If not included when the project is initiated, the LPA should notify the Local Transportation Bureau as soon as possible in order to reduce any possible delays in project authorization.

The LPA shall submit a request to undertake highway construction work by force account. The LPA shall submit a written request to the Local Transportation Bureau identifying and describing the project and the kind of work (pay items and item numbers) proposed to be performed by LPA forces, estimated quantities for each item, the estimated federal funds to be requested, and the reason or reasons that force account for the project is considered cost effective. Included in this request shall be the force account estimated cost breakdowns and the contract estimated costs (if the project were to be let to contract).

The Local Transportation Bureau will review the request in consultation with the Bureau of Office Engineer. The Local Transportation Bureau will coordinate with the LPA and, if approved, issue an approval letter notifying the LPA to proceed with project development.

It should be noted that depending on the specific items of work, each project may require unique plan development requirements. Please contact the Local Transportation Bureau for any specific project related questions regarding these procedures.

Any federal aid funds used for highway construction are subject to normal design standards, environmental clearances, and right-of-way, railroad, and utility certifications.

Once final plans have been received, the Area Local Transportation Engineer shall ensure the estimates are entered into the “AASHTOWare Project” system. The Local Transportation Bureau will coordinate with the LPA and execute a funding agreement for the Federal aid force account project in accordance with the procedures as noted in Chapter 2, Section 2(d). Once executed, the LPA will be issued a notice to proceed for the force account work by the Region Office after obtaining project authorization from the Bureau of Office Engineer.

Upon receipt of the notice to proceed letter, the LPA shall provide a letter to the Area office providing the date they intend to begin LPA force account work. The LPA must then begin work within ten (10) calendar days.

Once the LPA has completed all required items of work, the LPA may request a final inspection by certifying in writing that LPA performed work (signed and stamped by the Engineer of Record) was performed in accordance with the plans, applicable specifications, and special provisions. A final inspection will then be conducted jointly by ALDOT and LPA personnel. If all items of work are found to be satisfactory, the Region will issue a maintenance acceptance to the LPA. If a punchlist is developed, the LPA will be notified in writing and given thirty (30) calendar days to complete the remaining items of work. If the LPA does not complete all the items of work within this period, all Federal and State funds to the LPA may be suspended until the remaining items of work are completed.

Any project documentation for LPA force account work required by specifications and applicable special provisions will be retained by the LPA for a period of three (3) years following receipt of final payment and made available for audit by the State upon request.

The LPA should also be aware that any work performed by a LPA and reimbursed by Federal aid shall conform to ALDOT specifications, and all necessary testing of materials shall conform to the latest edition of [ALDOT Testing Manual](#).

The LPA shall provide traffic control devices required to accomplish the LPA force account work.

The LPA shall be responsible for securing the necessary permit(s) and be responsible for the implementation of best management practices (BMPs).

All work performed by LPA forces will be the responsibility of the LPA. All costs associated with this work will be the responsibility of the LPA.

SECTION 3(b) - LPA FORCE ACCOUNT IN CONJUNCTION WITH A CONTRACTOR AWARDED PROJECT

Outlined below are the procedures for obtaining approval by which federal funds may be used to perform highway construction work by LPA forces and how an LPA is to be reimbursed on a force account basis when LPA force account work is performed in conjunction with a contractor awarded project.

Force account reimbursement for limited items of work performed by a LPA will only be allowed when in conjunction with another Federal aid project to be let to contract, that when combined, accomplish all the required project improvements.

Two federal aid project numbers will be assigned. One for the LPA force account work, and another for the work to be let to contract. Both project numbers should be referenced in all correspondence.

Examples of typical limited items of work that may be eligible for Federal aid LPA force account reimbursement include but are not limited to:

Prior to Contractor Award:

- Shoulder widening
- Pipe replacement/rehabilitation/extension
- Guardrail installation
- Removal of non-conforming mailboxes

Subsequent to Contractor Maintenance Acceptance:

- Shoulder flushing
- Sign installation
- Mailbox resets

The LPA should include in the initiation documents that force account reimbursement for work performed by an LPA is requested. If not included when the project is initiated, the LPA should notify the Local Transportation Bureau as soon as possible in order to reduce any possible delays in project authorization.

The LPA shall submit a request to undertake highway construction work by force account. The LPA shall submit a written request to the Local Transportation Bureau identifying and describing the project and the kind of work (pay items and item numbers) proposed to be performed by LPA forces, estimated quantities for each item, the estimated federal funds to be requested, and the reason or reasons that force account for the project is considered cost effective. Included in this request shall be the force account estimated cost breakdowns and the contract estimated costs (if the project were to be let to contract). The Local Transportation Bureau will review the

request in consultation with the Bureau of Office Engineer. The Local Transportation Bureau will coordinate with the LPA and, if approved, issue an approval letter notifying the LPA to proceed with project development.

Any federal aid funds used for highway construction are subject to normal design standards, environmental clearances, and right-of-way, railroad, and utility certifications. This will be accomplished through the normal procedures referenced in this manual. The clearances and certifications can be obtained for both projects (force account and contract) concurrently. Submitted clearances and certifications should include both force account and contract project numbers on all documents.

The LPA should also be aware that any work performed by a LPA and reimbursed by Federal aid shall conform to ALDOT specifications, and all necessary testing of materials shall conform to the latest edition of [*ALDOT Testing Manual*](#).

The LPA shall provide traffic control devices required to accomplish the LPA force account work.

The LPA shall be responsible for securing the necessary permit(s) and be responsible for the implementation of best management practices (BMPs).

SECTION 3(c) - LPA FORCE ACCOUNT IN ADVANCE OF CONTRACT WORK

Upon receipt of the approval letter notifying the LPA to proceed with project development, the LPA shall, at a minimum, prepare a Title Sheet, Project Notes and a Summaries of Quantities Sheet(s) denoting work to be performed by the LPA.

It should be noted that depending on the specific items of work, each project may require unique plan development requirements. Please contact the Local Transportation Bureau for any specific project related questions regarding these procedures.

Final plans are to be submitted to the Region with a copy forwarded to the Local Transportation Bureau for review. Upon receipt of approved final plans, the Area Local Transportation Engineer shall ensure the estimates are entered into the “AASHTOWare Project” system and review the request for their concurrence.

The Area Local Transportation Engineer shall then forward a copy of the request and supporting estimates to the Local Transportation Bureau. The Local Transportation Bureau will coordinate with the LPA to execute a funding agreement for the Federal aid force account project in accordance with the procedures as noted in Chapter 2, Section 2(d).

Once executed, the LPA will be issued a notice to proceed for the force account work by the Region Office after obtaining project authorization from the Office Engineer Bureau.

The LPA shall provide a letter to the Region advising their intent to begin LPA force account work on a project. The LPA must then begin work within ten (10) calendar days.

Once the LPA has completed all required items of work, the LPA may request a final inspection by certifying in writing that LPA performed work (signed and stamped by the Engineer of Record) was performed in accordance with the plans, applicable specifications, and special provisions. A final inspection will then be conducted jointly by Region and LPA personnel. If all items of work are found to be satisfactory, the Region will issue a maintenance acceptance to the LPA. If a punch list is developed, the LPA will be notified in writing and given thirty (30) calendar days to complete the remaining items of work. If the LPA does not complete all the items of work within this period, all Federal and State funds to the LPA may be suspended until the remaining items of work are completed.

Any project documentation for LPA force account work required by specifications and applicable special provisions will be retained by the LPA for a period of three (3) years following receipt of final payment and made available for audit by the State upon request.

All work performed by LPA forces will be the responsibility of the LPA. All costs associated with this work will be the responsibility of the LPA.

SECTION 3(d) - CONTRACT WORK IN ADVANCE OF LPA FORCE ACCOUNT

Upon receipt of the approval letter notifying the LPA to proceed with project development, the LPA shall prepare the plans. Project notes and separate summaries of quantities will be included in the plans denoting work to be performed by the LPA. Plans are to be submitted to the Region with a copy forwarded to the Local Transportation Bureau for review. Upon receipt of final plans, the Area Local Transportation Engineer shall ensure the estimates are entered into the "AASHTOWare Project" system and review the request for their concurrence.

The Local Transportation Bureau will coordinate with the LPA to execute separate funding agreements for the contract and force account projects in accordance with the procedures as noted in Chapter 2, Section 2(d).

Once the funding agreement has been executed, the contract project has been let to contract, constructed, and accepted for maintenance, the LPA shall submit a written request to the Area Local Transportation Engineer to perform the force account work. This request should be forwarded to the Local Transportation Bureau. The LPA will then be issued a Notice to Proceed for the force account work by the Region Office after obtaining project authorization from the Office Engineer Bureau.

The LPA shall provide a letter to the Local Transportation Bureau advising their intent to begin LPA force account work on a project within ten (10) calendar days of the

Contractor's Maintenance Acceptance. The LPA shall include in this letter a statement accepting ownership for traffic and sediment control. A copy of this letter shall also be sent to the Contractor by the LPA. The LPA will be issued a notice to proceed for the force account work by the Office Engineer Bureau after obtaining project authorization. The LPA must then begin work within ten (10) calendar days.

The contractor will only be responsible for traffic control devices until all controlling items or work are complete and issuance of maintenance acceptance. The LPA will assume ownership and responsibility for all traffic control devices installed by the Contractor and provide any additional traffic control devices required to accomplish the LPA force account work.

The LPA shall be responsible for securing the necessary permit(s) and be responsible for the implementation of best management practices (BMPs). The LPA will assume ownership and responsibility for all BMPs installed by the contractor. The LPA shall maintain all BMPs and provide any additional BMPs required to accomplish the LPA force account work until work performed by LPA forces is accepted and permanent vegetation established. The LPA shall be responsible for the removal/modification of such BMPs, when appropriate. When an LPA performs its own bridge approach work, the Contractor will be responsible for the installation and maintenance of erosion and sediment control measures required for the bridge structure only.

Once the LPA has completed all required items of work, the LPA may request a final inspection by certifying in writing that LPA performed work (signed and stamped by the Engineer of Record) has been performed by LPA forces in accordance with the plans, applicable specifications, and special provisions. A final inspection will then be conducted jointly by ALDOT and LPA personnel. If all items of work are found to be satisfactory, the ALDOT Region Office will issue a maintenance acceptance to the LPA. If a punchlist is developed, the LPA will be notified in writing and given thirty (30) calendar days to complete the remaining items of work. If the LPA does not complete all the items of work within this period, all Federal and State funds to the LPA may be suspended until the remaining items of work are completed.

Any project documentation for LPA force account work required by specifications and applicable special provisions will be retained by the LPA for a period of three (3) years following receipt of final payment and made available for audit by the State upon request.

All work performed by LPA forces will be the responsibility of the LPA. All costs associated with this work will be the responsibility of the LPA.

SECTION 3(e) - FORCE ACCOUNT REIMBURSEMENT

Force account reimbursement for work performed by LPA forces on Federal aid projects will generally follow ALDOT Standard Specification 109.04(b). Force account records in ALDOT Specification are comprised of four separate sections of information.

The first is labor costs. Force account records should include payrolls for labor costs. Actual labor costs will be allowed plus an audited labor additive (Social Security, FICA, retirement, etc.). A notarized statement from the LPA listing their audited labor additive and its components should be included. However, the 20% addition to labor costs, as allowed in ALDOT Specification representing profit, will not be allowed.

The second section is an allowance for bond, insurance and tax. No costs for bonds or tax will be approved, since in this context they are not applicable for governmental entities. However, a prorated amount for insurance (workman's compensation, liability, etc.) applicable to the labor payrolls included will be allowed. A notarized statement from the LPA listing their audited insurance rates should be included.

The third section is material costs. Force account records should include material receipts. However, the 15% addition to material costs, as allowed in ALDOT Specification representing profit, will not be allowed.

The fourth section is equipment costs. Force account records should include equipment usage worksheets where adjusted hourly rental rates are obtained from the "Blue Book" published by [EQUIPMENT WATCH](#), a unit of PRIMEDIA Information Incorporated. The LPA should coordinate with the Area Local Transportation Engineer for the proper equipment rental rate for use in preparing the required records.

Force account records should be submitted to the Area Local Transportation Engineer for review and approval. Once approved, the Area Local Transportation Engineer shall forward the force account records to the Local Transportation Bureau for final review, approval, and payment.

Each project may be unique and require special handling and requirements. Please contact the Area Local Transportation Engineer or the Local Transportation Bureau for any specific project related questions regarding these procedures.

CHAPTER 4 LOCALLY LET PROJECTS

SECTION 4(a) - ELIGIBILITY

For a certified LPA (see requirements in Chapter 1) to let a project locally utilizing state or federal funds, an [LPA Project Programming Request](#) must be submitted by the LPA and approved by the Region Engineer. Additional approvals based on the following eligibility requirements also apply:

- Eligibility is dependent upon the requirements of each funding program unless otherwise approved by the State Local Transportation Engineer.
- Capacity projects (adding travel lanes), interchange projects, on-system bridge projects, or any project exceeding an **initial** cost estimate of \$2,000,000 are subject to review and approval by the Chief Engineer.

SECTION 4(b) - PROJECT DEVELOPMENT AND AUTHORIZATION

No project can be advertised for bids until the following items have been completed:

- A project or contract identification number has been obtained.
- The PS&E plan review has been completed (including Design Certification Letter) and the LPA has satisfactorily addressed all review comments and potential design issues (see Chapters 2 and 10).
- The environmental document has been approved (see Chapter 9).
- The project's right of way, utilities, and railroad involvement have been certified (see Chapters 11, 12, and 14).
- Project Disadvantaged Business Enterprise (DBE), if any, have been established (the ALDOT Area Office and/or the ALDOT Construction Bureau may aid in this process).
- Construction funds have been authorized by the FHWA (federal funds) or an F-7A has been fully executed (state funds).
- The ALDOT Region Office has reviewed the LPA's [bid package](#) and the LPA has received a written Notice-to-Advertise from ALDOT's Region Engineer or his/her designee.

Note: If Preliminary Engineering (PE) services will be federally funded, the LPA must ensure the proper consultant selection process is followed. The LPA may seek additional information by contacting the appropriate ALDOT Area Office or the [ALDOT Contract Management Group](#).

SECTION 4(c) - BID ADVERTISEMENTS

Federal-aid projects are required to be advertised and available to the contractor for a minimum of twenty-one (21) days prior to letting. ***This advertisement must be placed in a newspaper of general circulation within the county.*** In rare circumstances, shorter periods may be approved by the FHWA, when justified. Copies of the plans, details, bills of material, schedule of items, and specifications shall be open to public inspection at the office where the bids are being received, during all business hours between the day of the first publication and the day for opening the bids and such other place as may be designated in the notice.

Note: Consultants/contractors must be prequalified by ALDOT for project awards in excess of \$1,000,000.00. Project awards less than \$1,000,000.00 will not require ALDOT prequalification. For project awards in excess of \$1,000,000.00, proposal forms will only be issued to prospective bidders who have qualified with ALDOT and have a valid ALDOT certification of qualification. Said certification shall be the same as that which would, by State law, be required prior to bid if the project were being let to contract by ALDOT. The contract will not be awarded to a bidder who does not have such a certification in effect with ALDOT at the time of the award, even if a proposal form was issued to that bidder. For additional information, please see Special Provision 22-LPA-001 contained in the locally let bid package.

[23 CFR 635.110\(c\) Licensing and Qualifications of Contractors](#)

The ***prime*** contractor must perform at least thirty (30) percent of the total original contract price excluding any identified specialty items. Work proposed to be performed under a subcontract must be approved by the LPA in writing through a formal process. Prior to approving the subcontract, the LPA must assure that the subcontract contains all pertinent provisions and requirements of the prime contract.

SECTION 4(d) - AMENDMENTS TO THE BID DOCUMENTS

The LPA must submit to ALDOT's Region Engineer or his/her designee any addendum to be issued during the advertisement period. Under no circumstances should the addendum process be used to circumvent state or federal laws, regulations, or guidance. All bidders must bid the project on the same or comparable basis, so that no advantage or disadvantage accrues to any potential bidder or to the contracting agency. Since an addendum issued during an advertisement period could have a profound impact, not just on bid prices, but also on the basis for bid comparisons, all prospective bidders must be made aware of any addendum, as expeditiously as possible.

ALDOT must approve such addendum for project eligibility prior to bid opening. For full FHWA oversight projects, ALDOT will submit the addendum to the FHWA Division office for review and approval prior to awarding the contract. The LPA shall furnish any modification to the plans, specifications, or schedule of items to all parties who obtained plans and specifications for the project. The LPA must provide documentation of the receipt of the addendum to ALDOT's Region Engineer or his/her designee. ALDOT does not accept any proposed addendums within five (5) business days of bid opening.

SECTION 4(e)- BID OPENING

The bid opening is a public forum where the bids are opened and read aloud either item-by-item, or by the total bid amount. The LPA informs ALDOT's Region Engineer or his/her designee once the bid opening date and time is established. ALDOT shall keep FHWA apprised of these activities on full oversight projects. The bid opening should identify the apparent low bidder submitting the lowest, responsive bid. A responsive bid meets all the requirements of the advertisement and proposal. If a bid is determined to be unresponsive (*bid irregularities*), it does not have to be read. However, the bidder and the reason must be announced. The LPA needs to document and retain its reasons for not reading a bid. Some reasons for not reading a bid due to irregularities include:

- Failure to sign the bid, or signature is not by authorized personnel;
- Failure to furnish or sign the required bid bond;
- Failure to include unit prices, extensions, and/or lump sums;
- Failure to submit a non-collusion affidavit;
- Failure to commit to the DBE contract goals or demonstrate good faith effort to do so;
- Failure of the contractor to be prequalified, if required, for that type of work; or
- Inclusion of conditions or qualifications not provided for in the specifications.

SECTION 4(f) - LPA BID ANALYSIS AND EVALUATION

23 CFR 635.114(a), [Award of Contract](#), requires federal-aid contracts to be awarded only based on the lowest responsive bid. This requirement applies to all federal-aid construction projects. Estimates should be accurate and credible, based on realistic current data, and should be kept confidential. Further, there should be written documentation for justifying the award of a contract or rejection of the bids, when the low bid appears excessive, relative to the Engineer's Estimate, or rejection is being considered for other reasons. Factors that should be considered and documented by the LPA in reviewing the bids received for a project include:

- Comparison of the bids against the engineer's estimate;
- Number of bids submitted;
- Distribution or range of bids received;
- Identity and geographic location of the bidders;
- Potential for savings if the project is re-advertised;
- Bid prices for the project under review versus bid prices for similar projects in the same letting;

- Urgency of the project;
- Current market conditions/workload;
- Any unbalancing of bids (mathematically and/or materially);
 - Mathematically unbalanced bid: a bid that contains lump sum or unit bid items that do not reasonably reflect the actual costs (plus reasonable profit, overhead costs, and other indirect costs) to construct the item.
 - Materially unbalanced bid: a bid that generates reasonable doubt that award to that bidder would result in the lowest ultimate cost to the LPA or ALDOT.
- Which unit prices differ significantly from the estimate and from other bids (compare the 3 lowest bidders, if applicable)?
- Is there justification for the difference in unit prices; and
- Any other factors the LPA has determined to be important.

The LPA should analyze the bids for responsiveness and errors. The LPA and ALDOT should refer to the FHWA [Guidelines on Preparing Engineer's Estimate, Bid Reviews, and Evaluation, January 20, 2004](#) during their bid analysis. The analysis should result in a contract award to the lowest responsive bid. Should the bid be over the engineer's estimate, the LPA shall determine, if the bid amount is appropriate and provide written justification to ALDOT to award or reject the project. For full oversight projects, ALDOT, and FHWA must concur in the LPA's acceptance or rejection of bids. Even if competition is determined not to be adequate, the LPA may recommend the bid be accepted based on other documented reasons.

SECTION 4(g)- ALDOT BID CONCURRENCE

The LPA must prepare an itemized tabulation summary of all bids received and submit it to ALDOT's Region Engineer or his/her designee. The tabulation must list each bid item, the bid quantity for that item, and the unit price for each item bid by all bidders. For full oversight projects, ALDOT and the FHWA must concur prior to awarding a contract. The ***LPA must submit a request for concurrence*** with the itemized bid tabulation summary for the project. All applicable DBE forms must be submitted to ALDOT DBE Contracts Office. The ***written request must include a statement from the LPA indicating their selection or rejection of the low bidder*** and their desire to proceed or not to proceed with the award of the contract. On full oversight projects, the ALDOT and the FHWA will review the selection and ***issue a written concurrence to the LPA if acceptable***.

SECTION 4(h) - AWARDING AND EXECUTING THE CONSTRUCTION CONTRACT

The LPA must award the project construction contract in accordance with federal and state laws and policies. The LPA should apprise its legal counsel of any legal concerns with the bids or the award. Once the LPA has received written concurrence, it must provide notification of any project award to ALDOT's Region Engineer or his/her designee and the Local Transportation Bureau. For full FHWA oversight projects, ALDOT will submit the notification of award to the FHWA for approval within thirty (30) days of bid opening and

provide a copy of the resolution from the LPA. If the project has been assigned a DBE goal, the LPA must also include documentation from the contractor that all DBE commitments will be met. DBE Utilization Plans are due within 5 calendar days after the letting, and a federal aid project cannot be awarded if received after 5 calendar days. Federal funds will not be encumbered or released without this information.

Once the project has been awarded, the LPA may sign and enter into a contract with the awarded contractor. The contract should include items specified in the bid proposal, including all federal and state requirements. The LPA retains original contracts it executes with consultants/subcontractors but must forward copies of the fully executed contract to ALDOT's Region Engineer or his/her designee for project files. Copies will be provided to Bureau of Office Engineer and other Bureaus and Offices as needed. The Project Administrator will also provide copies of executed contracts to the FHWA on all *full FHWA oversight projects only*.

SECTION 4(i) - CONSTRUCTION, REIMBURSEMENTS, AND PROJECT CLOSEOUT

All projects utilizing federal or state funds should be constructed per the approved plans, the current edition of the [ALDOT Standard Specifications for Highway Construction](#), applicable special provisions, and the [ALDOT Construction Manual](#). All materials testing should be sampled and conducted in accordance with the [ALDOT Testing Manual](#).

The LPA shall issue a written notice to proceed per article 108.02 of the ALDOT standard specifications. The contractor and any subcontractors must attend a preconstruction conference per article 108.04 with the LPA after the award of the contract and prior to any work being performed.

After the preconstruction conference, the contractor may begin work after giving the LPA written notice per subarticle 108.04 (c). As work is performed, it will be inspected, sampled, tested, and measured by the LPA. The LPA will coordinate with ALDOT on these items as necessary for quality control purposes and ALDOT Region personnel may assist the LPA with any change orders or supplemental agreements. The contractor will be paid for their work in the form of a monthly estimate produced by the LPA in conjunction with the ALDOT Area Local Transportation Engineer or his/her designee. The LPA will pay the contractor and may seek reimbursement from ALDOT per the terms stated in the fully executed funding agreement. Typically, funding agreements allow the LPA to request reimbursement from ALDOT through the Region Office not more than once per month. The amount to be reimbursed by ALDOT's Finance Bureau will be a percentage of the amount requested (pro rata) per the approved funding agreement and is dependent on the requirements of the funding source.

When the work required by the contract is nearing completion, a construction acceptance inspection shall be performed with representatives from the LPA, ALDOT Region, and FHWA (if federal funds are utilized). If the inspection reveals that all work has not been satisfactorily completed, the contractor will receive a "punch list" of items to be performed before the project will be accepted for maintenance.

When requested by the contractor in writing, the LPA may consider accepting a portion of the contract for maintenance prior to all items being completed. This typically applies to permanent vegetation being established at a later date due to seasonal limitations. When an LPA partially accepts a project for maintenance, a written notice will be given to the contractor providing details of what is accepted as well as time charge information.

Once all remaining items (usually permanent vegetation) have been satisfactorily completed, the contractor will issue notice to the LPA stating items have been completed. The LPA and the ALDOT Region Office will perform a final inspection. After the LPA and ALDOT both concur that the contractor has performed all work, the LPA will advise the contractor in writing that the work has been accepted and the LPA will assume maintenance thereof subject to the “record check” of materials and workmanship.

After receiving notice that the project is accepted for maintenance, the contractor will be required to give notice of said completion by an advertisement for a period of 3 consecutive weeks utilizing one of more of the methods shown in Special Provision No. 22-LPA-002(2) contained in the LPA’s approved bid package for contracts of \$100,000 or more.

Once the “record check”, the contractor’s advertisement of completion, and any remaining items are completed, the LPA will process the final estimate for payment and give the contractor written notice that the project is completed. The LPA is required to have project files available for audit for 3 years after project completion per 49 CFR 18.42.

The LPA will be responsible for maintaining their facilities and protecting investments made by ALDOT and FHWA in accordance with Chapter 15 - Maintenance Procedures.

Note: If additional information or further details are needed concerning construction, reimbursements, and project closeout procedures the LPA should consult the resources provided and/or the Area Local Transportation Engineer or his/her designee.

CHAPTER 5 PAVEMENT PRESERVATION PROJECTS

Any Federal Aid LPA “Pavement Preservation” project shall be designed in accordance with the policies and procedures as defined in the [Alabama Department of Transportation, Local Public Agency Road Design Policy](#) (Chapter 10 of this manual) and the following guidelines noted in this chapter.

SECTION 5(a) - PROJECT INITIATION

The LPA shall initiate the proposed project in accordance with the guidelines as noted in Chapter 2, Section 2(a). The requested letting date should be a minimum of six (6) months from the time the resolution and supporting data is submitted to the Local Transportation Bureau.

The following documentation and supporting data should be **SUBMITTED TOGETHER** to initiate a “Pavement Preservation” project:

- **INITIATION DATA SUBMITTAL CHECKLIST** (see Chapter 2, page 2.3).
- **RESOLUTION** of the LPA governing body setting up the project (one with original signatures for the Local Transportation Bureau and one copy for the Area office). (See examples on pages 16.49 and 16.50). Attach a **letter size legible** location map (1:160 000 scale official Alabama Department of Transportation county map) and link node map (see examples on pages 16.28 and 16.29).
- **USGS MAPS** - Provide two (2) letter size portions of a 7½" USGS map showing the project location (see example on page 16.58).
- A **TITLE SHEET** containing a project description utilizing the following template example: Resurfacing on Pine Lake Road (CR-16) from CR-38 to SR-2 (US-72). This information will be utilized to request a completed project number and will be provided to the project sponsor when received.
- A **LETTER OF INVOLVEMENT (4-F LANDS, ETC.)** stating if there is any involvement with lands from a public park, recreation area, wildlife refuge, historical site, navigable water, airport, or railroad (one copy for the Local Transportation Bureau and one copy for the Area office) (see example on page 16.27).

- An AIRPORT INVOLVEMENT LETTER should be furnished if an airport is located **within 2 miles of the project** (see example on page 16.1) (one copy for Local Transportation Bureau and one copy for the Area office). If the project significantly increases the elevation of the roadway, in relation to the airport, you should contact the Local Transportation Bureau for the proper procedures to follow.
- A RIGHT-OF-WAY (ROW) RECORDING DATA LETTER stating the basic width of the existing right-of-way, the date it was acquired, recording information (location of recording, deed book, and page), and whether or not additional right-of-way is required (see page 11.18). **Right-of-way acquisition should not be required on Pavement Preservation projects since all work will be contained within the existing roadway.**
- TRAFFIC COUNT INFORMATION can be found on the [Alabama Traffic Data](#) map. If counts are found, produce a screen print of the counts from the website. If no counts can be found within 2 miles of the project limits, this information should be furnished utilizing the traffic request form on the [Local Transportation Bureau webpage](#) by the LPA in accordance with the “Standards for Traffic Volume and Classification Counts” as shown in Chapter 13, or the LPA can request ALDOT furnish the counts. The Local Transportation Bureau will provide the crash data needed for the project.

The LPA should not proceed with any plan work until this information is received.

SECTION 5(b) - ENVIRONMENTAL CLEARANCE

Upon receipt of the “Initiating Data Submittal Checklist,” the Preconstruction Section will review the initiating data for accuracy. If additional information is needed, an email detailing the additional information will be sent to the Area Office and Project Sponsor. Once the Preconstruction Section has all information in its entirety, the type of environmental document will be determined and discussed with the LPA for acceptance. Environmental procedures are outlined in detail in Chapter 9 of this manual.

SECTION 5(c) - SCOPE OF WORK

A “Scope of Work” review will be conducted jointly by representatives from the Area office and the LPA in accordance with the guidelines as noted in Chapter 2, Section 2(a), and the Design Criteria for Pavement Preservation as shown in Chapter 10, Section 2. The sponsor shall submit a completed [Scope of Work \(Pavement Preservation\)](#) to the Area office.

Note: Final plan preparation should not begin until the “Scope of Work” is approved.

SECTION 5(d) - PS&E REVIEW SUBMITTAL

Once the “Scope of Work” is approved, the LPA Representative should review the plan preparation guidance found in Chapter 2, Section 2(b) when developing the plan assembly. Once all guidance has been reviewed and applied appropriately to the plan set, the LPA shall furnish one (1) 11” x 17” (or letter size, if applicable) set of prints to the Area office and one (1) set to the Local Transportation Bureau, for a “Plans, Specifications, and Estimate” (PS&E) review. For projects involving multiple pavement width transitions and/or in which the number of lanes varies throughout the work limits, calculation sheets should also be provided so pavement buildup, striping, markings, legends, and pavement marker quantities can be verified. The LPA has the option to develop letter size plans based on the general guidelines as shown in Chapter 2, Section 2(c).

The plans should reflect the recommended items of work and conform to the design criteria in the approved “Scope of Work (Pavement Preservation)”. The Local Transportation Bureau will coordinate with the Area office and the LPA to schedule a time, date, and location for the PS&E review. Electronic plan submittals will be acceptable. No title sheet signatures are required for the PS&E review.

After the PS&E review is completed, the Area office will prepare a PS&E review letter documenting the date and location of the review, the attendees, and a summary of the plan corrections and proposed revisions discussed during the review meeting.

SECTION 5(e) - REVISED PLANS & SUPPORTING DATA SUBMITTAL

Once the LPA has revised the plans, based on the PS&E review comments, one (1) 11” x 17” (or letter size, if applicable) set of prints and the required supporting documentation, should be furnished to the Area office for review **at least 18 weeks prior to the scheduled letting date**. This package should also include the LPA’s recommended working days for the project and the requested letting date. No title sheet signatures are required at this time. A list of the required supporting data is shown on the following page.

The Area office will review the plan submittal to ensure that all PS&E review comments have been fully and adequately addressed. The Area office will contact the LPA to discuss any additional corrections or revisions that may be required. Once the Area office has verified that the plans are in compliance with the PS&E review comments, the plans and required supporting documentation should be forwarded to the Local Transportation Bureau in accordance with Section 5(f) of this chapter.

REQUIRED SUPPORTING DATA	EXAMPLE PAGE NO.
Cost Estimate (see note below) ★	N/A
Acquired ROW Recording Data Letter, if applicable	N/A
Certification of Railroad Involvement	LTB Webpage
Earthwork Summary Submittal Sheet, if applicable	16.5
Engineering and Inspection (E & I) Reduction Letter if applicable	16.7
Engineering Personnel and Equipment Certification ø	16.8
National Pollutant Discharge Elimination System (NPDES) Permit Certification	16.39
Non-Contract Items of Work Certification	16.40
Plans, Specifications, & Estimate Letter (PS&E)	16.44
ROW Certification for Physical Construction	11.18
Right-of-Way Encroachment Certification	16.53
Utility Agreements, if applicable	LTB Forms
Utility Certificate	14.2 - 14.3

★ The LPA will prepare a project cost estimate and submit a copy to the Area office with the plans. The Area office will be responsible for preparing an estimate in “AASHTOWare Project” format and verifying unique item numbers, quantities, and unit bid prices. The “AASHTOWare Project” estimate should be passed electronically to the Local Transportation Bureau. A hard copy of the estimate should be submitted with the final back check submittal.

ø The LPA has the option to use an “on-call” consultant for inspection purposes. Contact the Area office for a list of approved consultants.

SECTION 5(f) - FINAL BACK CHECK SUBMITTAL

Final back check plans and the required supporting data should be submitted by the Area Office to the Local Transportation Bureau **at least 16 weeks prior to the scheduled letting date**. This package shall have a cover letter from the Area Office that includes the recommended working days and the requested letting date for the project. The LTB will conduct a cursory plan review to verify that the PS&E comments were addressed to the satisfaction of this office and to ensure that all required special project detail drawings are properly indexed and included in the plans. The Local Transportation Bureau will contact the LPA to discuss any additional corrections or revisions that may be required.

SECTION 5(g) - CONSTRUCTION REVIEW SUBMITTAL

The plans and supporting data are submitted by the Local Transportation Bureau to the Construction Bureau for review **at least 14 weeks (15 weeks for January) prior to the scheduled letting date**. This review is made to ensure that the plans conform to federal and state requirements and there are no apparent construction issues. The Construction Bureau also specifies special provisions to be included in the bid proposal, the percentage of construction fuel allowed, and the recommended working days for completion of the project. Comments from the Construction Bureau will be addressed in a written letter. Both the LPA and the Area office will receive a copy of the comment letter. The LPA will be responsible for the corrections/revisions required as a result of the Construction Bureau plan review.

SECTION 5(h) - OFFICE ENGINEER PLAN SUBMITTAL

After the LPA has addressed all changes or corrections, as noted in the Construction Bureau review letter, one set of final plans should be submitted to the Area office for review and approval **at least 11 weeks prior to the scheduled letting date**. Plan sheets for full size plan submittals may be on paper, with the exception of the title sheet, which is required to be on Mylar. **Full size plans must be printed at 22" x 34."** Title sheets on paper are acceptable for letter size plan submittals. **The LPA Representative's signature is required on the title sheet**. Any plans that were developed by a consultant will require the designer of record's official seal and signature on the title sheet. Any original signatures on letter size plans should be in **blue ink**.

The Area office should review the plans to ensure that all Construction Bureau review comments have been complied with, and then **have the Region Engineer sign the title sheet**. The Area office will then forward the final plans to the Local Transportation Bureau **at least 10 weeks prior to the scheduled letting date**.

The plan transmittal should include a letter addressing the disposition of all the Construction Bureau comments, especially noting any justifications or reasons for not complying with a specific comment. This does not have to be a formal letter. A copy of the Construction Bureau review letter, with legible handwritten notations for each comment, will be acceptable.

A final plan review will be conducted by the Local Transportation Bureau. The plans, along with the required supporting data, will then be transmitted to the Bureau of Office Engineer to be processed for letting.

SECTION 5(i) PROJECT FUNDING, AUTHORIZATION, AND AWARD

A project funding agreement will be prepared by this office in accordance with the procedures as noted in Chapter 2, Section 2(d).

After bids are received, the project sponsor shall refer to Chapter 2, Section 2(e) for guidance.

CHAPTER 6 RESURFACING, RESTORATION AND REHABILITATION PROJECTS (3R)

Any Federal Aid LPA “Resurfacing, Restoration, and Rehabilitation” project (3R Project) shall be designed in accordance with the policies and procedures as defined in the [Alabama Department of Transportation, Local Public Agency Road Design Policy](#) (Chapter 10 of this manual) and the following guidelines noted in this chapter.

SECTION 6(a) - PROJECT INITIATION

The LPA shall initiate the proposed project in accordance with the guidelines as noted in Chapter 2, Section 2(a). The requested letting date should be a minimum of six (6) months from the time the resolution and supporting data is submitted to the Local Transportation Bureau.

The following documentation and supporting data should be **SUBMITTED TOGETHER** to initiate a “3R” project:

- **INITIATION DATA SUBMITTAL CHECKLIST** (see Chapter 2, page 2.3).
- **RESOLUTION** of the LPA governing body setting up the project (one with original signatures for the Local Transportation Bureau and one copy for the Area office) (see examples on pages 16.49 and 16.50). Attach a **letter size legible** location map (1:160 000 scale official Alabama Department of Transportation county map) and link node map (see examples on pages 16.28 and 16.29).
- **USGS MAPS** - Provide two (2) letter size portions of a 7½" USGS map showing the project location (see example on page 16.58).
- A **TITLE SHEET** containing a project description utilizing one of the following template examples or something similar in nature: **1)** Widening and Resurfacing on Pine Lake Road (CR-16) from CR-38 to SR-2 (US-72); **2)** Safety Improvements (2' Safety Widening, Scoring, Striping, and Guardrail Improvements) on CR-37 from Brilliant Road (CR-77) to SR-53; **3)** Intersection Improvements (Adding Turn Lanes and Traffic Signals) at SR-55/CR-1. This information will be utilized to request a completed project number and will be provided to the project sponsor when received.
- A **LETTER OF INVOLVEMENT (4-F LANDS, ETC.)** stating if there is any involvement with lands from a public park, recreation area, wildlife refuge, historical site, navigable water, airport, or railroad (one copy for the Local Transportation Bureau and one copy for the Area office) (see example on page 16.27).

- An AIRPORT INVOLVEMENT LETTER should be furnished **if an airport is located within two (2) miles of the project** (see example on page 16.1) (one copy for the Local Transportation Bureau and one copy for the Area office). If the project significantly increases the elevation of the roadway, in relation to the airport, you should contact the Local Transportation Bureau for the proper procedures to follow.
- A RIGHT-OF-WAY (ROW) RECORDING DATA LETTER stating the basic width of the existing right-of-way, the date it was acquired, recording information (location of recording, deed book, and page), and whether or not additional right-of-way is required (see page 11.18).

If no recorded right-of-way exists, submit a letter stating this and indicate how much right-of-way will be required (one copy for the Local Transportation Bureau and one copy for the Area office). **Preliminary Relocation Assistance Analysis is required if any additional right-of-way is necessary; use the ROW-RA-1(LPA) Form (see page 11.18)** (one copy for the Local Transportation Bureau and one copy for the Area office).

Right-of-way acquisition will require consultation with other specific agencies and/or departments as part of the NEPA approval process. Any such agencies with special expertise concerning the project or with jurisdiction by law are designated as “Cooperating Agencies” and must be contacted for any views and comments they may have regarding the project. Contact the [Preconstruction Section](#) of the Local Transportation Bureau for a list of review agencies that will need to be consulted.

- TRAFFIC COUNT INFORMATION can be found on the [Alabama Traffic Data](#) map. If counts are found, produce a screen print of the counts from the website. If no counts can be found within 2 miles of the project limits, this information should be furnished utilizing the traffic request form on the [Local Transportation Bureau webpage](#) by the LPA in accordance with the “Standards for Traffic Volume and Classification Counts” as shown in Chapter 13, or the LPA can request ALDOT furnish the counts. The Local Transportation Bureau will provide the crash data needed for the project.

The LPA should not proceed with any plan work until this information is received.

SECTION 6(b) - ENVIRONMENTAL CLEARANCE

Upon receipt of the “Initiating Data Submittal Checklist,” the Preconstruction Section will review the initiating data for accuracy. If additional information is needed, an email detailing the additional information will be sent to the Area Office and Project Sponsor. Once the Preconstruction Section has all information in its entirety, the type of environmental document will be determined and discussed with the LPA for acceptance. Environmental procedures are outlined in detail in Chapter 9 of this manual.

SECTION 6(c) - SCOPE OF WORK (IF APPLICABLE)

A “Scope of Work” review, if applicable, will be conducted jointly by representatives from the Area office and the LPA in accordance with the guidelines as noted in Chapter 2, Section 2(a), and the Design Criteria for 3R Projects as shown in Chapter 10, Section 3. A “Scope of Work” review example is shown on pages 16.54 - 16.56. This format may be adjusted to fit the specific need of an individual project. Generally, projects that do not involve paving operations (e.g. bridge rehabilitation and/or bridge painting, pile encasement extensions, traffic signals, roadway lighting, etc.) will not require a “Scope of Work” review.

SECTION 6(d) - PROJECT ENGINEERING RECORD (PER)

After the “Scope of Work” review (if applicable) has been completed, the designer shall submit a [Project Engineering Record \(PER\)](#) to the Area office in accordance with the guidelines as noted in Chapter 2, Section 2(a), and the Design Criteria for Resurfacing, Restoration, and Rehabilitation (3R) as shown in Chapter 10, Section 3.

Note: Final plan preparation should not begin until the PER is approved.

SECTION 6(e) - MATERIALS REPORT (IF APPLICABLE)

The LPA should prepare a materials report in accordance with the guidelines as noted in Chapter 2, page 2.5 if paving operations or earthwork will be included in the contract.

SECTION 6(f) - PS&E REVIEW SUBMITTAL

Once the PER and Materials Report (if applicable) are approved, the LPA Representative should review the plan preparation guidance found in Chapter 2, Section 2(b) when developing the plan assembly. Once all guidance has been reviewed and applied appropriately to the plan set, the LPA shall furnish one (1) 11” x 17” (or letter size, if applicable) set of prints to the Area office and one (1) set to the Local Transportation Bureau, for a “Plans, Specifications, and Estimate” (PS&E) review. For projects involving multiple pavement width transitions and/or in which the number of lanes varies throughout the work limits, calculation sheets should also be provided so pavement buildup, striping, markings, legends, and pavement marker quantities can be verified. The LPA has the option to develop letter size plans based on the general guidelines as shown in Chapter 2, Section 2(c).

The plans should reflect the recommended items of work, as noted in the “Scope of Work” and conform to the design criteria in the approved PER. The Local Transportation Bureau will coordinate with the Area office and the LPA to schedule a time, date, and location for the PS&E review. Electronic plan submittals will be acceptable. No title sheet signatures are required for the PS&E review.

After the PS&E review is completed, the Area office will prepare a PS&E review letter documenting the date and location of the review, the attendees, and a summary of the plan corrections and proposed revisions discussed during the review meeting.

SECTION 6(g) - REVISED PLANS & SUPPORTING DATA SUBMITTAL

Once the LPA has revised the plans, based on the PS&E review comments, one (1) 11” x 17” (or letter size, if applicable) set of prints and the required supporting documentation, should be furnished to the Area office for review **at least 18 weeks prior to the scheduled letting date**. This package should also include the LPA’s recommended working days for the project and the requested letting date. No title sheet signatures are required at this time. A list of the required supporting documentation is shown below.

The Area office will review the plan submittal to ensure that all PS&E review comments have been fully and adequately addressed. The Area office will contact the LPA to discuss any additional corrections or revisions that may be required. Once the Area office has verified that the plans are in compliance with the PS&E review comments, the plans and required supporting documentation should be forwarded to the Local Transportation Bureau in accordance with Section 6(h) of this chapter.

REQUIRED SUPPORTING DATA	EXAMPLE PAGE NO.
Cost Estimate (see note below) ★	N/A
Acquired ROW Recording Data Letter, if applicable	11.18
Certification of Railroad Involvement	LTB Webpage
Earthwork Summary Submittal Sheet, if applicable	16.5
Engineering and Inspection (E & I) Reduction Letter if applicable	16.7
Engineering Personnel and Equipment Certification ø	16.8
National Pollutant Discharge Elimination System (NPDES) Permit Certification	16.39
Non-Contract Items of Work Certification	16.40
Plans, Specifications, & Estimate Letter (PS&E)	16.44
ROW Certification for Physical Construction	11.18
Right-of-Way Encroachment Certification	16.53
Utility Agreements, if applicable	LTB Webpage
Utility Certificate	14.2 - 14.3

★ The LPA will prepare a project cost estimate and submit a copy to the Area office with the plans. The Area office will be responsible for preparing an estimate in “AASHTOWare Project” format and verifying unique item numbers, quantities, and unit bid prices. The “AASHTOWare Project” estimate should be passed electronically to the Local Transportation Bureau. A hard copy of the estimate should be submitted with the Final Back Check submittal.

ø The LPA has the option to use an “on-call” consultant for inspection purposes. Contact the Area office for a list of approved consultants.

SECTION 6(h) - FINAL BACK CHECK SUBMITTAL

Final back check plans and the required supporting data should be submitted by the Area Office to the Local Transportation Bureau **at least 16 weeks prior to the scheduled letting date**. This package shall have a cover letter from the Area Office that includes the recommended working days and requested letting date for the project. The LTB will conduct a cursory plan review to verify that the PS&E comments were addressed to the satisfaction of this office and to ensure that all required special project detail drawings are properly indexed and included in the plans. The Local Transportation Bureau will contact the LPA to discuss any additional corrections or revisions that may be required.

SECTION 6(i) - CONSTRUCTION REVIEW SUBMITTAL

The plans and supporting data are submitted by the Local Transportation Bureau to the Construction Bureau for review **at least 14 weeks (15 weeks for January) prior to the scheduled letting date**. This review is made to ensure that the plans conform to federal and state requirements and there are no apparent construction issues. The Construction Bureau also specifies special provisions to be included in the bid proposal, the percentage of construction fuel allowed, and the recommended working days for completion of the project. Comments from the Construction Bureau will be addressed in a written letter. Both the LPA and the Area office will receive a copy of the comment letter. The LPA will be responsible for the corrections/revisions required as a result of the Construction Bureau plan review.

SECTION 6(j) - OFFICE ENGINEER PLAN SUBMITTAL

After the LPA has addressed all changes or corrections, as noted in the Construction Bureau review letter, one set of final plans should be submitted to the Area office for review and approval **at least 11 weeks prior to the scheduled letting date**. Plan sheets for full size plan submittals may be on paper, with the exception of the title sheet, which is required to be on Mylar. **Full size plans must be printed at 22" x 34."** Title sheets on paper are acceptable for letter size plan submittals. **The LPA Representative's signature is required on the title sheet.** Any plans that were developed by a consultant will require the designer of record's official seal and signature on the title sheet. Any original signatures on letter size plans should be in **blue ink**.

The Area office should review the plans to ensure that all Construction Bureau review comments have been complied with, and then **have the Region Engineer sign the title sheet**. The Area will then forward the final plans to the Local Transportation Bureau **at least 10 weeks prior to the scheduled letting date**.

The plan transmittal should include a letter addressing the disposition of all the Construction Bureau comments, especially noting any justifications or reasons for not complying with a specific comment. This does not have to be a formal letter. A copy of the Construction Bureau review letter, with legible handwritten notations for each comment, will be acceptable.

A final plan review will be conducted by the Local Transportation Bureau. The plans, along with the required supporting data, will then be transmitted to the Bureau of Office Engineer to be processed for letting.

SECTION 6(k) PROJECT FUNDING, AUTHORIZATION, AND AWARD

A project funding agreement will be prepared by this office in accordance with the procedures as noted in Chapter 2, Section 2(d).

After bids are received, the project sponsor shall refer to Chapter 2, Section 2(e) for guidance.

CHAPTER 7 NEW CONSTRUCTION AND RECONSTRUCTION PROJECTS

Any Federal Aid LPA “New Construction and Reconstruction” project shall be designed in accordance with the policies and procedures as defined in the [Alabama Department of Transportation, Local Public Agency Road Design Policy](#) (Chapter 10 of this manual) and the following guidelines noted in this chapter.

● PART 1 BRIDGE REPLACEMENT ●

SECTION 7.1(a) - ELIGIBILITY

Any Local Public Agency bridge being replaced with Federal and/or State Funds **MUST** be on the National Bridge Inventory and **MUST** be either structurally deficient (NBI condition grade of 4 or less) and/or load posted. Any LPA bridge that does not meet these requirements will be required to submit proper justification for replacement and will be evaluated on a case by case basis.

SECTION 7.1(b) - PROJECT INITIATION

The LPA shall initiate the proposed project in accordance with the guidelines as noted in Chapter 2, Section 2(a). The requested letting date should be a minimum of nine (9) months from the time the resolution and supporting data is submitted to the Local Transportation Bureau.

The following documentation and supporting data should be **SUBMITTED TOGETHER** to initiate a “Bridge Replacement” project:

- INITIATING DATA SUBMITTAL CHECKLIST (see Chapter 2, page 2.3).
- RESOLUTION of the LPA governing body setting up the project (one with original signatures for the Local Transportation Bureau and one copy for the Area office) (see examples on pages 16.51 - 16.52). The resolution should include the bridge identification number (BIN), sufficiency rating, status, creek name, location, and LPA route number, or local street name, in the project description. A **letter size legible** location map (1:160 000 scale official Alabama Department of Transportation county map) and link node map should be attached to all resolutions (see example on pages 16.28 - 16.29).
- USGS MAPS - Provide two (2) letter size portions of a 7½" USGS map showing the project location (see example on page 16.58).

- A **TITLE SHEET** containing a project description utilizing the following template example or something similar in nature: Bridge Replacement and Approaches on Williams Road (CR-5) over Shady Creek. This information will be utilized to request a completed project number and will be provided to the project sponsor when received.
- **ROADWAY PLANS** - If the Hydraulic Study will be performed by the Bridge Bureau (see **Section 7.1(d)**), submit four (4) sets of prints consisting of the ①Title sheet, ②Typical section(s), and ③Plan and Profile sheet(s). Transmit three (3) copies to the Local Transportation Bureau and one (1) copy to the Area office. Please note that a request for an on-site hydraulic review (see example on pages 16.47 - 16.48) will be required along with the roadway plans at this time.

PLAN AND PROFILE SHEET(S) ARE TO INCLUDE THE FOLLOWING INFORMATION:

1. PLAN VIEW FOR BRIDGES OVER ROADWAYS AND RAILROADS SHOULD INCLUDE:
 - a) The existing and proposed horizontal alignment(s). For grade separations, include the horizontal alignment(s) of the feature intersected (roadway, railroad, etc.). Include topographic information. Include intersecting station data and deflection angles. Where there are no improvements to the intersected feature that would generate a designed typical section, show data for roadway widths, shoulder widths, other horizontal dimensions at 90 degrees to the intersected alignment and include topographic features such as existing supports, ditches, toes of slopes, track spacing (if more than one set exists then relative to the control alignment of the intersected track), etc. Show the horizontal alignment data in accordance with Chapter 2, Section 2(b).
2. PLAN VIEW FOR WATERWAY ENCOUNTERS SHOULD INCLUDE:
 - a) The existing and proposed horizontal alignments along with all geometric data.
 - b) The location of the downstream floodplain cross section (distance downstream, angles, stations, etc. as related to the roadway alignment using roadway stationing, if possible).
 - c) All topography including the top and bottom of the stream banks, scour holes, etc.
 - d) Plot of the streambed alignment/traverse. Include stations for the streambed profile as well as the direction of flow for the stream. The stations should progress in the direction of the streamflow.
3. PROFILE VIEW FOR WATERWAY ENCOUNTERS:
 - a) BRIDGE REPLACEMENTS ON EXISTING ALIGNMENTS SHOULD INCLUDE: The in-place and proposed vertical (profile grade line) alignments with all geometric data, and the existing ground profile along centerline of the existing and proposed bridge (show the vertical alignment data in accordance with Chapter 2, Section 2(b)). Water surface elevation at time of survey should be included. Additional groundline profiles (“three-line profile”) should be provided left and right of the existing centerline of the bridge and taken on natural ground beyond the toe of any fill slopes.

- b) BRIDGES ON NEW ALIGNMENTS SHOULD INCLUDE: The proposed vertical alignment (profile grade line) with all geometric data and the existing ground profile along centerline of the proposed bridge (show the vertical alignment data in accordance with Chapter 2, Section 2(b)). Depending on topography, additional groundline profiles (“three-line profile”) left and right of the centerline profile may be necessary to better ascertain site conditions. Water surface elevation at time of survey should be included.
- c) FLOODPLAIN PROFILES: The profile view should also include the floodplain cross-section taken downstream of the proposed structure using roadway stationing, if possible. Note: The term “cross-section” is used but should be shown within the profile view of the roadway. The following outlines data requirements for floodplain cross-sections:
 - i. The floodplain cross-section should be taken far enough downstream to ensure it is taken in the natural floodplain and streambed (not in roadway side ditches, on the roadway embankment or in scour holes).
 - ii. The floodplain cross-section should be taken from high ground on one side of the floodplain to high ground on the other side of the floodplain. This cross-section should define the channel (perpendicular to the flow of the stream) and all other abrupt breaks/inflection points. The ends of the floodplain cross-section should be at least ten feet (10’) above the channel bank elevations (this is a rule-of-thumb and may or may not apply at every site). Contact the Bridge Bureau Hydraulic Section for guidance with the selection of a floodplain cross-section location.
- d) For all sites with drainage areas less than 30 square miles another profile should be created to show the streambed profile 500 feet upstream to 500 feet downstream of the proposed structure. The streambed profile should follow along the thalweg (lowest elevation of the streambed). Stations for the streambed profile should be included and progress in the direction of the streamflow. An additional profile sheet may be used for the streambed profile.

Additional applicable items may be required in areas where floodways have been designated by communities participating in the National Flood Insurance Program, as noted in the [Guidelines for Operations, Section 3-60](#).

4. PROFILE VIEW FOR GRADE SEPARATIONS:

- a) BRIDGE REPLACEMENTS ON EXISTING ALIGNMENTS: The profile view should include the in-place and proposed vertical (profile grade line) alignments with all geometric data, and the existing ground profile along centerline of the proposed bridge (show the vertical alignment data in accordance with Chapter 2, Section 2(b)). Show vertical clearance from new or existing intersected feature control point such as edge of pavement or top of rail to profile grade line. Include profile of existing intersected feature such as centerline of existing roadway and top of rails, etc. When intersected feature is to be improved, show proposed alignment data.

- b) BRIDGES ON NEW ALIGNMENTS: The profile view should include the proposed vertical alignment (profile grade line) with all geometric data, and the existing ground profile along centerline of the proposed bridge (show the vertical alignment data in accordance with Chapter 2, Section 2(b)). Show vertical clearance from new or existing intersected feature control point such as edge of pavement or top of rail to profile grade line. Include profile of intersected feature such as centerline of existing roadway and top of rails, etc. When intersected feature is to be improved, show proposed alignment data.
- A LETTER OF INVOLVEMENT (4-F LANDS, ETC.) stating if there is any involvement with lands from a public park, recreation area, wildlife refuge, historical site, navigable water, airport, or railroad (one copy for the Local Transportation Bureau and one copy for the Area office) (see example on page 16.27).
 - An AIRPORT INVOLVEMENT LETTER should be furnished **if an airport is located within 2 miles of the project** (see example on page 16.1) (one copy for Local Transportation Bureau and one copy for the Area office). If the project significantly increases the elevation of the roadway, in relation to the airport, you should contact the Local Transportation Bureau for the proper procedures to follow.
 - A RIGHT-OF-WAY (ROW) RECORDING DATA LETTER stating the basic width of the existing right-of-way, the date it was acquired, recording information (location of recording, deed book, and page), and if additional right-of-way is required (see page 11.18).

If no recorded right-of-way exists, submit a letter stating this and indicate how much right-of-way will be required (one copy for the Local Transportation Bureau and one copy for the Area office). **Preliminary Relocation Assistance Analysis is required if any additional right-of-way is necessary; use the ROW-RA-1(LPA) Form (see page 11.18)** (one copy for the Local Transportation Bureau and one copy for the Area office).

Right-of-way acquisition will require consultation with other specific agencies and/or departments as part of the NEPA approval process. Any such agencies with special expertise concerning the project or with jurisdiction by law are designated as “Cooperating Agencies” and must be contacted for any views and comments they may have regarding the project. Contact the [Preconstruction Section](#) of the Local Transportation Bureau for a list of review agencies that will need to be consulted.

- TRAFFIC COUNT INFORMATION can be found on the [Alabama Traffic Data](#) map. If counts are found, produce a screen print of the counts from the website. If no counts can be found within 2 miles of the project limits, this information should be furnished utilizing the traffic request form on the [Local Transportation Bureau webpage](#) by the LPA in accordance with the “Standards for Traffic Volume and Classification Counts” as shown in Chapter 13, or the LPA can request ALDOT furnish the counts. The Local Transportation Bureau will provide the crash data needed for the project.
- BI-1 FORM (BIN ASSIGNMENT CARD) FOR PROPOSED STRUCTURE should be submitted to the Local Transportation Bureau by the LPA representative to obtain a Bridge Identification Number (BIN) for all new bridges and bridge culverts. The form is available on the [Maintenance Bureau's webpage](#).

The LPA should not proceed with any additional plan work until this information is received.

SECTION 7.1(c) - ENVIRONMENTAL CLEARANCE

Upon receipt of the “Initiating Data Submittal Checklist,” the Preconstruction Section will review the initiating data for accuracy. If additional information is needed, an email detailing the additional information will be sent to the Area Office and Project Sponsor. Once the Preconstruction Section has all information in its entirety, the type of environmental document will be determined and discussed with the LPA for acceptance. Environmental procedures are outlined in detail in Chapter 9 of this manual.

SECTION 7.1(d) - HYDRAULIC REVIEW

Hydraulic studies shall be performed to determine the required bridge type and size and scour characteristics for all sites with waterway encounters. Recommended structures shall conform to the criteria in [Guidelines for Operation, Section 3-39 DESIGN FLOOD FREQUENCIES FOR BRIDGE OPENINGS AND SCOUR EVALUATIONS](#). Any requests for design waivers should be submitted to the Local Transportation Bureau with an “APPROVED” signature line for the State Local Transportation Engineer and a “RECOMMEND APPROVAL” signature line for ALDOT Bridge Engineer.

- HYDRAULIC STUDY BY BRIDGE BUREAU: Submit a request for an on-site hydraulic review (see example on pages 16.47 - 16.48) along with roadway plans previously noted. Also include four (4) sets of color photographs to the Local Transportation Bureau. Each photo set should consist of a minimum of six (6) color photos of the site showing the following:
 - Upstream channel
 - Downstream channel
 - Downstream floodplain cross-section (channel, left and right overbank areas)

- Each end of the existing bridge and/or proposed location of new bridge.

These photos help in the estimation of the roughness coefficients used in the hydraulic model and in the documentation of the project.

The Local Transportation Bureau will forward the plan and profile sheet(s) to the Bridge Bureau, along with the request for a site inspection. This review will be conducted jointly by the Bridge Bureau Hydraulic Engineer, a representative from the Area office, and the LPA. A Hydraulic Report and Structure Recommendations letter will then be prepared by the Bridge Bureau Hydraulics Engineer.

- HYDRAULIC STUDY BY LPA: If the hydraulic study is performed by the LPA, the completed study shall be furnished to the Local Transportation Bureau as part of the Preliminary Bridge Plans Submittal detailed later in this chapter.

SECTION 7.1(e) PROJECT ENGINEERING RECORD (PER)

The designer shall submit a [Project Engineering Record \(PER\)](#) to the Area office in accordance with the guidelines as noted in Chapter 2, Section 2(a), and the Design Criteria for New Construction and Reconstruction as shown in Chapter 10, Section 4. If the LPA desires to construct the roadway approaches at no cost to the project, please attach a waiver request to the PER as detailed in Section 7.1(f) below.

Note: Final plan preparation should not begin until the PER is approved.

SECTION 7.1(f) - MATERIALS REPORT

If the approach work is included as part of the contract items of work, the LPA should prepare a materials report in accordance with the guidelines as noted in Chapter 2, page 2.5.

LPAs may perform the approach work by requesting a waiver on a project by project basis. All requests for waivers must be in writing, addressed to the Area office. The request should include a concurrence signature line for the Region Engineer and a signature approval line for the State Local Transportation Engineer. This waiver request letter should be attached to the PER when it is submitted for review and approval. **A materials report is not required when the LPA is performing the approach work.**

SECTION 7.1(g) - GENERAL DESIGN REQUIREMENTS

- MISCELLANEOUS STRUCTURES - ALDOT Bridge Bureau is responsible for providing the design and details for all miscellaneous structures, including cast-in-place box culvert standards, retaining wall standards, and project specific drainage structures, unless a consultant has been contracted to provide such items as part of a complete set of plans. Such structures shall be designed and detailed in accordance with the current ALDOT Bridge Bureau [Structural Design Manual](#) and [Quality Control Manual for Bridge Plan Detailing](#) as applicable.

- BRIDGE STRUCTURES (EXCEPT PRE-CAST) - Bridge structures shall be designed in accordance with the current ALDOT Bridge Bureau [Structural Design Manual](#) and [Quality Control Manual for Bridge Plan Detailing](#) found on ALDOT's webpage.
- PRECAST BRIDGE STRUCTURES -Precast bridge structures shall be designed in accordance with Section 18 of ALDOT Bridge Bureau [Structural Design Manual](#) and [Quality Control Manual for Bridge Plan Detailing](#) found on ALDOT's webpage.

SECTION 7.1(h) - BRIDGE SUBMITTALS

- BRIDGE DESIGN BY BRIDGE BUREAU: A request must be sent to the Local Transportation Bureau, along with five (5) copies of the title sheet, typical section(s) and plan/profile sheet(s). The Local Transportation Bureau will contact the Bridge Bureau and request a cost estimate for the geotechnical foundation investigation and bridge plan preparation. If the LPA wishes to use a consultant for the geotechnical foundation investigation, only three (3) copies will be required. The LPA should state in their request letter that consultant services will be utilized for the geotechnical work.

The LPA will be notified once the cost estimates have been received, with a request to submit a check for the estimated design cost. This check will be credited to the LPA's SWA account to be used for project charges by personnel from the Bridge Bureau and the Materials and Tests Bureau, unless a designated PE budget has been set up for this work. No design work will be performed until the funding for this cost has been added to the LPA's SWA account, or the PE budget has been authorized.

Once the Bridge Bureau has completed the bridge design and has computed the estimated quantities and required pay items for the proposed structure, one (1) 11" x 17" set of plans and a cost estimate for the bridge construction will be furnished to the LPA for their information.

- BRIDGE DESIGN BY LPA PERSONNEL OR CONSULTANT CONTRACT:
 1. PRELIMINARY BRIDGE PLANS SUBMITTAL: A preliminary bridge layout showing the "Type, Size and Location" (TS & L) should be submitted to the Local Transportation Bureau for submittal to the Bridge Bureau for review prior to beginning work on the final bridge plans. A copy of the transmittal letter should be sent to the Area office. This transmittal should include the following:
 - a) Two (2) 11" x 17" sets of prints of the roadway plan & profile drawings. These drawings must show the information used to establish the geometrics of the proposed structure.
 - b) Two (2) 11" x 17" sets of prints of the TS & L of the proposed structure. These drawings should include plan and elevation views showing proposed span lengths, type(s) of girder(s), stationing of abutments and bents, skew (if applicable), alignment and profile grade data, typical section showing

proposed girder spacing along with other pertinent data (see Section 7.1(b)).

- c) Proposed foundation type along with justification for the type of foundations being proposed.
- d) A contact person with telephone number and e-mail address. Provide a preliminary engineering account number for project charges provided by the Bridge Bureau personnel. This will be the LPA's SWA number, unless a designated PE budget has been established for the project. The charge number will be the code number shown on the title sheet.

2. FINAL BRIDGE PLANS SUBMITTAL: After approval of the preliminary layout by the Bridge Bureau, the LPA/Consultant may begin work on the final bridge plans.

One (1) 11" x 17" set of prints of the proposed bridge plans, including title sheet and typical section, should be submitted to the Bridge Bureau 24 weeks minimum prior to the requested letting date. This transmittal should include a stamped copy of the bridge design calculations and foundation report. A copy of the transmittal letter should be sent to the Local Transportation Bureau and the Area office.

The Bridge Bureau will review the submitted prints and return a set of marked up prints to the LPA/Consultant with review comments and corrections. Once the LPA/Consultant has addressed all the Bridge Bureau review comments, the following items should be transmitted to the Bridge Bureau with a copy of the transmittal letter sent to the Local Transportation Bureau and the Area office:

- a) The original check prints with review comments.
- b) One (1) 11" x 17" set of bridge plans for the HL-93 and operating ratings.
- c) Two (2) complete 11" x 17" sets of bridge plans for Construction Bureau review containing all required signatures and seals affixed (i.e. LPA Representative and designer of record).

One (1) 11" x 17" set of prints should be furnished to the Local Transportation Bureau for overtopping elevation data, (see example letter on page 16.43). This submittal should include a copy of the plan & profile sheet, the bridge general plan and elevation sheet, and any additional bridge sheets necessary to calculate the actual low girder elevation. Include the new BIN. If the overtopping data is already obtained by the consultant, please provide a copy of the data to the Local Transportation Bureau at this time.

3. MISCELLANEOUS:

- a) Construction Documents Review and Bridge Rating: The State Bridge Engineer may require that review and approval of construction documents (such as shop drawings, weld procedures, etc.) and rating of LPA/Consultant designed bridges be accomplished by the LPA/Consultant. Accordingly, Consultant contract terms should contain provision for such tasks as appropriate. See [ALDOT Bridge Plan Development QC/QA Plan and Checklist](#) Section 2.4.
- b) Quality Control and Assurance: See [ALDOT Bridge Plan Development QC/QA Plan and Checklist](#) Section 2.4 for requirements.

SECTION 7.1(i) - DESIGN RISK ASSESSMENT

A design risk assessment is required on all Federal Aid bridge replacement projects involving waterways or drainage relief structures. This form should be prepared and submitted to the Local Transportation Bureau after the LPA has received the overtopping flood data. See example on pages 16.2 - 16.3.

SECTION 7.1(j) - PS&E REVIEW SUBMITTAL

Once the PER and Materials Report are approved, and the bridge submittals have been completed the LPA Representative should review the plan preparation guidance found in Chapter 2, Section 2(b) when developing the plan assembly. Once guidance has been reviewed and applied appropriately to the plan set, the LPA shall furnish one (1) 11" x 17" set of prints to the Area office and one (1) set to the Local Transportation Bureau, for a "Plans, Specifications, and Estimate" (PS&E) review. For projects involving multiple pavement width transitions and/or in which the number of lanes varies throughout the work limits, calculation sheets should also be provided so pavement buildup, striping, markings, legends, and pavement marker quantities can be verified.

The plans should reflect the recommended structure size and type, the profile grade requirements (as noted in the hydraulic review), and conform to the design criteria in the approved PER. The Local Transportation Bureau will coordinate with the Area office and the LPA to schedule a time, date, and location for the PS&E review. Electronic plan submittals will be acceptable. No signatures on the title sheet are required for the PS&E review.

Utilize larger scale plots (i.e., 1" = 50') for the plan and profile sheets, when possible. The larger scale plots should especially be utilized for bridge sites with minimal approach work or short project/work limits (see Chapter 2, Section 2(b)). Larger scale plots should also be used in areas with dense topographic features (overhead and/or underground utilities, buildings, etc.). Note that all contract proposals are plotted at half scale. This needs to be considered for selection of font sizes. Plot scales should be represented by a graphic (or bar) scale. Electronic plan submittals may be acceptable, depending on the number of sheets in the plan assembly. It is recommended that both the Area office and the Local Transportation Bureau be contacted prior to submitting plans electronically.

After the PS&E review is completed, the Area office will prepare a PS&E review letter documenting the date and location of the review, the attendees, and a summary of the plan corrections and proposed revisions discussed during the review meeting.

SECTION 7.1(k) - REVISED PLANS & SUPPORTING DATA SUBMITTAL

Once the LPA has revised the plans, based on the PS&E review comments, three (3) 11” x 17” sets of prints and the required supporting documentation, should be furnished to the Area office for review **at least 18 weeks prior to the scheduled letting date** for review. This package should also include the LPA’s recommended working days for the project and the requested letting date. No signatures on the title sheet are required at this time; however, any bridge plans prepared by the LPA or a consultant shall have both the signature and seal of the designer of record on the first bridge sheet. The Bridge Engineer will not sign the bridge sheets unless the seal and signature are affixed. A list of the required supporting documentation is shown below.

The Area office will review the plan submittal to ensure that all PS&E review comments have been fully and adequately addressed. The Area office will contact the LPA to discuss any additional corrections or revisions that may be required. Once the Area office has verified that the plans are in compliance with the PS&E review comments, the plans and required supporting documentation should be forwarded to the Local Transportation Bureau in accordance with Section 7.1(l) of this chapter.

REQUIRED SUPPORTING DATA	EXAMPLE PAGE NO.
Cost Estimate (see note below) ★	N/A
Acquired ROW Recording Data Letter, if applicable	11.18
Certification of Railroad Involvement	LTB Webpage
Earthwork Summary Submittal Sheet, if applicable	16.5
Engineering and Inspection (E&I) Reduction Letter if applicable	16.7
Engineering Personnel and Equipment Certification Ø	16.8
National Pollutant Discharge Elimination System (NPDES) Permit Certification	16.39
Non-Contract Items of Work Certification	16.40
Plans, Specifications, & Estimate Letter (PS&E)	16.44
ROW Certification for Physical Construction	11.18
Right-of-Way Encroachment Certification	16.53
Utility Agreements, if applicable	LTB Webpage
Utility Certificate	14.2 - 14.3

- ★ The LPA will prepare a project cost estimate and submit a copy to the Area office with the plans. The Area office will be responsible for preparing an estimate in “AASHTOWare Project” format and verifying unique item numbers, quantities, and unit bid prices. The “AASHTOWare” estimate should be passed electronically to the Local Transportation Bureau. A hard copy of the estimate should be submitted with the Final Back Check submittal.

- ∅ The LPA has the option to use an “on-call” consultant for inspection purposes. Contact the Area office for a list of approved consultants.

SECTION 7.1(l) - FINAL BACK CHECK SUBMITTAL

Two (2) 11” x 17” sets of final back check plans and supporting data should be submitted by the Area Office to the Local Transportation Bureau **at least 16 weeks prior to the scheduled letting date**. This package shall have a cover letter from the Area Office that includes the recommended working days and requested letting date for the project. The LTB will conduct a cursory plan review to verify that the PS&E comments were addressed to the satisfaction of this office and to ensure that all required special project detail drawings are properly indexed and included in the plans. The Local Transportation Bureau will contact the LPA to discuss any additional corrections or revisions that may be required. The LTB will also forward a set of plans to the Bridge Bureau so they may conduct a cursory plan review. The Bridge Bureau will contact the LPA, or their consultant, if any additional corrections or revisions are required.

Once their comments have been addressed (if any), the Bridge Bureau will transmit a “Stamped for Construction Review” copy of the bridge plans to the Local Transportation Bureau in preparation for the Construction Review Submittal.

SECTION 7.1(m) - CONSTRUCTION REVIEW SUBMITTAL

The plans and supporting data are submitted by the Local Transportation Bureau to the Construction Bureau for review **at least 14 weeks (15 weeks for January) prior to the scheduled letting date**. This review is made to ensure the plans conform to federal and state requirements and there are no apparent construction issues. The Construction Bureau also specifies any special provisions to be included in the bid proposal and the recommended working days for completion of the project. Comments from the Construction Bureau will be addressed in a written letter. Both the LPA and the Area office will receive a copy of the comment letter. In the case of an AASHTO or precast bridge structure, the comments for the roadway and bridge portion of the plans will be addressed in two separate letters. The LPA will be responsible for all non-bridge related corrections/revisions required as a result of the Construction Bureau plan review. The Bridge Bureau will be responsible for all bridge related comments **if their office did the bridge design**. If the structure was designed by the LPA or consultant, the “designer of record” will be responsible for all corrections pertaining to the bridge related comments. The “designer of record” shall contact the responsible bridge reviewer to discuss the comments prior to making any revisions.

SECTION 7.1(n) - OFFICE ENGINEER PLAN SUBMITTAL

After the LPA has addressed all changes or corrections, as noted in the Construction Bureau review letters, one set of final plans should be submitted to the Area office for review and approval **at least 11 weeks prior to the scheduled letting date**. Plan sheets for full size plan submittals may be on paper, with the exception of the title sheet, which is required to be on Mylar. **Full size plans must be printed at 22" x 34."** The LPA Representative's signature is required on the title sheet. Any plans that were developed by a consultant will require the designer of record's official seal and signature on the title sheet. The appropriate seals and signatures must be affixed on the first bridge sheet, as previously mentioned in this chapter.

The Area office should review the plans to ensure that all Construction Bureau review comments have been complied with, and then **have the Region Engineer sign the title sheet**. The Area office will then forward the final plans to the Local Transportation Bureau. Final plans should be received in this office **at least 10 weeks** prior to the scheduled letting date.

The plan transmittal should include a letter addressing the disposition of all the Construction Bureau comments, especially noting any justifications or reasons for not complying with a specific comment. This does not have to be a formal letter. A copy of the Construction Bureau review letter, with legible handwritten notations for each comment, will be acceptable.

A final plan review will be conducted by the Local Transportation Bureau. The plans, along with the required supporting data, will then be transmitted to the Bureau of Office Engineer to be processed for letting.

SECTION 7.1(o) PROJECT FUNDING, AUTHORIZATION, AND AWARD

A project funding agreement will be prepared by this office in accordance with the procedures as noted in Chapter 2, Section 2(d).

After bids are received, the project sponsor shall refer to Chapter 2, Section 2(e) for guidance.

● PART 2 GRADE, DRAIN, BASE, AND PAVE OR SIGNIFICANT WIDENING ●

SECTION 7.2(a) - PROJECT INITIATION

The LPA shall initiate the proposed project in accordance with the guidelines as noted in Chapter 2, Section 2(a). The requested letting date should be a minimum of six (6) months from the time the resolution and supporting data is submitted to the Local Transportation Bureau.

The following documentation and supporting data should be **SUBMITTED TOGETHER** to initiate these projects:

- INITIATION DATA SUBMITTAL CHECKLIST (see Chapter 2, page 2.3).
- RESOLUTION of the LPA governing body setting up the project (one with original signatures for the Local Transportation Bureau and one copy for the Area office) (see examples on pages 16.49 and 16.50). Attach a **letter size legible** location map (1:160 000 scale official Alabama Department of Transportation county map) and link node map (see examples on pages 16.28 and 16.29).
- USGS MAPS - Provide two (2) letter size portions of a 7½" USGS map showing the project location (see example on page 16.58).
- A TITLE SHEET containing a project description utilizing the following template examples or something similar in nature: **1) Intersection Improvements (Adding a Thru Lane and Turn Lanes) at SR-57/Timber Creek Road (CR-99); 2) The Realignment of Airport Drive from 2nd Street to 4th Avenue.** This information will be utilized to request a completed project number and will be provided to the project sponsor when received.
- A LETTER OF INVOLVEMENT (4-F LANDS, ETC.) stating if there is any involvement with lands from a public park, recreation area, wildlife refuge, historical site, navigable water, airport, or railroad (one copy for the Local Transportation Bureau and one copy for the Area office) (see example on page 16.27).
- An AIRPORT INVOLVEMENT LETTER should be furnished if an airport is located **within 2 miles of the project** (see example on page 16.1) (one copy for Local Transportation Bureau and one copy for the Area office). If the project significantly increases the elevation of the roadway, in relation to the airport, you should contact the Local Transportation Bureau for the proper procedures to follow.
- A RIGHT-OF-WAY (ROW) RECORDING DATA LETTER stating the basic width of the existing right-of-way, the date it was acquired, recording information (location of recording, deed book, and page), and if additional right-of-way is required (see example on page 11.18).

If no recorded right-of-way exists, submit a letter stating this and indicate how much right-of-way will be required (one copy for the Local Transportation Bureau and one copy for the Area office). **Preliminary Relocation Assistance Analysis is required if any additional right-of-way is necessary; use the ROW-RA-1(LPA) form (see page 11.18),** (one copy for the Local Transportation Bureau and one copy for the Area office).

Right-of-way acquisition will require consultation with other specific agencies and/or departments as part of the NEPA approval process. Any such agencies with special expertise concerning the project or with jurisdiction by law are designated as “Cooperating Agencies” and must be contacted for any views and comments they may have regarding the project. Contact the [Preconstruction Section](#) of the Local Transportation Bureau for a list of review agencies that will need to be consulted.

- [TRAFFIC COUNT INFORMATION](#) can be found on the [Alabama Traffic Data](#) map. If counts are found, produce a screen print of the counts from the website. If no counts can be found within the project limits, this information should be furnished utilizing the traffic request form on the [Local Transportation Bureau webpage](#) by the LPA in accordance with the “Standards for Traffic Volume and Classification Counts” as shown in Chapter 13, or the LPA can request ALDOT furnish the counts. The Local Transportation Bureau will provide the crash data needed for the project.

The LPA should not proceed with any plan work until this information is received.

SECTION 7.2(b) - ENVIRONMENTAL CLEARANCE

Upon receipt of the “Initiating Data Submittal Checklist,” the Preconstruction Section will review the initiating data for accuracy. If additional information is needed, an email detailing the additional information will be sent to the Area Office and Project Sponsor. Once the Preconstruction Section has all information in its entirety, the type of environmental document will be determined and discussed with the LPA for acceptance. Environmental procedures are outlined in detail in Chapter 9 of this manual.

SECTION 7.2(c) - SCOPE OF WORK (IF APPLICABLE)

A “Scope of Work” review, if applicable, will be conducted jointly by representatives from the Area office and the LPA in accordance with the guidelines as noted in Chapter 2, Section 2(a), but this format can be adjusted to fit the specific needs of an individual project. Generally, grade, drain, base and pave, projects located on a new roadway alignment will not require a “Scope of Work” review.

SECTION 7.2(d) - PROJECT ENGINEERING RECORD (PER)

After the “Scope of Work” review (if applicable) has been completed, the designer shall submit a [Project Engineering Record \(PER\)](#) to the Area office in accordance with the guidelines as noted in Chapter 2, Section 2(a) and the Design Criteria for New Construction and Reconstruction as shown in Chapter 10, Section 4.

Note: Final plan preparation should not begin until the PER is approved.

SECTION 7.2(e)- MATERIALS REPORT

The LPA should prepare a materials report in accordance with the guidelines as noted in Chapter 2, page 2.5.

SECTION 7.2(f) - PS&E REVIEW SUBMITTAL

Once the PER and Materials Report are approved, the LPA Representative should review the plan preparation guidance found in Chapter 2, Section 2(b) when developing the plan assembly. Once all guidance has been reviewed and applied appropriately to the plan set, the LPA shall furnish one (1) 11” x 17” set of prints to the Area office and one (1) set to the Local Transportation Bureau, for a “Plans, Specifications, and Estimate” (PS&E) review. For projects involving multiple pavement width transitions and/or in which the number of lanes varies throughout the work limits, calculation sheets should also be provided so pavement buildup, striping, markings, legends, and pavement marker quantities can be verified.

The plans should reflect the recommended items of work, as noted in the “Scope of Work” (if applicable) and conform to the design criteria in the approved PER. The Local Transportation Bureau will coordinate with the Area office and the LPA to schedule a time, date, and location for the PS&E review. Electronic plan submittals will be acceptable. No title sheet signatures are required for the PS&E review.

After the PS&E review is completed, the Area office will prepare a PS&E review letter documenting the date and location of the review, the attendees, and a brief narrative of any major plan corrections and/or proposed revisions that were discussed during the review meeting.

SECTION 7.2(g) - REVISED PLANS & SUPPORTING DATA SUBMITTAL

Once the LPA has revised the plans, based on the PS&E review comments, one (1) 11” x 17” set of prints and the required supporting documentation, should be furnished to the Area office for review **at least 18 weeks prior to the scheduled letting date**. This package should also include the LPA’s recommended working days for the project and the requested letting date. No title sheet signatures are required at this time. A list of the required supporting documentation is shown on page 7.16.

The Area office will review the plan submittal to ensure that all PS&E review comments have been fully and adequately addressed. The Area office will contact the LPA to discuss any additional corrections or revisions that may be required. Once the Area office has verified that the plans are in compliance with the PS&E review comments, the plans and required supporting documentation should be forwarded to the Local Transportation Bureau in accordance with Section 7.2(h) of this chapter.

REQUIRED SUPPORTING DATA	EXAMPLE PAGE NO.
Cost Estimate (see note below) ★	N/A
Acquired ROW Recording Data Letter, if applicable	11.18
Certification of Railroad Involvement	LTB Webpage
Earthwork Summary Submittal Sheet, if applicable	16.5
Engineering and Inspection (E&I) Reduction Letter if applicable	16.7
Engineering Personnel and Equipment Certification Ø	16.8
National Pollutant Discharge Elimination System (NPDES) Permit Certification	16.39
Non-Contract Items of Work Certification	16.40
Plans, Specifications, & Estimate Letter (PS&E)	16.44
ROW Certification for Physical Construction	11.18
Right-of-Way Encroachment Certification	16.53
Utility Agreements, if applicable	LTB Webpage
Utility Certificate	14.2 - 14.3

★ The LPA will prepare a project cost estimate and submit a copy to the Area office with the plans. The Area office will be responsible for preparing an estimate in “AASHTOWare Project” format and verifying unique item numbers, quantities, and unit bid prices. The “AASHTOWare Project” estimate should be passed electronically to the Local Transportation Bureau. A hard copy of the estimate should be submitted with the Final Back Check submittal.

Ø The LPA has the option to use an “on-call” consultant for inspection purposes. Contact the Area office for a list of approved consultants.

SECTION 7.2(h) - FINAL BACK CHECK SUBMITTAL

Final back check plans and supporting data should be submitted by the Area Office to the Local Transportation Bureau **at least 16 weeks prior to the scheduled letting date**. This package shall have a cover letter from the Area Office that includes the recommended working days and requested letting date for the project. The LTB will conduct a cursory plan review to verify that the PS&E comments were addressed to the satisfaction of this office and to ensure that all required special project detail drawings are properly indexed and included in the plans. The Local Transportation Bureau will contact the LPA to discuss any additional corrections or revisions that may be required.

SECTION 7.2(i) - CONSTRUCTION REVIEW SUBMITTAL

The plans and supporting data are submitted by the Local Transportation Bureau to the Construction Bureau for review **at least 14 weeks (15 weeks for January) prior to the scheduled letting date**. This review is made to ensure that the plans conform to federal and state requirements and there are no apparent construction issues. The Construction Bureau also specifies special provisions to be included in the bid proposal, the percentage of construction fuel allowed, and the recommended working days for completion of the project. Comments from the Construction Bureau will be addressed in a written letter. and the Area office will receive a copy of the comment letter. The LPA will be responsible for the corrections/revisions required as a result of the Construction Bureau plan review.

SECTION 7.2(j) - OFFICE ENGINEER SUBMITTAL

After the LPA has addressed all changes or corrections, as noted in the Construction Bureau review letter, one set of final plans should be submitted to the Area office for review and approval **at least 11 weeks prior to the scheduled letting date**. Plan sheets for full size plan submittals may be on paper, with the exception of the title sheet, which is required to be on Mylar. **Full size plans must be printed at 22" x 34"**. The LPA Representative's signature is required on the title sheet. Any plans that were developed by a consultant will require the designer of record's official seal and signature on the title sheet.

The Area office should review the plans to ensure that all Construction Bureau review comments have been complied with, and then **have the Region Engineer sign the title sheet**. The Area office will then forward the final plans to the Local Transportation Bureau. Final plans should be received in this office **at least 10 weeks prior to the scheduled letting date**.

The plan transmittal should include a letter addressing the disposition of all the Construction Bureau comments, especially noting any justifications or reasons for not complying with a specific comment. This does not have to be a formal letter. A copy of the Construction Bureau review letter, with legible handwritten notations for each comment, will be acceptable.

A final plan review will be conducted by the Local Transportation Bureau. The plans, along with the required supporting data, will then be transmitted to the Bureau of Office Engineer to be processed for letting.

SECTION 7.2(k) - PROJECT FUNDING, AUTHORIZATION AND AWARD

A project funding agreement will be prepared by this office in accordance with the procedures as noted in Chapter 2, Section 2(d).

After bids are received, the project sponsor shall refer to Chapter 2, Section 2(e) for guidance.

**CHAPTER 8
STATE AND INDUSTRIAL
ACCESS (IA) FUNDED PROJECTS**

NOTE - These procedures are in accordance with [ALDOT Guidelines for Operations](#), Section 1-20, approved November 1, 2017.

No work can be performed, and no contracts can be let prior to having a fully executed project agreement, submittal of project plans to the Area office and notification from the Area office that advertisement for bids can be made, or, in the case of force account projects, work can begin.

A project agreement will be prepared and furnished to the LPA upon receipt of grant award letter signed by the Director or Governor. The Area office will prepare and submit a F-7A Budget Allotment request upon receipt of a project funding agreement at the time it is submitted to the LPA for their execution.

The LPA will submit plans prepared and signed by a registered professional engineer showing work to be performed. Plans must match the project agreement description. It is not necessary for the Area office to perform an in-depth review of plans. The LPA will submit a certification signed by a Registered Professional Engineer stating that the plans have been prepared so that all items included in the plans meet ALDOT specifications. The LPA will include a letter certifying that the LPA owns all right-of-way on which the project is to be constructed.

Upon receipt of the executed agreement, the executed F-7A, final plans from the LPA, and right-of-way certification, the Area office may notify the LPA to proceed with advertising the project for letting or proceed with work in the case of a force account project.

In the case where an LPA is using an in place annual bid, the LPA will furnish the Area office a copy of their bid, and this bid price will be used for reimbursement documentation.

Where the LPA is letting a contract locally, the LPA will furnish to the Area office the three lowest bids with their recommendation for award. The Area office will review the bids, and, if in order, advise the LPA to proceed with award of the contract to the lowest responsible bidder. The LPA's estimate for reimbursement will be based on the bid prices concurred in by the State and supported with documentation that the contractor has been paid for work performed (copy of cancelled check).

A certification will be submitted with LPA final estimate stating that the project was constructed in accordance with final plans submitted to the State and with the specifications, supplemental specifications, and special provisions which were shown on the plans or with the State's latest specifications which were applicable at the time of plan approval.

The LPA will notify the Area office when the project is completed, and the Area office will perform a final ride-through to determine whether the project was completed in substantial compliance with original final plans. Final acceptance will be made by the Area office with a copy of the letter furnished to the Local Transportation Bureau.

All required test reports, weight tickets, material receipts and other project documentation required by the specifications, applicable supplemental specifications, and special provisions will be retained by the LPA for a period of three (3) years following receipt of final payment and made available for audit by the State upon request. If an audit is performed and proper documentation is not available to verify quantities and compliance with specifications, the LPA will refund the project cost to the State or do whatever is necessary to correct the project at their cost.

All LPA Industrial Access or State funded projects let to contract by the State will follow normal project procedures and comply with all current plan processing requirements. **Please note that the application utilized for these projects, along with kick-off meetings (as applicable), will serve as the project initiation as defined in Chapters 2,5,6, and 7 of this manual.**

CHAPTER 9 ENVIRONMENTAL PROCEDURES

SECTION 9(a) - INTRODUCTION AND ENVIRONMENTAL CLEARANCE INITIATION PROCEDURES

To begin the Environmental Process, submit all initiation packet information listed in Chapter 2, page 2.1 along with the Initiating Data Submittal Checklist (page 2.3). Upon receipt of the Initiating Data Submittal Checklist, the Preconstruction Section will review the initiating data for accuracy. If additional information is needed, an email detailing the additional information will be sent to the Area Office and Project Sponsor. Once the Preconstruction Section has all information in its entirety, the type of environmental document will be determined and discussed with the LPA for acceptance.

This chapter provides general guidelines to assist the Counties, Cities, Municipalities and others (LPA) in the required environmental procedures to ensure that all federal aid projects are in compliance with the [National Environmental Policy Act](#) (NEPA) of 1969 and other applicable laws as noted in the [NEPA Project Development](#) guidelines. LPA's may not proceed with final design, right of way acquisition, or construction until a cleared environmental document has been completed and approval has been received from the State Local Transportation Engineer.

Pursuant to 23 CFR 771.117(g), the Federal Highway Administration (FHWA) may enter into programmatic agreements with a State to allow them to make a NEPA certification or determination and approval on FHWA's behalf. ALDOT and the [Alabama Division of FHWA](#) formally entered into a programmatic agreement for categorical exclusions (PCE) on January 12, 2016 ([Programmatic Categorical Exclusion Agreement with FHWA and ALDOT](#)). This agreement established ALDOT's authority to determine if a project qualifies for a PCE on behalf of FHWA. ALDOT is responsible for evaluating the project's potential impacts, preparing and approving any necessary documentation, including ALDOT's PCE decision. FHWA does not have a review or approval role under this

method; however, FHWA retains general responsibilities for program oversight including specific responsibilities specified in the PCE agreement.

SECTION 9(b) - ELEMENTS OF NEPA

Early and continued coordination with appropriate federal, state, and local agencies, resource agencies, and the public is necessary in order to determine the scope of a project, identifying possible project impacts, and all issues related to avoiding, minimizing, and mitigating or compensating impacts.

In order to create a NEPA document, the following elements of decision-making should be covered:

- A Defined Purpose and Need
- Assessment of the social, economic, and environmental impacts of a proposed action or project
- Analysis of a range of reasonable alternatives to the proposed project based on the defined Purpose and Need
- Consideration of the appropriate impact: avoidance, minimization, or mitigation
- Interagency participation: coordination and consultation
- Public involvement, including opportunities to participate and comment
- Documentation and disclosure of relevant information

SECTION 9(c) - LEVELS OF ANALYSIS UNDER NEPA

Transportation projects vary in type, size and complexity, and potential to affect the environment. There are five levels of analysis depending on the magnitude of affect to the environment an undertaking has. These five levels include:

- Level 1: Programmatic Categorical Exclusion Type I (PCE Type I)
- Level 2: Programmatic Categorical Exclusion Type II (PCE Type II)
- Level 3: Categorical Exclusion (CE)
- Level 4: Environmental Assessment (EA) and Finding of No Significant Impact (FONSI)
- Level 5: Environmental Impact Statement (EIS)

However, for simplicity, we use the PCE Type II form for all PCE type projects.

Level 1 - Programmatic Categorical Exclusion Type I (PCE Type I)

PCE Type I documents are projects that do not require Right-Of-Way. Projects under this level may be categorically excluded from a detailed environmental analysis if it meets certain criteria. Streamlining these types of projects can be achieved using the following two types of agreements:

1. Memorandum of Agreement (MOA) between the U.S. Fish and Wildlife Service, Alabama Field Office, FHWA and ALDOT.
2. Memorandum of Understanding (MOU) between the Alabama State Historical Commission, FHWA and ALDOT.

The main type of projects that are covered under this type of document include, but are not limited to:

- Modernization of a highway by resurfacing, restoration, rehabilitation, reconstruction, adding shoulders or adding auxiliary lanes (including parking, weaving, turning, climbing lanes)
- Bridge Rehabilitation or reconstruction
- Projects that would take place entirely within the existing operational right-of-way which has been disturbed for an existing transportation facility or is maintained for a transportation use.

Level 2 - Programmatic Categorical Exclusion Type II (PCE Type II)

PCE Type II documents are projects that require Right-Of-Way up to 1.0 acre and no major impacts to Species, Historical features or U.S. Corps of Engineers permitting. Projects under this level may still be categorically excluded from a detailed environmental analysis if it meets certain criteria, however, studies in other fields may be necessitated.

The main type of projects that are covered under this type of document include, but are not limited to:

- Modernization of a highway by resurfacing, restoration, rehabilitation, reconstruction, adding shoulders or adding auxiliary lanes (including parking, weaving, turning, climbing lanes)
- Highway Safety or Traffic Operations improvement projects
- Bridge Rehabilitation, reconstruction, or replacement or the construction of grade separation to replace existing at-grade railroad crossings

Level 3 - Categorical Exclusion (CE)

CE documents are projects that require Right-Of-Way requiring more than 1.0 acre and/or some mitigating impacts to Species, Historical features or U.S. Corps of Engineers permitting. This type of document is a more detailed study of the project however, projects under this level may still be categorically excluded from a detailed environmental analysis if it meets certain criteria but expect studies in other fields to be necessitated.

The main type of projects that are covered under this type of document include, but are not limited to:

- Modernization of a highway by resurfacing, restoration, rehabilitation, reconstruction, adding shoulders or adding auxiliary lanes (including parking, weaving, turning, climbing lanes)
- Highway Safety or Traffic Operations improvement projects
- Bridge Rehabilitation, reconstruction, or replacement or the construction of grade separation to replace existing at-grade railroad crossings

Level 4 - Environmental Assessment (EA) and Finding of No Significant Impact (FONSI)

Level 5 - Environmental Impact Statement (EIS)

If your project will need a Level 4 - Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) or Level 5 - Environmental Impact Statement (EIS) document type, a kick off meeting will be coordinated with ALDOT-Environmental Technical Section (ETS), the Area office, the Sponsor, and any Consultants selected for the Preliminary Engineering of the project.

Early Coordination with all appropriate resource and regulatory agencies insures all potential issues and impacts are clearly identified. **Coordination must occur early and continue throughout the entire NEPA process.** To ensure that the proposed action will comply with the requirements of NEPA, the Endangered Species Act, the National Historic Preservation Act, the Clean Water Act, and other applicable federal and state laws, comments and coordination will be solicited from all resource agencies applicable to the project, including the agencies listed below. This correspondence will be incorporated into the NEPA documentation files. **This contact is to begin the NEPA process and not the application process for permits.** Applying for permits is initiated **after** NEPA approval.

SECTION 9(d) - REVIEW AGENCIES

Listed below are Agencies that will need to be coordinated with, additional coordination may be required from other resources depending on the location and work proposed by your project.

1. [U.S. Fish and Wildlife Service](#) (for information regarding Federally-listed threatened and endangered species and/or critical habitat that may occur in the project area, or for general project input, Migratory Bird Treaty Act, Fish and Wildlife Coordination Act, and Bald and Golden Eagle Act).
2. [U.S. Army Corps of Engineers](#) (for comment on the possibility of impacting wetlands and other Waters of the US).
3. ALDOT must make all submittals to the [Alabama Historical Commission](#) (AHC). AHC (for information on resources that may occur within the project area and for general project input).
4. [Alabama Department of Environmental Management](#) (ADEM) (for comment on the possibility of impacting water quality, storm water runoff permit, or hazardous waste compliance).
5. [U.S. Environmental Protection Agency](#) (USEPA) (for comment on protection of human health, and the natural environment, including land, air, and water resources).
6. ALDOT and FHWA must be the starting point of contact for discussion on where there could be potential [Tribal impacts](#). FHWA, as the federal agency, is responsible for coordinating with the Tribes on Section 106 consultation, as required in 36 CFR 800. Tribes are considered sovereign nations and are therefore shown the respect due all other independent nations.

Agency reviews may result in a determination that additional documentation is needed for compliance with Federal or State regulations. ALDOT and FHWA will jointly decide the appropriate NEPA document needed for the action.

Contact the [Local Transportation Bureau, Preconstruction Section](#) for additional information or assistance.

ALABAMA

Department of Transportation

Local Public Agency (LPA) Road Design Policy

Recommended for Approval


ALDOT State Local Transportation Engineer

15 April 22
Date

Approved


ALDOT Chief Engineer

4/20/22
Date

Chapter 10

Design Policies

Table of Contents

Section 1 General Design Policies

Section 2 Design Criteria for Pavement Preservation

Section 3 Design Criteria for Resurfacing, Restoration and Rehabilitation (3R)

Section 4 Design Criteria for New Construction and Reconstruction

Note: Roundabouts shall be designed in accordance with the Alabama Department of Transportation (ALDOT) [*Roundabout Planning, Design, and Operations Manual, current edition*](#). The approach roadways to the roundabout will be designed in accordance with Section 3 and/or Section 4 noted in this chapter.

Section 1

General Design Policies

Any design feature not meeting the pertinent design criteria presented in this policy must be evaluated by the entity responsible for the design, construction, and maintenance of the facility (Project Representative) on a case by case basis, based upon sound engineering judgement, considering the safety of the traveling public and available funding, and be concurred with by the State Local Transportation Engineer. Justification must be provided as to why a certain feature cannot meet the required design criteria based upon on-site evaluations. Evaluations should include crash data, cost feasibility, and/or any other site-specific safety factors. Any variance from the pertinent design criteria should be described in the Scope of Work (Pavement Preservation) or the Project Engineering Record (3R or New Construction and Reconstruction).

All table and page number references, as noted in the following guidelines, are referenced from the AASHTO publication, [*A Policy on Geometric Design of Highways and Streets, 2018 7th Edition*](#), unless otherwise noted.

This source will also be referred to as the “2018 AASHTO Green Book”.

Section 2

Design Criteria for Pavement Preservation

Pavement Preservation projects do not involve any of the roadway being placed on new alignment and the existing pavement is either fully or partially retained. The basic roadway cross section is not changed, meaning the proposed improvements are contained within the existing roadway (lanes and shoulders or between curbs). Project types that would utilize this design criteria are resurfacing projects in which the existing pavement is still in fair condition and therefore not needing a substantial amount of patching and/or leveling. **If widening is required to meet the minimum lane widths shown in Guideline 3 of Section 3, the roadway will not be eligible for pavement preservation. In such cases, the LPA shall refer to the “3R” design procedures found in Section 3 of this document.**

Pavement Preservation projects shall be designed in accordance with this design criteria, which is based on general guidelines and procedures from [ALDOT Pavement Preservation Policy](#), approved by the Federal Highway Administration (FHWA) on 7/2/19, and adapted for the specific needs of Local Public Agencies. Consideration is also given to the discussion, guidance and criteria, and design standards/administrative control sections found in [ALDOT Performance-Based, Practical Design Guide, Version 1.0, September 2020](#). AASHTO publications, ALDOT manuals, [ALDOT Special & Standard Highway Drawings](#), and ALDOT procedures will be used as needed to supplement these sources.

Before developing construction plans, the designer shall prepare a [Scope of Work \(Pavement Preservation\)](#) based on these guidelines. Additional information regarding specific elements, not addressed in this section, should be included in the scope. The scope will also serve as the official **Project Engineering Record** and **Materials Report** for all Pavement Preservation projects.

This document shall be submitted to the Area Local Transportation Engineer for concurrence and then forwarded to the State Local Transportation Engineer for approval.

Current Conditions

Guideline 1: Designers should assess existing physical and operational conditions affecting safety by:

- Conducting a thorough site inspection of all physical elements and geometry within the project limits.
- Analyzing existing roadway functional classification, ADT, and design speed. In general, the design speed should be equal to or greater than the posted speed. In urban environments, a design speed less than the posted speed may be used in some cases. Rather than lowering the design speed, the designer should seek to obtain design exceptions for elements that cannot meet the appropriate speed.
- Analyzing crash data, to include field inspection, and concerns expressed by the public to determine site-specific locations where crash data may indicate the need for additional improvements.

Note: If there is an existing railroad-highway grade crossing within or near the project limits, then Railroad Coordination may be required. See Chapter 12 of the *Procedural Guidelines for LPA Projects* for additional guidance.

Project Scope

Guideline 2: The LPA Representative is required to conduct a scope of work review in conjunction with the Area Representative. During this review, the designer shall consider the following directives:

- The LPA and Area Representatives shall grade the roadway based upon the [Guidelines for Grading LPA Roads](#). Only roadway element treatments containing a score of 13 or higher should utilize this design criteria.
- Pavement Preservation projects **shall** not exceed an overlay of 225 lbs/sy with no more than 50% of the existing roadway requiring spot leveling and/or patching. All overlays shall conform to the laydown rate requirements found in the [Alabama Department of Transportation's Guidelines for Operations](#), Section 6-10.
- Planing the existing pavement to provide depth for the required overlay is acceptable under this design criteria.

Cross Slopes

Guideline 3: The designer should develop consistent procedures for evaluating existing cross slopes on traveled ways, parking lanes, bike lanes, and shoulders, with the following objectives:

- The traveled way, parking lane, and bike lane cross slope should match existing, except for the allowable leveling to correct pavement distresses (rutting, settlement, etc.) stated in guideline 2. If superelevation corrections are needed, the LPA shall refer to the “3R” design procedures found in Section 3 of this document.
- The shoulder cross slope or curb and gutter should allow rainfall to drain the roadway. Paved shoulder cross slopes shall match existing, while unpaved shoulders are typically 6.0%. If shoulder cross slope corrections are needed, the LPA shall refer to the “3R” design procedures found in Section 3 of this document.

Typical Cross Sections

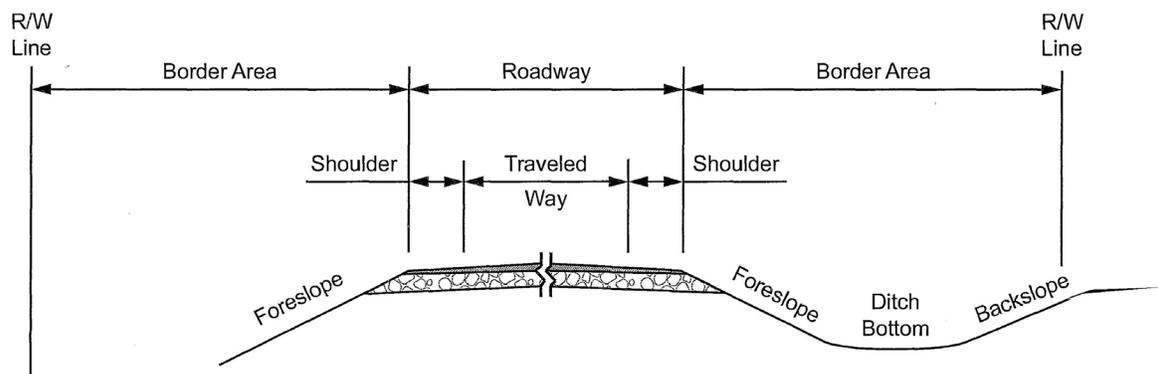


Figure 2-1: Rural Area

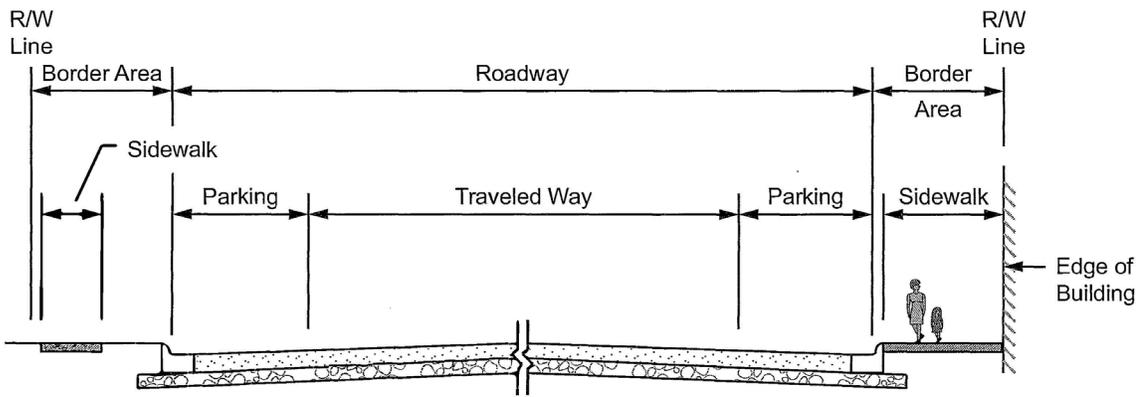


Figure 2-2: Urban Area with On-Street Parking and Sidewalks

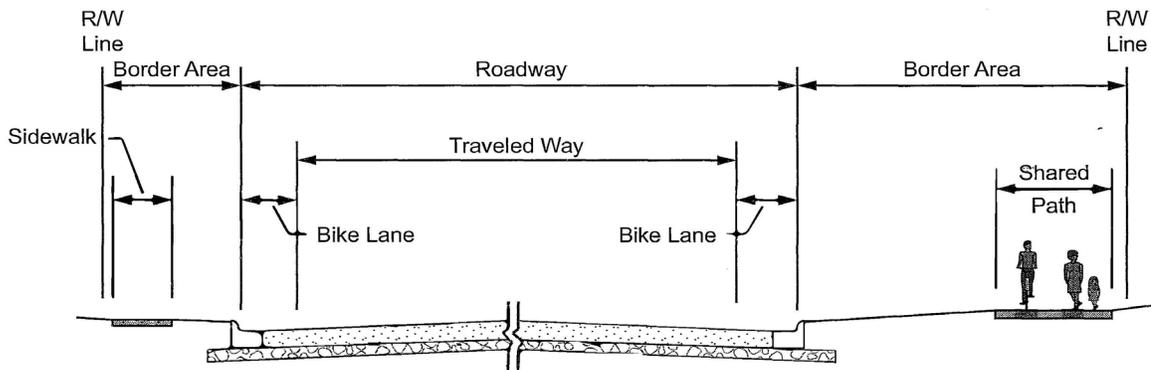


Figure 2-3: Urban Area with Bike Lanes, Sidewalks, and Shared Use Paths

Note: The figures shown above are taken from page 4-3 in the 2018 AASHTO Green Book and are for pictorial purposes only.

Pavement Edge Drop and Shoulder Type

Guideline 4: The designer should develop consistent procedures for evaluating pavement edge drop problems and the type of shoulder construction, with the following objectives:

- All shoulders shall be flushed up to the required pavement utilizing any number of applicable shoulder construction applications. Constructing a beveled or tapered pavement edge shape is eligible. No shoulder widening will be permissible under the pavement preservation policy, except for required shoulder widening for guardrail and/or guardrail end treatment installation.
- The addition of paved shoulders at points where out-of-lane vehicle excursions and pavement edge drop problems are likely to develop (e.g., at horizontal curves) may be eligible. Such additions will be evaluated on a case by case basis and approved by the State Local Transportation Engineer.

Bridge Width

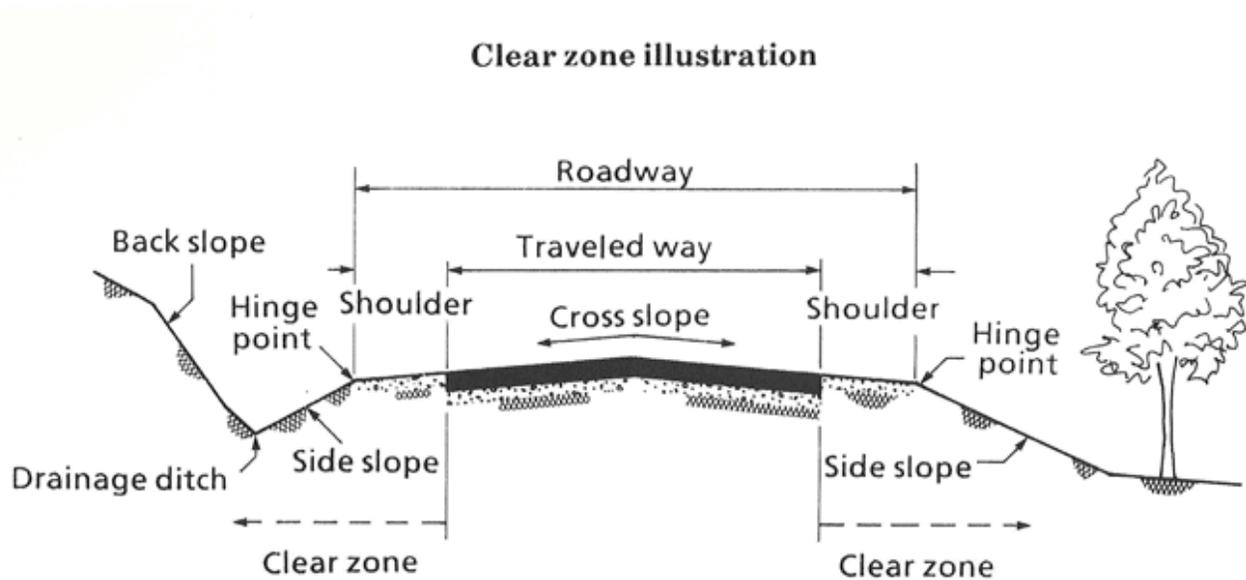
Guideline 5: The designer should evaluate existing bridge widths based upon the guidance below:

- Existing bridges should remain in place unless (1) there is a structural need to replace the bridge or (2) there is a documented pattern of crashes at the bridge that can potentially be reduced by widening or replacing the bridge.
- Narrow bridges are defined as bridges with curb to curb widths less than the combined width of the approach roadway (lanes and shoulders). Warning signs (narrow bridge) should be placed at all narrow bridges. When guardrail improvements are necessary at narrow bridges, it may be beneficial to flare guardrail approaching these structures per the appropriate [ALDOT Special & Standard Highway Drawings](#).

Sides Slopes and Clear Zones

Guideline 6: The designer should develop consistent procedures for evaluating side slopes and clear zones with the following objectives:

- Side slopes and clear zones are not a required consideration except when shoulders are widened for guardrail and/or guardrail end treatment installation, as described in guideline 4. When this occurs, shoulder widths and side slopes shall be as shown in the appropriate [ALDOT Special & Standard Highway Drawings](#).



Hinge Point Point where the slope rate changes.

Clear Zone A traversable area that starts at the edge of the traffic lane, includes the shoulder, and extends laterally a sufficient distance to allow a driver to stop or return to the road before encountering a hazard or overturning

Figure 2.4 - Clear Zone Illustration

Guardrail

Guideline 7: The designer should develop consistent procedures for evaluating the need for guardrail improvements, with the following considerations:

- On routes with design speeds greater than 45 MPH (40 MPH recommended), guardrail that contains steel blockouts and/or a rail height of less than 26 ½” should be replaced or reset.
- Guardrail that is not damaged and complies with the guidance above should remain in place. Damaged guardrail shall be replaced as necessary.

Note: All new guardrail shall be installed utilizing the appropriate [ALDOT Special & Standard Highway Drawings](#) to comply with MASH 2016. If guardrail is to be reset due to its height (24”- 26” height currently), please refer to the ALDOT “Guardrail Height Adjustment” drawing for more information. Guardrail with a rail height less than 24” must be replaced.

Bridge Rails and Guardrail to Bridge Rail Connections

Guideline 8: The designer should develop consistent procedures for evaluating the need for bridge rail and guardrail to bridge rail connection improvements, with the following considerations:

Bridge Rails

- Bridge rail improvements are not a required consideration.

Guardrail to Bridge Rail Connections

- On NHS routes, guardrail to bridge rail connections that are not present or not compliant with NCHRP 350 shall be installed or replaced with MASH 2016 compliant connections where possible. If the bridge contains steel w-beam guardrail, please contact the Design Section of the Local Transportation Bureau to receive a recommendation for the site-specific application.

Note: All new bridge rail and guardrail to bridge rail connections shall be installed per the appropriate [ALDOT Special & Standard Highway Drawings](#) and/or special project details to comply with MASH 2016 where possible.

Guardrail End Treatments

Guideline 9: The designer should develop consistent procedures for evaluating the need for guardrail end treatment improvements, with the following considerations:

- Any guardrail end treatment that is not present, damaged, or does not comply with NCHRP 350 shall be installed or replaced with MASH 2016 compliant devices.

Note: All new guardrail end treatments shall be installed per the appropriate [ALDOT Special & Standard Highway Drawings](#) to comply with MASH 2016.

Guardrail Length of Need

Guideline 10: *If guardrail end treatments are replaced or installed*, the guardrail system must conform to the applicable length of need requirements shown below:

Definition - Length of Need: The total length of a longitudinal barrier needed to shield an area of concern.

- On routes with **design speeds of 45 mph or less and design year traffic of 2,500 ADT or less**, the guardrail *length of need* requirement is waived, and the approach guardrail length is dictated by the type of end treatments used, appropriate [ALDOT Special & Standard Highway Drawings](#), and warranted areas of protection (steep slopes or other hazardous locations).
- On routes with **design speeds greater than 45 mph or design year traffic greater than 2,500 ADT**, a 75-foot guardrail *length of need* is applicable. [ALDOT Special & Standard Highway Drawings](#) and warranted areas of protection (steep slopes or other hazardous locations) may indicate a system requirement that would supersede this length.

The required length of need must be met even if all guardrail, bridge rail, and guardrail end treatments are compliant with NCHRP 350 or MASH 2016, as applicable.

Right-of-Way Encroachments

Guideline 11: The designer should evaluate right-of-way encroachments based upon the following definition and guidelines:

Definition - Encroachment: An item that occupies or utilizes the LPA's right-of-way without authorization from the LPA.

A fence that meets the following criteria is not considered an encroachment:

1. The fence is determined to be in the public interest and serves a transportation related purpose, and;
2. The fence shall not impair or interfere with the free and safe flow of traffic, and;
3. The fence is located outside of the clear zone as defined in the AASHTO publication, [A Policy on Geometric Design of Highways and Streets, 2018 7th Edition](#).

The LPA should also provide notice to the adjacent landowner of any fence that will be allowed to remain in the LPA's right-of-way. This notification should specify the terms and conditions under which the use will be authorized. This notice shall remain in the project file and be available for review (See Chapter 16 of the [Procedural Guidelines for LPA Projects](#), page 16.41).

Identify and Remove Encroachments - LPAs should diligently review their right-of-way to prevent new items from being placed within the right-of-way limits. Prior to the scope of work review, the Project Representative shall review the project for any encroachments placed within the LPA's right-of-way.

Mailboxes and utilities are authorized to be within the clear zone. Non-breakaway mailboxes shall be removed and replaced with a breakaway type structure that meets U.S Postal Service Specifications.

During the scope of work review, the Project Representative shall identify to the Area Local Transportation Engineer any encroachments that will be removed prior to project authorization. Plan preparation and review shall not be contingent on receipt of the Right-Of-Way Encroachment Certification letter (See Chapter 16 of the [Procedural Guidelines for LPA Projects](#), page 16.53) from the LPA. However, receipt of the Encroachment Certification letter will be required prior to project authorization.

An example notification letter is provided for landowners who have encroachments that must be removed from the LPA's right-of way (See Chapter 16 of the [Procedural Guidelines for LPA Projects](#), page 16.6)

Bicycle/Pedestrian Facilities

Guideline 12: The designer should develop consistent procedures for evaluating bicycle/pedestrian facilities, with the following objectives:

- Where bicycle/pedestrian facilities exist, upgrade **pedestrian crossings** (as necessary) per guidance shown in the 2018 AASHTO Green Book to ensure they are [*Americans with Disabilities Act*](#) (ADA) compliant.
- Evaluate the project limits for evidence of bicyclist and/or pedestrian activity. If there is evidence, consider providing a facility that will meet the needs of the bicyclists and/or pedestrians in the area. Consult the 2018 AASHTO Green Book to ensure they are ADA compliant.

Note: If only the following pavement treatments are being applied in the project, then bicycle/pedestrian facilities within the project limits are not required to be upgraded to comply with ADA:

- Crack filling and Sealing
- Surface Sealing
- Chip Seals, Slurry Seals, Fog Seals, Scrub Seals, and Joint Crack Seals
- Joint Repairs
- High Friction Treatments (Spot Locations)
- Diamond Grinding
- Concrete Grooving
- Pavement Patching

Section 3

Design Criteria for Resurfacing, Restoration and Rehabilitation (3R)

3R projects do not involve a substantial amount (more than an isolated horizontal or vertical curve) of the project being placed on a new alignment, and the pavement structure may or may not be removed down to the subgrade. The basic roadway cross section is not changed, but side slopes and ditches may need to be reconstructed. Project types that would utilize this design criteria include resurfacing with substantial patching and/or leveling, minor widening and resurfacing, full depth reclamation, intersection improvements (turn lanes, roundabouts, traffic signals, roadway lighting, etc.), general safety improvements, slide corrections, bridge rehabilitation and /or bridge painting, and pile encasements.

3R projects shall be designed in accordance with this design criteria, which is based on general guidelines and procedures from [NCHRP Report 876, Guidelines for Integrating Safety and Cost-Effectiveness into Resurfacing, Restoration, and Rehabilitation \(3R\) Projects](#) and adapted for the specific needs of Local Public Agencies. Consideration is also given to the discussion, guidance and criteria, and design standards/administrative control sections found in the [ALDOT Performance-Based, Practical Design Guide, Version 1.0, September 2020](#). The [Spreadsheet Tool 1](#) should be used to determine the benefit/cost ratios for each applicable improvement as described in this design criteria. When the anticipated safety benefit equals or exceeds the cost (benefit/cost = 1.0 or higher) the improvement should be included. AASHTO publications, ALDOT manuals, [ALDOT Special & Standard Highway Drawings](#), and ALDOT procedures will be used as needed to supplement these sources.

Before developing construction plans, the designer shall prepare a Scope of Work and [Project Engineering Record \(PER\)](#) based on the guidelines shown below. Additional information regarding specific elements, not addressed in this section, should be included in this report.

This document shall be submitted to the Area Local Transportation Engineer for concurrence and then forwarded to the State Local Transportation Engineer for approval.

Current Conditions

Guideline 1: Designers should assess existing physical and operational conditions affecting safety by:

- Conducting a thorough site inspection of all physical elements and geometry within the roadway limits.
- Analyzing existing roadway functional classification, ADT, and design speed. In general, the design speed should be equal to or greater than the posted speed. In urban environments, a design speed less than the posted speed may be used in some cases. Rather than lowering the design speed, the designer should seek to obtain design exceptions for elements that cannot meet the appropriate speed.
- Analyzing crash data, to include field inspection, and concerns expressed by the public to determine site-specific locations where crash data may indicate the need for additional improvements.

Note: If there is an existing railroad-highway grade crossing within or near the project limits, then Railroad Coordination may be required. See Chapter 12 of the *Procedural Guidelines for LPA Projects* for additional guidance.

Project Scope

Guideline 2: The LPA Representative is required to conduct a scope of work review in conjunction with the Area Representative (See Chapter 16 of the *Procedural Guidelines for LPA Projects*, pages 16.54 - 16.56). During this review, the designer should:

- Determine site-specific locations where physical elements should be replaced or improved (driveways, intersections, curves, bridges, headwalls, obstructions within the right-of-way, etc.).
- Include low cost safety improvements to be performed by contractor or LPA forces.

Lane and Shoulder Widths

Guideline 3: The designer should determine the appropriate lane and shoulder widths from the table below:

Design Year ADT ^a	Lane Width ^{c d e}	Shoulder Width ^{c d e}
Under 400 ^b	9 ft	2 ft
400 - 2,000 ^b	10 ft	2 ft
2,001 - 7,500 ^b	11 ft	3 ft
Over 7,500 ^b	12 ft	3 ft

Table 3-1: Recommended Lane and Shoulder Widths

Note: Values are based upon benefit/cost analysis utilizing [Spreadsheet Tool 1](#) with ALDOT cost and safety data.

- ^a Design Year ADT shall be based on a 10 year projection.
- ^b The analysis used to determine these values involved shoulder widening and front slope reconstruction when lanes were widened from 10 ft to 11 ft. When widening shoulders, front slopes should be no steeper than 3:1 due to side slope and clear zone requirements stated in guideline 9. See Figure 3-1 along with an example calculation for additional details on how fills were estimated.
- ^c Values less than what is shown may be used if widening the lane and/or shoulder is not cost beneficial based upon a project specific benefit/cost analysis.
- ^d Rural multi-lane highways (divided and undivided) shall maintain the existing lane and shoulder widths if they are greater than these values. Paved shoulders shall also be maintained where present.
- ^e In urban areas, lane widths of 10 feet or greater and existing shoulders/curb and gutter may be retained unless crash history indicates that widening will increase safety. Urban areas shall be as defined by the applicable Metropolitan Planning Organization (MPO) in conjunction with characteristics described in the 2018 AASHTO Green Book.

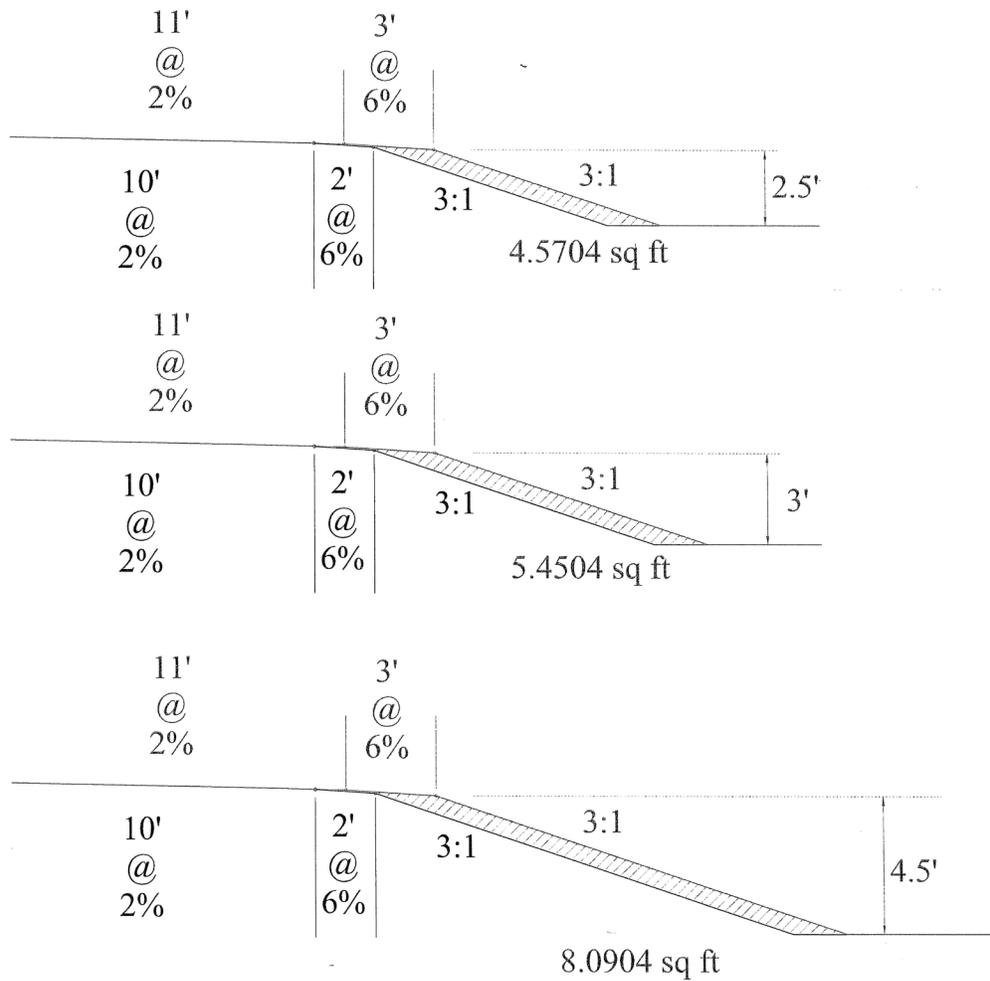


Figure 3-1: Estimated Fill Areas for Shoulder Widening and Slope Reconstruction

Example Calculations

Utilizing the figure above, the cost of the needed embankment to widen a roadway with 10 ft lanes and 2 ft shoulders to a roadway with 11 ft lanes and 3 ft shoulders with an embankment height of 3 ft over a 1 mile (5,280 ft) long section would cost:

$$5.4504 \text{ sq ft} \times 5,280 \text{ ft} = 28,778.12 \text{ cu ft} = 1,065.85 \text{ cu yds}$$

$$1,065.85 \text{ cu yds} \times \$21.26/\text{cu yd} = \$22,659.97$$

$$\text{Both sides of roadway} = \$22,659.97 \times 2 = \underline{\underline{\$45,319.94}}$$

Note: The price of borrow excavation used in this example is based upon average ALDOT bid history prices and should be updated/revised as necessary.

Cross Slopes

Guideline 4: The designer should develop consistent procedures for evaluating existing cross slopes on traveled ways, parking lanes, bike lanes, and shoulders, with the following objectives:

- The traveled way, parking lane, and bike lane cross slope may match existing. Cross slope corrections are eligible and shall meet requirements shown in Chapters 5, 6, or 7 in the 2018 [AASHTO Green Book](#), as applicable.
- The shoulder cross slope or curb and gutter should allow rainfall to drain the roadway. Paved shoulder cross slopes may match existing or be 4.0%. Unpaved shoulders are typically 6.0%. Paved and/or unpaved shoulder cross slope corrections are eligible and shall meet requirements shown on pages 4-13 and 4-14 in the 2018 [AASHTO Green Book](#).

Typical Cross Sections

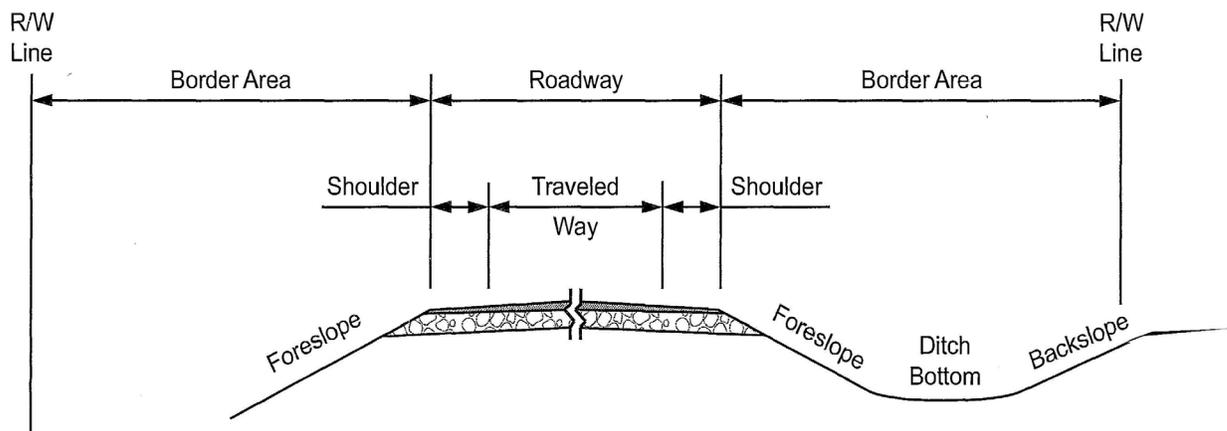


Figure 3-2: Rural Area

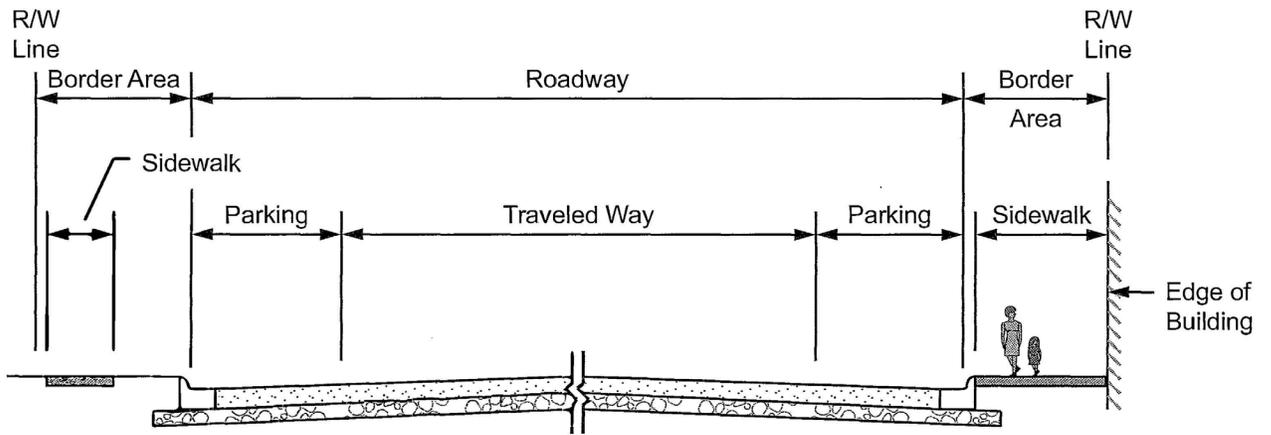


Figure 3-3: Urban Area with On-Street Parking and Sidewalks

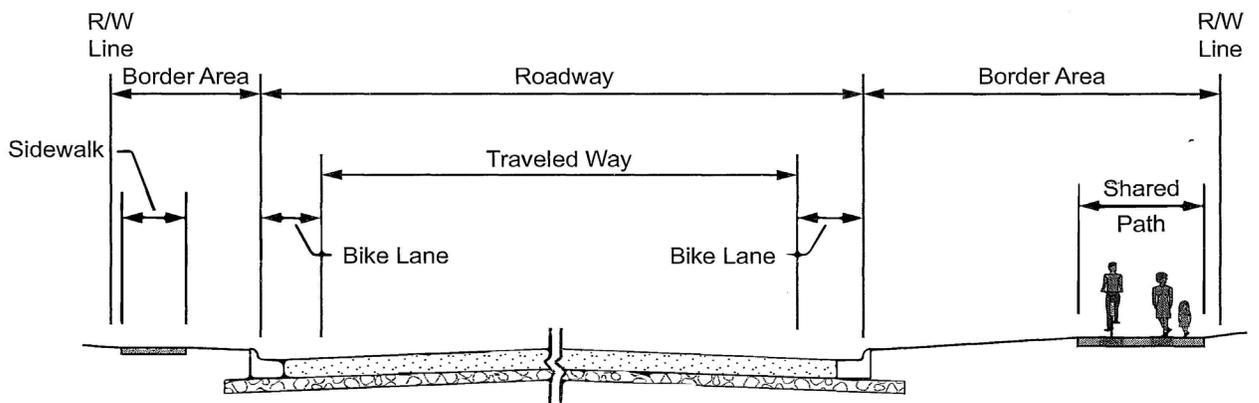


Figure 3-4: Urban Area with Bike Lanes, Sidewalks, and Shared Use Paths

Note: Figures 3-2 through 3-4 are taken from page 4-3 in the 2018 AASHTO Green Book and are for pictorial purposes only.

Pavement Edge Drop and Shoulder Type

Guideline 5: The designer should develop consistent procedures for evaluating pavement edge drop problems and the type of shoulder construction, with the following objectives:

- All shoulders shall be flushed up to the required pavement utilizing any number of applicable shoulder construction applications.
- Selectively pave shoulders at points where out-of-lane vehicle excursions and pavement edge drop problems are likely to develop (e.g., at horizontal curves).

OR

- Construct a beveled or tapered pavement edge shape at points where out-of-lane excursions and pavement edge drop problems are likely to develop (e.g., at horizontal curves).

Horizontal Curvature and Superelevation

Guideline 6: The designer should review each horizontal curve to determine the appropriate action that may be required. Action may include, but is not limited to:

- Adjusting the existing cross section with increased superelevation to meet the design speed until the maximum superelevation rate is reached based on new roadway standards, when deemed appropriate by a benefit-cost analysis*.

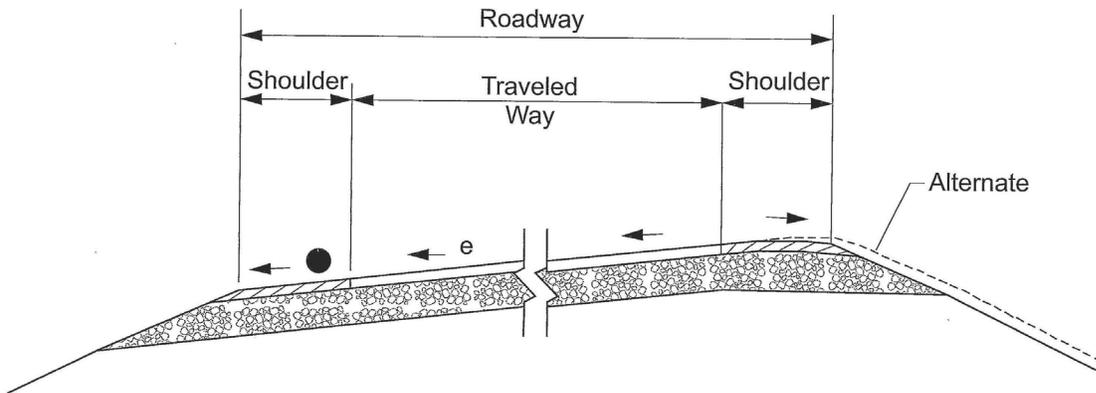
*Procedure for Performing Benefit/Cost Analysis

Based upon Rieker or other data, the designer determines that a curve with the following characteristics does not meet the design speed (has a posted advisory speed) and needs to be evaluated for superelevation corrections:

Design Speed = 20 MPH
PC = Sta 8+73.14
PT = Sta 9+79.46
L = PT-PC = 106.32
Radius = 170'
Lane Width = 9'

Based upon the appropriate [ALDOT Special & Standard Highway Drawing\(s\)](#), it is determined that 6.4 % “e” is required for this curve with a Superelevation Transition Length (STL) of 110’. The designer checks the existing “e” at three (3) locations along the curve (1/3, 1/2, and 2/3 of the distance between the PC and the PT). Based upon the **lowest** value, the existing “e” is 2.5%, which is a variance of 3.9% from what is required based upon new roadway standards. The curve information is then input into the [Required Leveling Spreadsheet](#) or a similar spreadsheet produced by the designer. Once the required leveling is determined, this value is input into the [Spreadsheet Tool 1](#) calculation tab in the “Superelevation Improvement” category to determine if correcting the superelevation will be cost beneficial. Repeat this process as necessary within the project limits. If more information or assistance is needed, please consult the Design Section of the Local Transportation Bureau.

- Evaluating the realignment of an isolated horizontal curve when increasing the superelevation is still not adequate. Horizontal curve realignment is typically not cost beneficial. Unless there is evidence of a site-specific safety problem, the sponsor should increase the superelevation and/or select an acceptable substitute as a countermeasure. If realignment is needed based upon further review, the sponsor may apply for Highway Safety Improvement Program (HSIP) Funds for this work. Consult the [Design Bureau, Traffic and Safety Operations Section](#) for more information. If HSIP funds are awarded, this work may be performed under a separate project or as part of the planned 3R project.



● = Superelevation Rate (e) Where Greater Than Normal Shoulder Slope

Figure 3-5: Typical Superelevated Cross Section

Note: Figure taken from page 4-4 of 2018 AASHTO Green Book. Provided for pictorial purposes only.

Acceptable Substitute(s) for Curve Realignment or Superelevation Corrections

- 1) Measures to reduce speed (signing, pavement markings, rumble strips, traffic control devices, etc.)
- 2) Measures to improve the roadside (clearing slopes, flattening steep side-slopes, removing, relocating, or shielding obstacles, etc.)
- 3) Measures to improve the roadway (widening lane width, widening shoulder width, paving shoulders, scoring, etc.)

Vertical Curvature and Stopping Sight Distance

Guideline 7: The designer should evaluate realigning a crest vertical curve when:

- It hides from view major hazards such as intersections, horizontal curves, or driveways.
- Crash history shows a pattern of crashes potentially related to limited stopping sight distance.
- Vertical curve realignment is typically not cost beneficial. Unless there is evidence of a site-specific safety problem, the sponsor should select an acceptable substitute as a countermeasure. If realignment is needed based upon further review, the sponsor may apply for Highway Safety Improvement Program (HSIP) Funds for this work. Consult the [Design Bureau, Traffic and Safety Operations Section](#) for more information. If HSIP funds are awarded, this work may be performed under a separate project or as part of the planned 3R project.

Acceptable Substitute(s) for Curve Realignment

- 1) Measures to reduce speed (signing, traffic control devices, etc.)
- 2) Measures to improve the roadside (removing, relocating, or shielding driveways, intersections, sharp horizontal curves, etc.)

Bridge Width

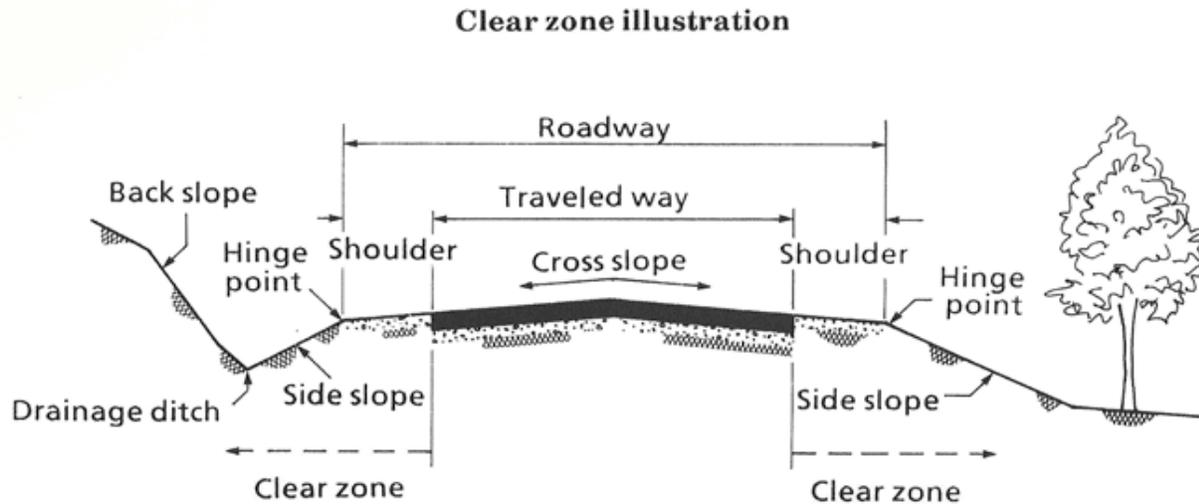
Guideline 8: The designer should evaluate existing bridge widths based upon the guidance below:

- Existing bridges should remain in place unless (1) there is a structural need to replace the bridge or (2) there is a documented pattern of crashes at the bridge that can potentially be reduced by widening or replacing the bridge.
- Narrow bridges are defined as bridges with curb to curb widths less than the combined width of the approach roadway (lanes and shoulders/face of curb). Warning signs (narrow bridge) should be placed at all narrow bridges. When guardrail improvements are necessary at narrow bridges, it may be beneficial to flare guardrail approaching these structures per the appropriate [ALDOT Special & Standard Highway Drawings](#).

Side Slopes and Clear Zones

Guideline 9: The designer should develop consistent procedures for evaluating and improving roadside features with the following objectives:

- The desirable clear zone width for 3R projects shall be as defined in the AASHTO publication, [*A Policy on Geometric Design of Highways and Streets, 2018 7th Edition*](#), based upon the setting and functional classification of the road or street (Chapters 5, 6, and 7).



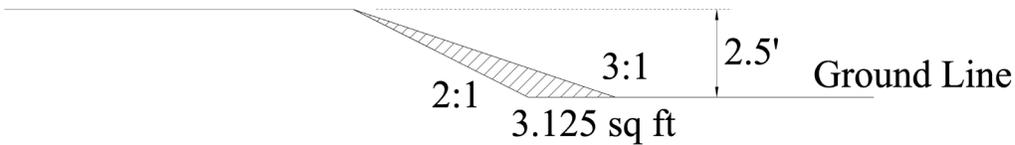
Hinge Point Point where the slope rate changes.

Clear Zone A traversable area that starts at the edge of the traffic lane, includes the shoulder, and extends laterally a sufficient distance to allow a driver to stop or return to the road before encountering a hazard or overturning

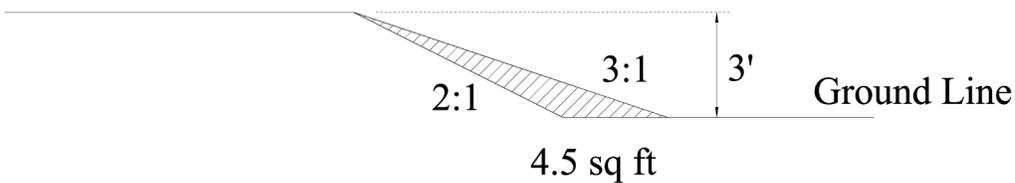
Figure 3-6: Clear Zone Illustration

- A clear zone of any width should provide some contribution to safety; thus, the designer should evaluate providing clear zone improvements based upon a benefit/cost analysis utilizing [Spreadsheet Tool 1](#) . Most often this will involve flattening side slopes or removing roadside obstacles. The recommended method is to isolate the section that is to be improved (700' of slope flattening from 2:1 to 3:1 for example) and analyze its benefit and cost separately from any other project improvements. If more information or assistance is needed, please contact the Design Section of the Local Transportation Bureau. Please see the following figure with example calculations concerning the cost of flattening side slopes steeper than 3:1:

Existing Shoulder



Existing Shoulder



Existing Shoulder

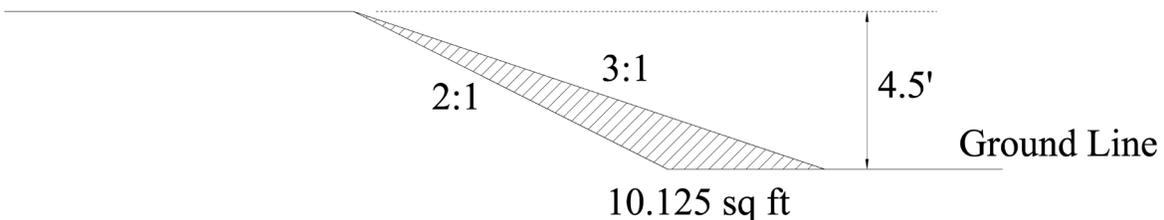


Figure 3-7: Flattening 2:1 Side Slopes to 3:1 with Estimated Areas of Fill

Example Calculations

Utilizing the figure above, the cost of flattening a 2:1 side slope to 3:1 with an embankment height of 3 ft over a 700 ft long section would cost:

$$4.5 \text{ sq ft} \times 700 \text{ ft} = 3,150 \text{ cu ft} = 116.67 \text{ cu yds}$$

$$116.67 \text{ cu yds} \times \$21.26/\text{cu yd} = \underline{\underline{\$2,480.40}}$$

Note: The price of borrow excavation used in this example is based upon average ALDOT bid history prices and should be updated/ revised as necessary.

Acceptable Substitute(s) When Full Width Clear Zone is Not Cost Beneficial

- 1) Flatten side slopes steeper than 3:1 at site-specific locations where run-off- road crashes are likely to occur (e.g., on the outside of sharp horizontal curves) or other areas identified in the scope of work review.
- 2) Remove, relocate, or shield isolated roadside objects within the clear zone that are greater than 4 inches in diameter and not of breakaway design. Identify site-specific areas that pose safety concerns and shield them appropriately (see guideline 14 for additional information).
- 3) In urban areas, provide the greatest lateral offset possible, but at no point less than the minimum described in the AASHTO publication, [A Policy on Geometric Design of Highways and Streets, 2018 7th Edition](#). In general, urban streets with design speeds of 20 to 35 MPH should provide, at minimum, the 1.5 feet lateral offset from an unyielding object to the face of curb. Urban streets with design speeds of 40 to 45 MPH should provide an “enhanced lateral offset” of 4 to 6 feet.

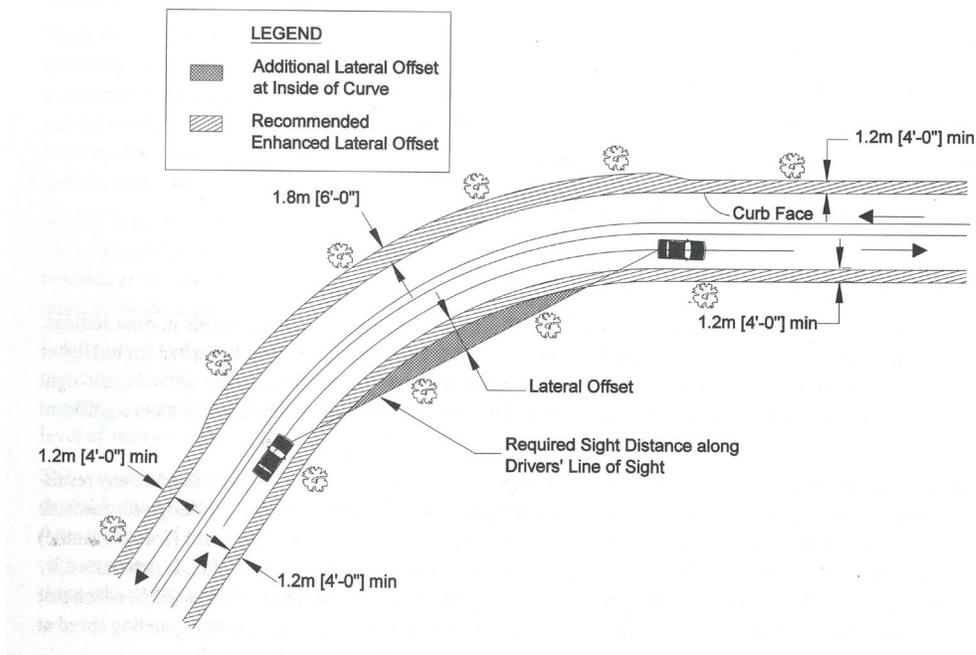


Figure 3-8: Lateral Offset for Objects at Horizontal Curves on Curbed Facilities

Note: Figure taken from page 10-4 of the AASHTO Roadside Design Guide, 2011 4th Edition.

Note: Slopes steeper than 3:1 cannot be included in the clear zone, since they are not traversable by vehicles. Clear zone or lateral offset improvements may be performed by contract or LPA forces.

Guardrail

Guideline 10: The designer should develop consistent procedures for evaluating the need for guardrail improvements, with the following considerations:

- On routes with design speeds greater than 45 MPH (40 MPH recommended), guardrail that contains steel blockouts and/or a rail height of less than 26 ½” should be replaced or reset.
- Guardrail that is not damaged and complies with the guidance above should remain in place. Damaged guardrail shall be replaced as necessary.

Note: All new guardrail shall be installed utilizing the appropriate [ALDOT Special & Standard Highway Drawings](#) to comply with MASH 2016. If guardrail is to be reset due to its height (24”- 26” height currently), please refer to the ALDOT “Guardrail Height Adjustment” drawing for more information. Guardrail with a rail height less than 24” must be replaced.

Bridge Rails and Guardrail to Bridge Rail Connections

Guideline 11: The designer should develop consistent procedures for evaluating the need for bridge rail and guardrail to bridge rail improvements, with the following considerations:

Bridge Rails

- Bridge rails on NHS routes that are not compliant with NCHRP 350 shall be improved to comply with MASH 2016 where possible. If the bridge contains steel w-beam guardrail, please contact the Design Section of the Local Transportation Bureau to receive a recommendation for the site-specific application.
- The face of the bridge rail should be flush or within 1” +/- of the face of the bridge brush curb (steel w-beam guardrail applications).
- Bridge rail that is not damaged and complies with the guidance above should remain in place. Damaged bridge rail shall be replaced as necessary.

Guardrail to Bridge Rail Connections

- Guardrail to bridge rail connections that are not present or are not compliant with NCHRP 350 shall be installed or replaced with MASH 2016 compliant connections where possible. If the bridge contains steel w-beam guardrail, please contact the Design Section of the Local Transportation Bureau to receive a recommendation for the site-specific application.

Note: All new bridge rail and guardrail to bridge rail connections shall be installed per the appropriate [ALDOT Special & Standard Highway Drawings](#) and/or special project details to comply with MASH 2016 where possible.

Guardrail End Treatments

Guideline 12: The designer should develop consistent procedures for evaluating the need for guardrail end treatment improvements, with the following considerations:

- Any guardrail end treatment that is not present, damaged, or does not comply with NCHRP 350 shall be installed or replaced with MASH 2016 compliant devices.

Note: All new guardrail end treatments shall be installed per the appropriate [ALDOT Special & Standard Highway Drawings](#) to comply with MASH 2016.

Guardrail Length of Need

Guideline 13: The designer should develop consistent procedures for evaluating the appropriate guardrail length of need, with the following considerations:

Definition - Length of Need: The total length of a longitudinal barrier needed to shield an area of concern.

- On routes with **design speeds of 45 mph or less and design year traffic of 2,500 ADT or less**, the guardrail *length of need* requirement is waived, and the approach guardrail length is dictated by the type of end treatments used, appropriate [ALDOT Special & Standard Highway Drawings](#), and warranted areas of protection (steep slopes or other hazardous locations).
- On routes with **design speeds greater than 45 mph or design year traffic greater than 2,500 ADT**, a 75-foot guardrail *length of need* is applicable. [ALDOT Special & Standard Highway Drawings](#) may indicate a system requirement that would supersede this length.

The required length of need must be met even if all guardrail, bridge rail, and guardrail end treatments are compliant with NCHRP 350 or MASH 2016, as applicable.

Guardrail Need for Steep Slopes, Culverts, and Bridges

Guideline 14: The designer should develop consistent procedures for evaluating the need for guardrail, with the following considerations:

- Front slopes steeper than 3:1 are considered critical. If slopes steeper than 3:1 are proposed, they should be stabilized with erosion control product or riprap and protected with guardrail and guardrail end treatments per the “guardrail warranty for embankment criteria” found in the appropriate [ALDOT Special & Standard Highway Drawings](#).
- Clear zone encroachments (e.g., culvert parapet walls) shall be shielded.
- Bridges and site-specific safety locations shall be identified and protected.

Right-of-Way Encroachments

Guideline 15: The designer should evaluate right-of-way encroachments based upon the following definition and guidelines:

Definition - Encroachment: An item that occupies or utilizes the LPA's right-of-way without authorization from the LPA.

A fence that meets the following criteria is not considered an encroachment:

1. The fence is determined to be in the public interest and serves a transportation related purpose, and;
2. The fence shall not impair or interfere with the free and safe flow of traffic, and;
3. The fence is located outside of the clear zone as defined in the AASHTO publication, [A Policy on Geometric Design of Highways and Streets, 2018 7th Edition](#).

The LPA should also provide notice to the adjacent landowner of any fence that will be allowed to remain in the LPA's right-of-way. This notification should specify the terms and conditions under which the use will be authorized. This notice shall remain in the project file and be available for review (See Chapter 16 of the [Procedural Guidelines for LPA Projects](#), page 16.41).

Identify and Remove Encroachments - LPAs should diligently review their right-of-way to prevent new items from being placed within the right-of-way limits. Prior to the scope of work review, the Project Representative shall review the project for any encroachments placed within the LPA's right-of-way.

Mailboxes and utilities are authorized to be within the clear zone. Non-breakaway mailboxes shall be removed and replaced with a breakaway type structure that meets U.S Postal Service Specifications.

During the scope of work review, the Project Representative shall identify to the Area Local Transportation Engineer any encroachments that will be removed prior to project authorization. Plan preparation and review shall not be contingent on receipt of the Right-Of-Way Encroachment Certification letter (See Chapter 16 of the [Procedural Guidelines for LPA Projects](#), page 16.53) from the LPA. However, receipt of the Encroachment Certification letter will be required prior to project authorization.

An example notification letter is provided for landowners who have encroachments that must be removed from the LPA's right-of way (See Chapter 16 of the [Procedural Guidelines for LPA Projects](#), page 16.6)

Bicycle/Pedestrian Facilities

Guideline 16: The designer should develop consistent procedures for evaluating bicycle/pedestrian facilities, with the following objectives:

- Where bicycle/pedestrian facilities exist, upgrade **pedestrian crossings** (as necessary) per guidance shown in the [2018 AASHTO Green Book](#) to ensure they are ADA compliant.
- Evaluate the project limits for evidence of bicyclist and/or pedestrian activity. If there is evidence, consider providing a facility that will meet the needs of the bicyclists and/or pedestrians in the area. Consult the [2018 AASHTO Green Book](#) to ensure they are ADA compliant.

Intersection Improvements

Guideline 17: The designer should develop consistent procedures for evaluating intersection improvements, with the following objectives:

- Review crash data to identify crash locations, type, cause, severity, time of occurrence, and weather conditions.
- Field review of the intersection to detect hazards not apparent from collision and condition diagrams or crash data.
- Consider intersection improvements to site-specific safety problem areas.

Improvements may be organized on three primary design objectives:

- 1) Reduction of potential conflicts (traffic signals, turn lanes, roundabouts, etc.)
- 2) Improve driver decision-making (longer lines of sight, lane markings, etc.)
- 3) Improve the braking capability of the vehicle (warning signs, increased pavement skid resistance, etc.).

Note: When an intersection is improved (traffic signals, turn lanes, roundabouts, etc.) the capacity and level of service of the intersection will be evaluated based upon guidance found in the [2018 AASHTO Green Book](#).

Section 4

Design Criteria for New Construction and Reconstruction

New construction typically consists of projects on new alignment where no highway facility has previously existed. Some projects on existing roads will be classified as new construction if:

- A new alignment or cross section is developed for the facility, and:
- The new alignment and cross section are not substantially constrained by development along the existing road.

Reconstruction projects include projects on existing roads that are not considered new construction and in which:

- A substantial portion (more than an isolated horizontal or vertical curve) of the existing alignment is modified, or the basic roadway cross section is changed. Changes in the basic roadway cross section include widening a roadway to provide additional through lanes or adding a raised or depressed median where none exists, and where these changes cannot be accomplished within the existing roadway width (including shoulders).

Project types that would utilize this design criteria include bridge replacements, grade, drain, base and pave, and significant widening projects.

New construction and reconstruction projects shall be designed in accordance with this design criteria, which is based on the AASHTO publication, [*A Policy on Geometric Design of Highways and Streets, 2018 7th Edition*](#). Consideration is also given to the discussion, guidance and criteria, and design standards/administrative control sections found in the ALDOT [*Performance-Based, Practical Design Guide, Version 1.0, September 2020*](#). Roads that are functionally classified as a local road or minor collector containing a design year ADT of 2,000 vehicles per day or less may also utilize the AASHTO publication, [*Guidelines for Geometric Design of Low-Volume Roads, 2019 2nd Edition*](#). Other AASHTO publications, ALDOT manuals, [*ALDOT Special & Standard Highway Drawings*](#), and ALDOT procedures will be used as needed to supplement these sources.

Before developing construction plans, the designer shall prepare a Scope of Work (if applicable) and [*Project Engineering Record \(PER\)*](#) based on the guidelines shown below. Additional information regarding specific elements, not mentioned below, should be included in this report.

This document shall be submitted to the Area Local Transportation Engineer for concurrence and then forwarded to the State Local Transportation Engineer for approval.

4.1 Controlling Design Criteria

Per this policy, the following criteria are considered controlling for the design of new construction and reconstruction LPA projects along NHS and non-NHS routes:

1. Design Speed
2. Lane Width
3. Shoulder Width
4. Horizontal Curve Radius
5. Superelevation Rate
6. Stopping Sight Distance (excludes sag vertical curves)
7. Maximum Grade
8. Cross Slope
9. Vertical Clearance
10. Design Loading Structural Capacity

The designer should strive to provide values inside the indicated ranges found in the [2018 AASHTO Green Book](#) for all design elements. Any value outside of the indicated ranges for the controlling design criteria will require a formal design exception. Design exceptions will be evaluated utilizing guidance found in the ALDOT [Performance-Based, Practical Design Guide, Version 1.0, September 2020](#) to ensure that waivers are reviewed consistently and are based upon existing roadway characteristics, alternatives, safety and operational performance vs. impacts, mitigation measures, and compatibility with other sections of the roadway. For ease of use and identification, the controlling design criteria will be in **bold text** throughout the rest of this section. Although non-controlling design criteria will not require a formal design exception, documentation of the design decision-making process must be provided.

4.2 Local Roads and Streets

(Guidelines based on Chapter 5 of 2018 AASHTO Green Book)

General Design Considerations

Guideline 1: Designers should consider appropriate design values for their overall design by:

- **Selecting the appropriate design speed for the road or street based on Table 5-1 for rural settings or guidance from page 5-14 in urban areas.**
- Analyzing traffic volumes projected 20 years in the future for rural settings and urban areas, based on guidance from pages 5-3 or 5-14, as applicable.
- **Ensuring maximum grades don't exceed values based on Table 5-2 for rural settings or guidance from page 5-15 in urban areas.**

- Selecting an appropriate cross slope for both paved and unpaved surfaces by seeking guidance from page 5-4 in rural setting or from page 5-15 in urban areas.
- Examining the horizontal alignment to ensure horizontal curves meet the minimum standards for superelevation rates and superelevation runoff based on the [ALDOT Special & Standard Highway Drawings](#) for rural settings or guidance from page 5-15 in urban areas.
- Examining the vertical alignment to ensure minimum stopping sight distances are met based on Table 5-3 for rural settings or guidance from page 5-16 in urban areas.

Cross-Sectional Elements

Guideline 2: Designers should consider appropriate design values for each cross-sectional element by:

- Determining the appropriate widths for the road or street based on Table 5-5 for rural settings or guidance from page 5-16 in urban areas.
- Determining the number of lanes required based on guidance from pages 5-6 or 5-16, as applicable.
- Examining guidance for parking lanes, medians, and curbs per pages 5-16 and 5-17 in urban areas.
- Determining if the existing right-of-way is sufficient to accommodate the design or if additional right-of-way is needed based on guidance from pages 5-7 or 5-17, as applicable.
- Determining the need for bicycle/pedestrian facilities based on guidance from pages 5-8 or 5-18 and 5-19, as applicable.

Structures

Guideline 3: Designers should evaluate the design characteristics of structure(s) by:

- Determining the minimum clear roadway width (curb to curb) and structural capacity of required structure(s) based on Table 5-6 or guidance from page 5-22 and 5-23, as applicable.
- Ensuring existing and required structures have adequate vertical clearance based on guidance from pages 5-9 or 5-23, as applicable.

Roadside Design

Guideline 4: Designers should consider safety in their roadside design by:

- Determining the desirable clear zone based on guidance from pages 5-10 or 5-23, as applicable.
- Evaluating the lateral offset based on guidance from pages 5-10 or 5-23, as applicable.
- Ensuring that frontslopes and/or backslopes are as flat as practical for rural settings based on guidance from pages 5-10 and 5-11. Slopes steeper than 3:1 should be stabilized with erosion control product or riprap and protected with guardrail and guardrail end treatments per the “guardrail warranty for embankment criteria” found in the appropriate [ALDOT Special & Standard Highway Drawings](#).

Note: All new guardrail, bridge rail, guardrail to bridge rail connections, and guardrail end treatments shall be installed to comply with MASH 2016 and shall meet the length of need as defined in the 3R Design Criteria earlier in this chapter. These criteria should also be used to evaluate any existing rail, connections, and end treatments within the project limits.

Intersection Design

Guideline 5: Designers should consider safety in their intersection design by:

- Evaluating intersection locations, angles, radii, and sight distances based on guidance from pages 5-11 or 5-23 to 5-24, as applicable.

Railroad-Highway Grade Crossings

Guideline 6: Designers should account for railroad-highway grade crossings when an at grade railroad crossing is within or near the project limits by:

- Providing appropriate warning devices, adequate sight distance, and proper approach roadway widths based on guidance from pages 5-11 and 5-12 or 5-25, as applicable.
- Starting the Railroad Coordination process as early as possible is beneficial in keeping a project on schedule for the desired letting date. See Chapter 12 of the [Procedural Guidelines for LPA Projects](#) for additional guidance.

Note: Bridge projects over railroads will involve Railroad Coordination. See Chapter 12 of the [Procedural Guidelines for LPA Projects](#) for additional guidance.

Traffic Control Devices

Guideline 7: Designers should provide all required traffic control devices by:

- Seeking guidance found in the [Manual on Uniform Traffic Control Devices \(MUTCD\), current edition](#) and the appropriate [ALDOT Special & Standard Highway Drawings](#).

Roadway Lighting

Guideline 8: Designers should provide appropriate roadway lighting by:

- Seeking guidance found on pages 5-25 and 5-26 in urban settings.

Drainage

Guideline 9: Designers should evaluate drainage by:

- Seeking guidance found in the [ALDOT Hydraulic Manual](#) and referring to the appropriate [ALDOT Special & Standard Highway Drawings](#).

Erosion Control and Landscaping

Guideline 10: Designers should provide an appropriate erosion control plan by:

- Seeking guidance from pages 5-12 or 5-26 to 5-27, as applicable and by referring to the [ALDOT Special & Standard Highway Drawings](#).

NOTE: Other chapters and/or sections of AASHTO's [A Policy on Geometric Design of Highways and Streets, 2018 7th Edition](#) may apply.

4.3 Collector Roads and Streets

(Guidelines based on Chapter 6 of 2018 AASHTO Green Book)

General Design Considerations

Guideline 1: Designers should consider appropriate design values for their overall design by:

- Selecting the appropriate design speed for the road or street based on Table 6-1 for rural settings or guidance from pages 6-13 to 6-14 in urban areas.
- Analyzing traffic volumes projected 20 years in the future for rural settings and urban areas, based on guidance from pages 6-3 or 6-14, as applicable.
- Ensuring maximum grades don't exceed values based on Table 6-2 for rural settings or Table 6-7 in urban areas.
- Selecting an appropriate cross slope for both paved and unpaved surfaces by seeking guidance from page 6-4 or 6-15, as applicable.
- Examining the horizontal alignment to ensure horizontal curves meet the minimum standards for superelevation rates and superelevation runoff based on [ALDOT Special & Standard Highway Drawings](#) for rural settings or guidance from page 6-15 in urban areas.
- Examining the vertical alignment to ensure minimum "K" values are met in Table 6-3 for rural settings or by seeking guidance found on page 6-15 in urban areas.

Cross-Sectional Elements

Guideline 2: Designers should consider appropriate design values for each cross-sectional element by:

- Determining the appropriate widths for the road or street based on Table 6-5 for rural settings or guidance from page 6-16 in urban areas.
- Determining the number of lanes required based on guidance from pages 6-6 or 6-16, as applicable.
- Examining guidance for parking lanes, medians, and curbs per pages 6-16 through 6-18 in urban areas.
- Determining if existing right-of-way is sufficient to accommodate the design or if additional right-of-way is needed based on guidance from page 6-7 or pages 6-18 to 6-19, as applicable.

- Determining the need for bicycle/pedestrian facilities based on page 6-7 or pages 6-19 to 6-20, as applicable.

Structures

Guideline 3: Designers should evaluate the design characteristics of structure(s) by:

- Determining the minimum clear roadway width (curb to curb) and structural capacity of required structure(s) based on Table 6-6 or guidance from page 6-20, as applicable.
- Ensuring required and existing structures have adequate vertical clearance based on guidance from pages 6-8 or 6-20, as applicable.

Roadside Design

Guideline 4: Designers should consider safety in their roadside design by:

- Determining the desirable clear zone based on guidance from pages 6-8 or 6-21, as applicable.
- Evaluating the lateral offset based on guidance from pages 6-8 to 6-9 or 6-21 to 6-22, as applicable.
- Ensuring that frontslopes and/or backslopes are as flat as practical for rural settings based on guidance from page 6-9. Slopes steeper than 3:1 shall be stabilized with erosion control product or riprap and protected with guardrail and guardrail end treatments per the “guardrail warranty for embankment criteria” found in the appropriate [ALDOT Special & Standard Highway Drawings](#).

Note: All new guardrail, bridge rail, guardrail to bridge rail connections, and guardrail end treatments shall be installed to comply with MASH 2016 and length of need as defined in the 3R Design Criteria earlier in this chapter. These criteria should also be used to evaluate any existing rail, connections, and end treatments within the project limits.

Intersection Design

Guideline 5: Designers should consider safety in their intersection design by:

- Evaluating intersection locations, angles, radii, and sight distances based on guidance found on pages 6-9 to 6-10 or 6-22, as applicable.

Railroad-Highway Grade Crossings

Guideline 6: Designers should account for Railroad-Highway Grade Crossings when an at grade railroad crossing is within or near the project limits by:

- Providing appropriate warning devices, adequate sight distance, and proper approach roadway widths based on guidance from pages 6-10 or 6-23, as applicable.
- Starting the Railroad Coordination process as early as possible is beneficial in keeping a project on schedule for the desired letting date. See Chapter 12 of the *Procedural Guidelines for LPA Projects* for additional guidance.

Note: Bridge projects over railroads will involve Railroad Coordination. See Chapter 12 of the *Procedural Guidelines for LPA Projects* for guidance.

Traffic Control Devices

Guideline 7: Designers should provide all required traffic control devices by:

- Seeking guidance found in the *Manual on Uniform Traffic Control Devices (MUTCD), current edition* and the appropriate *ALDOT Special & Standard Highway Drawings*.

Roadway Lighting

Guideline 8: Designers should provide appropriate roadway lighting by:

- Seeking guidance found on pages 6-23 and 6-24 in urban settings.

Drainage

Guideline 9: Designers should evaluate drainage by:

- Seeking guidance found in the *ALDOT Hydraulic Manual* and the appropriate *ALDOT Special & Standard Highway Drawings*.

Erosion Control and Landscaping

Guideline 10: Designers should provide an appropriate erosion control plan by:

- Seeking guidance from pages 6-11 or 6-24, as applicable and by referring to the appropriate [ALDOT Special & Standard Highway Drawings](#).

NOTE: *Other chapters and/or sections of AASHTO's [A Policy on Geometric Design of Highways and Streets, 2018 7th Edition](#) may apply.*

4.4 Rural and Urban Arterials

(Guidelines based on Chapter 7 of 2018 AASHTO Green Book)

General Design Considerations

Guideline 1: Designers should consider appropriate design values for their overall design by:

- **Selecting the appropriate design speed for the road or street based on guidance from pages 7-3 or 7-36, as applicable.**
- Analyzing traffic volumes projected 20 years in the future based on either Average Daily Traffic (ADT) or Design Hourly Volume (DHV) as appropriate based on guidance from pages 7-3 to 7-4 or 7-36, as applicable.
- **Providing minimum sight distances for rural and urban arterials based on Table 7-1.**
- **Ensuring maximum grades don't exceed values based on Table 7-2 for rural settings or Table 7-4a in urban areas.**
- **Selecting an appropriate cross slope for both paved and unpaved surfaces by seeking guidance from pages 7-6 or 7-38 to 7-39, as applicable.**
- **Examining the horizontal alignment to ensure horizontal curves meet the minimum standards for superelevation rates and superelevation runoff based on the [ALDOT Special & Standard Highway Drawings](#) for rural settings or guidance from page 7-38 in urban areas.**

Cross-Sectional Elements

Guideline 2: Designers should consider appropriate design values for each cross-sectional element by:

- **Determining the appropriate widths for the road or street based on Table 7-3 for rural settings or guidance from pages 7-39 to 7-40 in urban areas.**
- Determining the number of lanes required based on guidance from pages 7-7 or 7-40, as applicable.
- Examining guidance for parking lanes, medians, and curbs and shoulders per pages 7-40 through 7-46 in urban areas.
- Determining if the existing right-of-way is sufficient to accommodate the design or if additional right-of-way is needed based on guidance from pages 7-7 to 7-8 or 7-48 to 7-49, as applicable.

Structures

Guideline 3: Designers should evaluate the design characteristics of structure(s) by:

- **Determining the minimum clear roadway width (curb to curb) and structural capacity of required structure(s) based on guidance from pages 7-9 or 7-50 to 7-51, as applicable.**
- **Ensuring existing and required structures have adequate vertical clearance based upon guidance from pages 7-9 or 7-51, as applicable.**

Roadside Design

Guideline 4: Designers should consider safety in the roadside design by:

- Determining the desirable clear zone based on guidance from pages 7-8 or 7-49, as applicable.
- Evaluating the lateral offset based on guidance from pages 7-8 or 7-49 to 7-50, as applicable.

Note: All new guardrail, bridge rail, guardrail to bridge rail connections, and guardrail end treatments shall be installed to comply with MASH 2016 and length of need as defined in the 3R Design Criteria earlier in this chapter. These criteria should also be used to evaluate any existing rail, connections, and end treatments within the project limits.

Intersection Design

Guideline 5: Designers should consider safety in their intersection design by:

- Evaluating intersections and interchanges based on guidance from pages 7-29 or 7-56, as applicable.

Railroad-Highway Grade Crossings

Guideline 6: Designers should account for Railroad-Highway Grade Crossings when an at grade railroad crossing is within or near the project limits by:

- Providing appropriate warning devices, adequate sight distance, and proper approach roadway widths based on guidance from pages 7-31 or 7-51, as applicable.
- Starting the Railroad Coordination process as early as possible is beneficial in keeping a project on schedule for the desired letting date. See Chapter 12 of the *Procedural Guidelines for LPA Projects* for additional guidance.

Note: Bridge projects over railroads will involve Railroad Coordination. See Chapter 12 of the *Procedural Guidelines for LPA Projects* for additional guidance.

Traffic Control Devices

Guideline 7: Designers should provide all required traffic control devices by:

- Seeking guidance found in the *Manual on Uniform Traffic Control Devices (MUTCD), current edition* and the appropriate *ALDOT Special & Standard Highway Drawings*.

Roadway Lighting

Guideline 8: Designers should provide appropriate roadway lighting by:

- Seeking guidance found on pages 7-31 to 7-32 and 7-64 to 7-65, as applicable.

Drainage

Guideline 9: Designers should evaluate drainage by:

- Seeking guidance found in the *ALDOT Hydraulic Manual* and the appropriate *ALDOT Special & Standard Highway Drawings*.

Erosion Control

Guideline 10: Designers should provide an appropriate erosion control plan by:

- Seeking guidance from pages 7-9 or 7-64, as applicable and referring to the applicable [ALDOT Special & Standard Highway Drawings](#).

Bicycle and Pedestrian Facilities

Guideline 11: Designers should consider bicycle and pedestrian facilities by:

- Seeking guidance from pages 7-30 or 7-54 to 7-56, as applicable.

NOTE: *Other chapters and/or sections of AASHTO's [A Policy on Geometric Design of Highways and Streets, 2018 7th Edition](#) may apply.*

CHAPTER 11 PROCEDURES FOR LOCAL PUBLIC AGENCY'S RIGHT-OF-WAY ACQUISITION

This chapter is to serve as a basic reference for Local Public Agencies (LPA), and others who receive Federal-aid highway funds, for projects involving the acquisition of real property and the relocation of residents, businesses, and others.

Right-of-Way (ROW) is a general term denoting land or property acquired for or devoted to a public use for a transportation corridor. If ROW is not already owned for a public project, it must be acquired by purchase, donation, or eminent domain. Fee simple title, permanent easements, and temporary easements are all means of conveying ROW.

The Fifth Amendment to the U. S. Constitution expresses the philosophy that *due process* and *just compensation* are required for acquiring private property for a *public use*. All ROW acquired must conform to the rules and regulations under [Title 49 of the Code of Federal Regulations Subtitle A - Part 24](#), which is the [Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970](#), as amended (*Uniform Act*). The [Uniform Act](#) applies even when Federal dollars are not used specifically for property acquisition or relocation activities, but are used elsewhere in the project, such as in preliminary engineering, utility relocation, or construction. The Uniform Act must be followed even if there is *NO* Federal funding in the ROW phase. ALDOT has overall responsibility to the FHWA for the acquisition of ROW on all FHWA funded transportation projects in the State. [Subparts C through F of the Uniform Act](#), where applicable, must be followed when the acquisition of property causes any person to be displaced from the property or to move their personal property from the acquired property. Visit the [FHWA](#) website for additional information regarding ROW issues and the Uniform Act.

RIGHT-OF-WAY ACQUISITION FEDERAL-AID - LPA right-of-way acquisition projects must be processed in accordance with the following guidelines if federal funds are used in any phase of the project (Preliminary Engineering, Right-of-way, Utility, or Construction). Failure to follow these guidelines in acquiring right-of-way on major collector projects after December 1969, and on minor collector and local road and street projects after January 4, 1975, will make the project ineligible for federal-aid funding. Further, the State of Alabama will adhere to policies provided in the following documents:

Federal-aid and ROW - Real Estate Acquisition Guide for Local Public Agencies (FHWA 2018 Edition).

LPA projects are typically initiated in the Region, and oversight of the LPA is done by Region staff with significant support from the Local Transportation Bureau and other bureaus, offices, and sections at ALDOT Central Office. For this chapter the managing office will be referred to as the ALDOT *Lead Bureau*. At the direction of the Region Engineer, LPA staff must coordinate with Region ROW staff during an acquisition process.

Identifying LPA Uniform Act acquisition projects early in the project development process is essential for ALDOT to provide proper guidance and oversight for right-of-way acquisition. It is important for the LPA to apprise the ALDOT Lead Bureau when a project requires right-of-way even if no federal funds are in the right-of-way. To achieve this, it is important to have good communication and coordination between LPA and ALDOT Right-of-way personnel. Each staff should have contact information (telephone numbers and emails) and establish communication. The LPA and ALDOT contact person should attend onsite milestone meetings required by ALDOT's Guide for Developing Construction Plans to assess the right-of-way development. The following guidance should be followed to identify federally funded LPA projects that will require right-of-way and establish the review and/or approval plan:

1. The LPA and ALDOT Lead Bureau should attend the initial Scope meeting and determine if right-of-way is to be acquired.
2. Determine the LPA point of contact for the acquisition.
3. Meet with LPA contact and name an ALDOT point of contact.
4. Deliver Acquisition checklist to LPA and establish deliverables to ALDOT for review and/or approval. Discuss the required acquisition process with the LPA. If the LPA is new to Uniform Act Acquisition and the right-of-way involvement for the project is extensive, the LPA should consider consultant assistance. Unless agreed to beforehand, ALDOT will not do the work for the LPA.
5. For projects where right-of-way acquisition has not been determined if required or not, ALDOT and LPA contacts must maintain communication and attend the 30% Inspection meeting where right-of-way needs can be assessed with some certainty.
6. If an LPA project finds right-of-way is required late in project development, the LPA and ALDOT Lead Bureau must go back and establish information in steps 2 - 4 above.

7. Discuss in advance all items that must be provided in the right-of-way certification for acceptance.
8. At the time of certification, ALDOT will review the completion of the required items on the acquisition checklist. If any items are incomplete or in question, it is the LPA's responsibility to provide the additional information.

NOTE: To assure compliance with all Statutes and Regulations for right-of-way acquisition, LPA's should communicate to Region Right-of-way staffs when its determined right-of-way is required on a project no matter how small the project or how late in the process of project development.

All responsibility for complying with state and federal laws, including all approval authority and settlement authority, is held by the LPA. The region function is to provide procedural approvals (#1 above), contracting approvals (#4 above), guidance, and recommendations to the LPA.

[Local Transportation Bureau will continue to process and oversee ALDOT let projects, but these are not to be confused with the FHWA LPA program, in which projects are to be let and managed by the LPA.]

ENVIRONMENTAL COORDINATION - Another requirement for funding is compliance with the [National Environmental Policy Act of 1969](#) (NEPA). On a federal-aid project, an environmental document must be submitted to the ALDOT Lead Bureau. State funded projects do not require this assessment. Under rare circumstances, and only with ALDOT (Right-of-Way Bureau) prior approval, the appraisal process may begin and proceed to the point, *but not yet include*, of making contact with the property owner. Once the environmental document is approved, the ALDOT Lead Bureau will notify the LPA Engineer to proceed with right-of-way acquisition.

Note: For a complete review of NEPA processes and required environmental documentation under [US Code \(USC\)](#) and [Codes of Federal Regulations \(CFRs\)](#), please see Chapter 9 of this *Manual*. For this document, FHWA is lead agency and LPAs are subject to guidance under [23 CFR 771](#).

RIGHT-OF-WAY PLANS - A right-of-way map is required as part of project design, indicating the property that is needed to build and maintain the transportation project. The map should contain essential data for appraisal and negotiation, and it provides a valuable visual-aid for negotiators, appraisers, and attorneys involved in acquisition transactions.

If the right-of-way is to be acquired with federal funds, a right-of-way map conforming to mapping standards published on the ALDOT Right-of-Way Bureau webpage in the Engineering Section, must be submitted for authorization. At a minimum, the map must identify the following: project location; existing property lines; specific tract numbers;

the owner's name; the total tract area before and after acquisition; clearly labeled or annotated existing and acquired right-of-way; labeled or annotated building or minor site improvements within or near the acquisition; and topographical features or objects of interest. If a map is not submitted for ALDOT review, a separate plat containing the above stated information, will be required attached to each appraisal.

When an LPA project with federal aid participation in the right-of-way phase has been initiated, a Right-of-Way Cost Estimate and a Form ROW-RA-1 (Preliminary Relocation Analysis), must be completed and submitted to the Region Engineer/Region ROW Manager, with a copy to Local Programs Section in the Local Transportation Bureau if this is a Transportation Alternative Program (TAP) project. A copy of the ROW-RA-1 may be downloaded from the ALDOT ROW site at [Relocation Forms](#). If there is no federal aid in the project right-of-way phase, the Cost Estimate is not required. However, if relocation is involved, the ROW-RA-1 form must be completed and submitted. Additional information is available at the [Right-of-Way Bureau Website](#).

Once the environmental analysis and development of the ROW plans have been completed, the project is ready for acquisition phase. Prior to initiation of the acquisition process, adequate title information must be obtained. It is important to recognize all interests to be acquired, including owners, lien holders, tenants, easement holders, and taxing authorities.

VALUATION - An appraisal of the real property to be acquired for the project is the initial step in the acquisition process to estimate the fair market value of the property.

JUST COMPENSATION - The U.S. Constitution and Alabama Statute require that property owners be paid *just compensation* when the federal or state government acquires private property. The [Uniform Act](#) requires that an approved appraisal be used to develop an amount the agency believes to be *just compensation*. The amount offered to the property owner must be at least the approved amount based on an appraisal. If condemnation is necessary, the courts will decide what is just compensation.

DONATION - Even if the owner has indicated a willingness to donate, the LPA is required to contact the owner or the owner's representative to discuss the right to an offer to purchase the property based on an appraisal. If the owner indicates the intent to donate his or her property, the owner must release the agency from its obligation to appraise the property by signing the acknowledgment at the bottom of the letter to the property owner. If the property owner donates the property, the LPA accepts the property owner's donation and processes the title to the property in the usual manner. If the property owner decides not to donate and refuses to sign the acknowledgment, a note written on the letter by the LPA Engineer or the negotiator should state that the property owner refuses to sign the acknowledgement and the

property owner understands all of his or her legal options in the acquisition of his or her property. A copy of this documentation must be retained by Region ROW Manager.

APPRAISAL - If the property owner desires compensation, then the fee simple market value must be determined by an appraisal. There is no single operation within a right-of-way acquisition program that is more important to its success than the appraisal, and appraisal review process, of needed tracts of real property. The [Uniform Act](#) requires that the property be appraised before an acquiring agency begins negotiations to acquire it and that the appraisal be the basis of the offer. The property owner must be given an opportunity to accompany the appraiser during the examination of his or her property. In no case are the appraisal report or the appraisal report's data (i.e. comparable sales, etc.) to be made available for review by the property owner or their representative.

An appraisal must be conducted by a qualified appraiser and reviewed by a qualified *review* appraiser, if the property owner indicates he or she wants compensation. The LPA must follow ALDOT appraisal policies as well as State and Federal regulations. The qualifications of the appraiser and review appraiser must be based on both the appraiser and review appraiser being able to perform a certified appraisal/appraisal review on the total value of the property in question before the acquisition. If an LPA is direct-hiring an appraiser and/or review appraiser, the individual(s) have to either have an active contract with ALDOT (which requires active engagement on ALDOT projects), or they will have to be hired in compliance with the standard consultant selection procedures prior to selection. The LPA may contact the Region/Area Consultant Management Engineer or Consultant Management Administrator to go over the required procedures.

If the appraiser and/or review appraiser is providing a fee quote as a direct subcontractor to the engineering consultant, or a subcontractor to a subcontractor for an engineering firm, already selected or being considered for selection, the appraiser will only have to meet the requirements to perform the work. However, the appraiser's proposed qualifications and fee quotes will have to be submitted from the prime consultant for review and approval in the original or supplemental proposal in accordance with the City/County/MPO Consultant Selection Manual.

Contact the Region ROW Manager/Area ROW Supervisor for appraisal and appraisal review assistance before any further discussion with the property owner concerning compensation is conducted. The decision process in determining whether an appraisal is necessary, following receipt of authorization to proceed, is illustrated in **Figure 1, page 11.7.**

WAIVER VALUATIONS - When the value of what is to be acquired is expected to be \$15,000 or less, the LPA's are allowed to utilize waiver valuations to establish value with the consent of the property owner. A waiver valuation is not an appraisal, but a valuation method that allows a qualified agency employee to review area sales data to determine an estimate of value of minor acquisitions in accordance with the Code of Federal Regulations and Alabama State Law. If the property owner is not willing to donate what is needed for the project, the property owner has to give written consent acknowledging acceptance of a waiver valuation and waiving their right to an appraisal being prepared. This is included in the LPA letter to the property owner notifying them of the need for all or part of their property and providing them the options of donation, waiver or appraisal with specific acknowledgements.

Waiver valuations can only be prepared by Agency staff who have knowledge of and have reviewed relevant valuation data.

APPRAISAL DECISION PROCESS

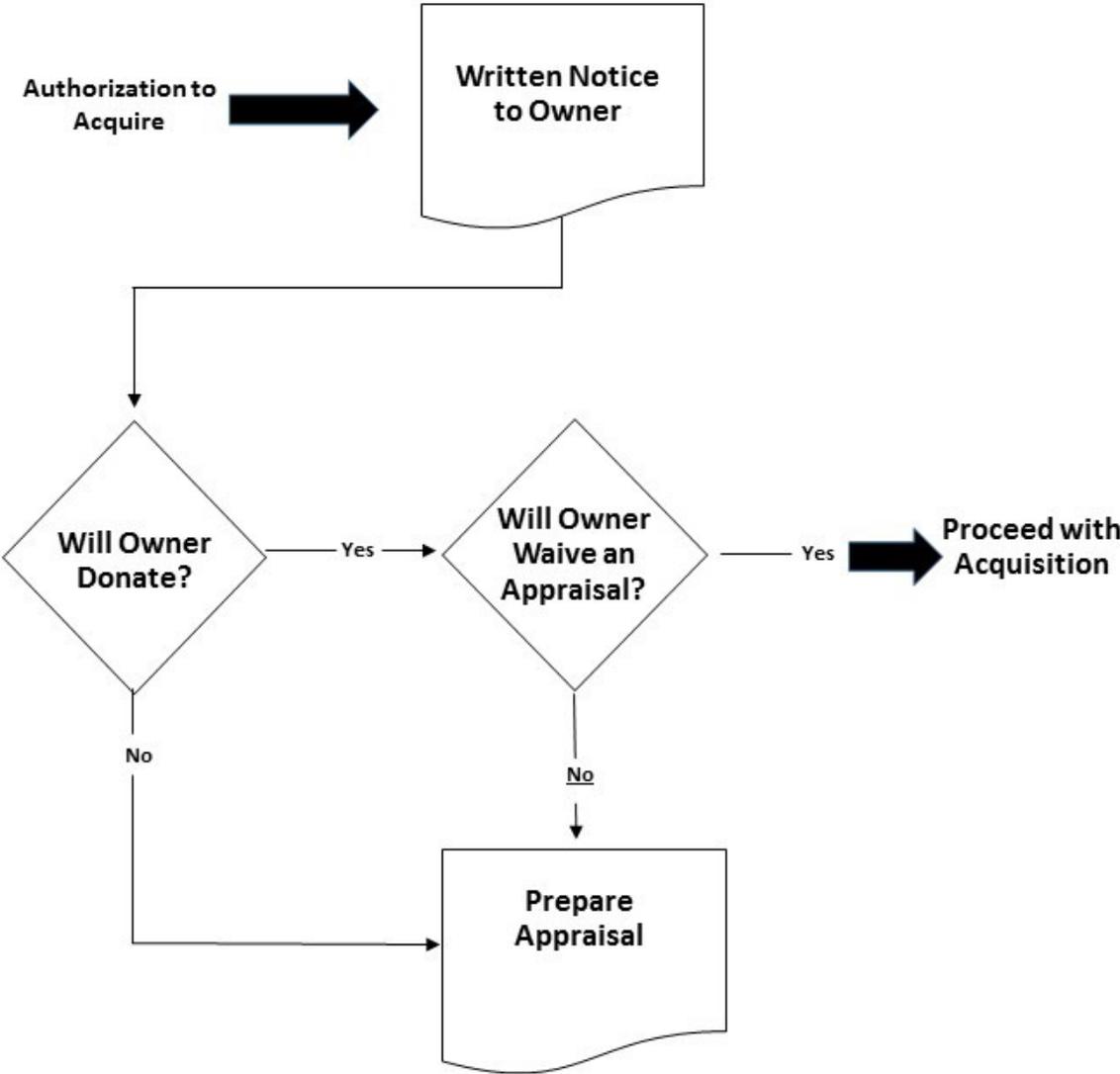


Figure 1.

ACQUISITION - Property acquisition is one of the most sensitive aspects of agency interaction with landowners, the general public, and other agencies, because it entails direct personal contact with people affected by a transportation project. Acquisition of property must be in accordance with the Uniform Act. Additional guidance may be obtained by reviewing the [Real Property Appraisal](#), [Negotiation](#), and [Relocation Assistance](#) sections of the Right-of-Way Manual.

NEGOTIATION - The LPA Engineer or negotiator should begin negotiation for the property after the offer of *just compensation* has been determined. The negotiator must be someone other than the appraiser or review appraiser. The initial offer must conform to the amount contained in the review appraiser's determination of value. The offer must be furnished promptly to the property owner in writing. No further breakdown of the offer should be made other than as shown on the 'Written Offer' letter. The owner will be given reasonable time to consider the offer and to submit information that the owner believes is relevant to determining the value of the property.

The rationale for any counteroffer considered reasonable and accepted by the LPA Engineer is to be documented as an Administrative Settlement. The LPA Engineer may request a recommendation from the Region ROW Manager/Area ROW Supervisor for supporting documentation. The LPA Engineer should retain copies of the negotiator's log for the files. Negotiations must be conducted free of any attempt to coerce the property owner into reaching an agreement. In no case are the appraisal report or the appraisal report's data (i.e. comparable sales, etc.) to be made available for review by the property owner or their representative.

NEGOTIATOR'S LOG - The LPA must maintain an adequate record of each parcel negotiated, including contacts with property owners or their representatives, in order to document important information; i.e., name of negotiator, amount of offer, number and amount of the counter-offers, and upon completion of negotiations, the negotiator's signature and date.

A Negotiator's Log is required to thoroughly document the course of events leading to an amicable settlement, and if necessary, condemnation. The log will also document compliance with the [Uniform Act](#) requirements; i.e., encourage acquisition by agreement and avoid litigation, show there was no coercion to accept the offered amount and ensure consistent treatment for the owner. [ROW-21, Negotiators Report for LPA Projects](#), must be used to document all negotiations. See the [Uniform Act](#) for additional information on Real Property Acquisition requirements.

CONDEMNATION - Eminent Domain, or *Condemnation*, is the governmental power reserved to acquire private property rights by due process of law when the proven necessity for public use arises. When exercising this right, two basic requirements must be met: 1) the use must be public and 2) *the compensation awarded by the*

probate court must be made available, through the court, to the owner prior to taking possession of the property.

When it becomes evident that an agreement cannot be reached, and negotiations cannot proceed, it will be necessary to acquire the property through condemnation proceedings in Probate Court in the county in which the property is located. The LPA representative should explain to the property owner the condemnation process, so they will understand their rights and what to expect. After a condemnation petition has been filed, an administrative settlement can still be made between the LPA and the property owner prior to the Probate Court rendering an award. After a Probate Court award is rendered and either side appeals to Circuit Court a Legal Settlement can still be made at any time prior to the Circuit Court trial. We recommend any Legal Settlement be referred to the Region ROW Manager/Area ROW Supervisor for a recommendation consistent with the ALDOT policy. When the acquisition of property is in the court process, any motions and/or orders other than those that are a part of routine procedure must be brought to the attention of the Region ROW Manager/Area ROW Supervisor for review, in order to maintain consistency with statewide ALDOT legal procedure.

Note: To meet the requirement of allowing reasonable time for the property owner to consider the offer and to submit information that the owner believes is relevant to determining the value of the property, negotiations should continue for a minimum of 30 days after the presentation of the written offer prior to filing a condemnation petition.

RIGHT-OF-WAY CERTIFICATION - Prior to advertising for construction bids for the project, the LPA must prepare a Right-of-Way Certification. The certification states that the properties needed for construction of the project have been obtained, they are clear of any structures which must be removed, and persons or businesses displaced by the project have been relocated. The Right-of-Way Certification must be presented to the ALDOT Lead Bureau through the Region Office. If the right-of-way was purchased or condemned, the total cost must be provided with the certification.

When the right-of-way has been acquired and recorded, LPA ROW Recording Data Letter (Acquired) must be submitted to the ALDOT Lead Bureau through the Region Office, listing the name of the property owner, the date of the acquisition, the method in which the right-of-way was acquired (donated, purchased and/or condemned), and the deed book number and page number in which it is recorded.

RELOCATION ASSISTANCE - (The following is a brief synopsis of Uniform Act Relocation requirements. See the Relocation Assistance Section of the ALDOT Right-of-way Manual for a more detailed explanation of the requirements)

Rights and entitlements of individuals, families, businesses, farms, and nonprofit organizations displaced by federal-aid projects are prescribed in the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. The Uniform Act requires all acquiring agencies to provide relocation assistance benefits to all eligible persons displaced from federal aid projects. It is important to understand that successful relocation is essential not only to the welfare of those to be displaced, but to the progress of the entire highway project.

Relocation Assistance is described as a reimbursement program. The program was developed for reimbursing costs incurred by displaced persons as a result of a Federal-aid project. The term *displaced person* applies to any person who moves from the real property or moves his or her personal property from the real property.

Relocation Assistance can be complex. LPAs must work closely with local Region Right-of-Way personnel on complex relocation issues. The relocation program consists of four main components: Relocation Planning, Notices, Advisory Services, and Relocation Assistance Payments. Generally, all persons occupying property to be acquired are eligible for relocation assistance and payments. The purpose is to reimburse the cost of moving personal property to replacement sites. In addition, residential displacees who meet minimum occupancy requirements may qualify for replacement housing payments to purchase replacement housing.

RELOCATION PLANNING - Successful relocation requires due diligence in planning the process. After the final location of a project has been approved and prior to the time of the Design Public Hearing, the LPA will complete a Relocation Plan on [Form RA-2](#). The Plan will be an inventory of characteristics and needs of individuals and families to be displaced. This is also required for businesses needing replacement sites that will fit business operations and still be convenient to clientele.

Businesses must be given relocation assistance as required by the Uniform Act. Housing resources must meet the needs of displaced residents in terms of size, price, location, and timely **availability**. Advisory services and various notices, some with specific timing requirements, must be provided. Payments must be made to displaced persons at the time they are needed to obtain replacement housing.

NOTICES - Written notices are required to be furnished to each displaced person, business, farm, or non-profit organization by the relocation agent to ensure that displacees are fully informed of the benefits and services available. The written notices will be written in a language that can be easily understood and, in the event

of limited English proficiency, in a foreign language. The following subsections will include the different notices and their applicability.

Relocation Informational Letter

A Relocation Informational Letter is required to be provided to potential displaced persons at the time appraisers are assigned to the project notifying potential displaced persons of the impending project.

Notice of Relocation Eligibility

This required notice is provided on the date of a Notice of Intent to acquire, the initiation of negotiations, or the actual acquisition, whichever occurs first. The notice informs the occupant that he or she will be displaced and therefore eligible for relocation benefits, as applicable.

90 - Day Notice

A person lawfully occupying real property will *not* be required to move prior to 90 days from delivery of the required 90-day written notice from the LPA. In addition to the 90-day period, the displacee is not required to move until the LPA pays the agreed purchase price to the owner, or in the case of condemnation, the LPA funds are deposited in Probate Court for the benefit of the owner. ALDOT combines the Notice of Eligibility and the 90-day Notice in one document.

30 - Day Notice

The 30-day notice to vacate should be issued on tracts with relocation when the tract is closed or, in the case of condemnation, after the award has been paid into the Probate Court. If the 30 days expire prior to the expiration date of the 90-day notice, use the 90-day notice's expiration date because the displacee cannot be required to move prior to the expiration of the 90-day notice.

ADVISORY SERVICES - Relocation payments alone are often not enough to minimize the hardship of a move necessitated by a public project or ensure a successful move to a replacement location. A key element is the advisory services that are provided commensurate with the needs of the displaced. These services provide information, counseling, advice, and often entail repeated and sometimes intense, personal interaction with displacees.

RELOCATION CONTACT REPORT - A relocation contact report must be prepared for each relocatee. The substance of each contact with the relocatee including personal contacts, telephone calls, written inquiries, mailing of checks, etc.; shall be included on the form. It should not be prepared in the presence of the relocatee. The relocation agent shall include in their contact record the specific relocation benefits that the relocatee is eligible for and that these benefits were discussed with the relocatee. If each benefit the relocatee is eligible for is not listed as being discussed

in the relocation contact record, then it will be assumed that the discussion did not take place.

RELOCATION ASSISTANCE PAYMENTS - There are two main categories of payments, residential and non-residential. Within each category there are several types of payments that address expenses incurred as a result of a required move. Each type also has its own eligibility criteria and computation requirements. For additional information, view the details of each in the Relocation Assistance section of the Right-of-way Manual

Residential Relocation

The Relocation Assistance Program was developed to provide the displaced similar, if not identical, conditions to those existing prior to the displacement. Eligibility for residential moves is based on occupancy, not ownership. The owner of the property may or may not be the displaced person.

Personal Property Move

Many times, personal property is located on the land being acquired. The owner of the personal property is eligible for relocation assistance and payment for actual and reasonable costs to move the property. The owners of personal property may or may not be the owners of the real estate.

Personal property moves can be as simple as moving a few chairs or as complicated as moving an out-of-business junkyard. The move may be made to the remainder of the property or to a new location. Typically, the move may be made by reimbursing the displacee through itemized bills and receipts paid to a commercial mover or a self-move based upon an invoice with itemized labor, material, and equipment costs. Remember the 90-Day and 30-Day notices apply to these types of moves.

Replacement Housing Payments

The replacement housing payment provides additional funds to displaced owners and tenants who have been in occupancy for at least 90 days prior to the initiation of negotiations, based on comparable properties for sale or lease. Occupants of less than 90 days may be eligible for a replacement housing payment under Last Resort Housing provisions.

Price Differential Payment

Replacement housing price differential payments may be paid to an owner as a supplemental purchase payment or to a tenant as a supplemental rental payment. Replacement housing price differential payments for owners are based on comparable replacement dwellings for sale on the market and the payment is calculated as the difference between the cost of the comparable replacement dwelling and cost of the acquired displacement dwelling.

Price differential rental payments are available for tenants and owner occupants, that elect not to purchase replacement housing. The rental replacement housing price differential payment is based on the difference between the cost of rent and estimated utilities of a comparable replacement dwelling available on the market and the rent (use fair market rent for an owner) and estimated utilities of the displacement dwelling for 42 months. Displaced tenants may use the rental replacement housing price differential payment to supplement rental payments or as a down payment in the purchase of a replacement dwelling.

Increased Mortgage Interest Cost Payment

This payment is available for the displaced owner that must finance the replacement dwelling at a higher mortgage rate than the mortgage on the property being acquired. To be eligible for this payment the acquired dwelling must have been encumbered by a *bona fide* mortgage and a valid lien for at least 180 days prior to the initiation of negotiations. The interest rate on the new mortgage used to determine the amount of the payment cannot exceed the prevailing fixed interest rate for conventional or similar mortgages charged by mortgage lending institutions.

Incidental Purchase Expenses

Displaced persons purchasing replacement housing are eligible for reimbursement of reasonable closing costs incurred during the process, from attorney fees, title search, recording fees, and certain other closing cost normally paid by the purchaser.

Replacement Housing Standards

It is a condition established in the previous acquisition procedures that comparable replacement housing must be made available before a displaced person is required to move from his/her home. The comparable replacement dwelling must meet the *decent, safe, and sanitary* threshold established in 49 CFR Part 24, and other standards as provided in the Relocation Assistance section of the Right-of-way Manual, Section III, sub-section C. The comparable dwelling must be the functional equivalent and be in as good or better condition than the original dwelling.

The displacing agency must offer every displaced person at least one comparable replacement dwelling choice and, if possible, three choices. This is a crucial part of the displacement process, since the comparable replacement dwelling costs will form the basis of the computation of the replacement housing payment.

Note: The selected comparable property is used to set the upper limit of the residential displacee's conditional replacement housing payment eligibility.

The residential displacee is not obligated to purchase any comparable properties identified by the Local Public Agency.

The displacee will choose the replacement housing he/she will occupy and the reimbursement will be made based upon the amount actually spent by the displacee, and not exceed the conditional replacement housing payment calculated by the Relocation Agent.

This Manual gives only a brief discussion and does not provide all the information pertaining to Residential Relocation. Please refer to the *ALDOT Relocation Assistance Manual* cited above or contact ALDOT Region Right-of-Way personnel for more specific information.

Moving Expenses

In addition to other Residential payments, displaced persons are entitled to reasonable moving expenses. Moving payment reimbursements may be made by itemized bills and receipts from qualified movers, actual costs incurred by the displaced person for a self-move or by a fixed moving cost schedule. Contact your local ALDOT Region Right-of-Way Office for the current federally approved payment schedule and criteria.

Non-Residential Relocation

Displaced businesses, farms, and non-profit organizations are also eligible for Relocation Assistance benefits, but the benefits are different from residential moves. The basic concepts of the benefits are provided in this manual. For further information consult with the local ALDOT Right-of-Way Office for all the appropriate benefits to a displaced business, farm, or non-profit organization.

Moving Expenses

The displaced non-residential occupant is eligible for actual and reasonable moving expenses. The cost to move, and, if appropriate disconnect and reinstall personal property, will usually be reimbursable. Costs incurred in hiring commercial and specialized equipment movers, plus certain utility connections, any professional services related to the purchase/lease of a replacement property, impact fees, and one-time assessments may be reimbursed if found to be actual, reasonable, and necessary.

The moving payment may be made based on an itemized bill and receipts from a qualified mover or the payment may be made to the displacee as a self-move. Eligibility for a self-move payment is determined by obtaining two acceptable bids or estimates from qualified moving firms based on an inventory list, with the displaced business being paid an amount equal to the low bid or estimate without supporting receipts of expenses incurred.

If a business owner decides not to move personal property, as an alternative he or she may elect to be paid on a basis of actual direct loss of tangible personal property or the cost of substitute personal property. Such alternative payments may not exceed the actual cost to move the items.

Reestablishment Expenses

This payment is designed to reimburse the actual expenses incurred in reestablishing at the new location. The maximum reimbursement payment for the expenses incurred is \$33,200. Offering and providing these services will require specific knowledge and experience. We recommend requesting assistance from the local ALDOT Right-of-Way Office for the eligible items with this payment.

Searching Expenses

Displaced businesses, farms, and non-profit organizations are entitled to reimbursement for reasonable actual expenses incurred in searching for a replacement location, not to exceed \$5,000. This payment includes time spent looking for replacement property, transportation, meals and lodging when away from home, along with other items eligible for searching expense. We recommend requesting assistance from the local ALDOT Right-of-way Office for further explanation of the eligible items.

Fixed Moving Expenses (In Lieu of Payment)

This type of payment is in lieu of all other moving expense payments for non-residential occupants. The minimum payment is \$1,000 and the maximum payment is \$53,200. The amount of the payment is based on the net income of the displacee over the last two years. Required documentation includes, but is not limited to, tax returns or a certified financial statement.

RELOCATION APPEALS - Actions involving Relocation Assistance with the LPA may be appealed. Any displaced person with a grievance may file a written appeal with the LPA if they believe the LPA failed to properly consider the application for relocation assistance. The action may include eligibility of the person and/or the amount of payment. ***The LPA must ensure that all displaced persons are aware of their right to appeal.***

When an appeal is received the LPA will conduct a lower echelon review of the appeal, with assistance from ALDOT if necessary, to determine whether the payment being appealed was handled in accordance with Federal and State regulations. If the lower echelon review determines the appeal has merit, then the payment requested in the appeal can be paid. If the lower echelon review determines the appeal does not have merit and Federal and State regulations were correctly applied, the case will be forwarded to the LPA Relocation Appeal Board for hearing.

The LPA Relocation Appeal Board is made up of an appeal board chairman and two other board members, selected from personnel of the Local Agency. The appeal hearing should be as informal as possible with the relocatee, or their representative, presenting their case and a representative of the LPA presenting the LPA's case. The Board makes a recommendation to the approving authority for the LPA, and the approving authority for the LPA makes the final decision on the disposition of the appeal. The relocatee shall be informed of the final decision regarding their appeal by certified mail, no later than 30 days after the date of the appeal hearing. If the relocatee is not satisfied with the decision of the LPA, they have the right to appeal the decision to the appropriate court system.

PROPERTY MANAGEMENT - FHWA regulations for the property management function are found in 23 CFR 710 Subpart D. These regulations apply to all real property acquired by LPAs in connection with projects where Federal funds participate in any right-of-way costs for the project.

If the LPA acquires any uneconomic remnants during acquisitions, they should be identified and inventoried as surplus property.

If the LPA decides to sell or lease properties, it should contact Region Right-of-Way Office for guidance and note any money received from the sales or leases must be applied to a Federal-aid eligible transportation project.

The LPA will follow this process and compile a package for submission to the Area Local Transportation Engineer for review:

1. Proposed purchaser or lessee shall make a written request to the LPA with the following information and attachments:
 - a. Location of the property with any maps, pictures or identifying information.
 - b. Purpose for which the property will be used.
 - c. Statement they are willing to pay market value for the property.
 - d. Statement they are willing to pay the administrative cost to process the sale. (*The LPA may choose to pay for the appraisal; however, they should determine who will pay and be consistent.*) The appraisal should not be provided to the purchaser and that should be stated to purchaser in writing. The appraisal must be by a qualified appraiser and reviewed by ALDOT.
 - e. Copy of deed confirming ownership of the property adjacent to the property requested to purchase. The LPA will recommend or approve sales to adjoining owners, unless other adjoining owners have objection, or the property is sold by public sale.
 - f. If the requested property has more than one adjacent owner; signed, witnessed, or notarized statements from all other adjacent owners must

be obtained stating that they have no objection to the property being sold to the proposed purchaser.

2. The request for a proposed sale or lease must be reviewed for comments by authorized LPA officials and recommended for approval. *(These units within the LPA may vary. City/County engineer, utilities and maintenance are recommended, with the mayor or the president of county commission recommending the release.)*
3. Information from the proposed purchaser and comments from the LPA organizational units shall be sent to the Region Engineer with a cover letter that includes:
 - a. an explanation of how the property was acquired and the reason for disposal;
 - b. the property has been declared excess and no longer needed for the right-of-way/enhancement/etc. purpose for which it was acquired;
 - c. the property will be appraised and sold for market value;
 - d. the excess property has no present or potential use for parks, conservation, beautification, recreational or related purposes;
 - e. the property is not needed to restore, preserve or improve the scenic beauty and environmental quality adjacent to the highway;
 - f. his/her recommendation to approval the sale/release.
4. The Area Local Transportation Engineer will review the proposed transaction, which may require a field review of the property. Comments and recommendations will be forwarded to the Region Engineer for submitting to FHWA by cover letter requesting approval. The letter to FHWA shall include:
 - a. the property will be sold for market value;
 - b. Federal Funds were used in the acquisition of the property and (For Enhancement Project) the LPA will retain 20 percent of the proceeds and the balance of the proceeds shall be deposited into the Transportation Alternative Programs Account TAP; (For right-of-way projects) proceeds shall be credited to the Title 23 Collector Account. Note: Only right-of-way disposals on the NHS require approval by FHWA. The letter must state it is on the NHS.
 - c. The property does not have a potential use for parks, conservation, recreational, or related purposes.
5. Prior to submitting the request to FHWA, the request should be reviewed by the Region Right-of-way Manager/Area ROW Supervisor.
6. Upon receipt of the comments from FHWA, the Region Office shall notify the LPA of the determination by FHWA and, if approved, shall advise they may proceed with the appraisal.

7. The LPA shall contact the Region/Area Appraisal Staff to discuss, with the Chief Appraiser in the Central Office Right-of-way Bureau, the scope of the appraisal and determine the appraiser best qualified to do the work. The appraiser is then contacted by area staff and reviews the scope of the work.
8. Upon completion of the appraisal and review by the Region/Area and Central Office ALDOT staff, the appraisal and reviewing appraisers' Memorandum will be forwarded to the LPA.
9. The LPA shall notify the proposed purchaser of the appraised value and that the offer holds true for 90 days. (It is non-negotiable). The Region Engineer shall be notified if the offer is accepted or declined. If accepted, the Quitclaim Deed shall be furnished by the LPA and reviewed by ALDOT prior to execution by LPA Officials.
10. Upon execution, the deed shall be delivered to the proposed purchaser by the LPA upon receipt of the consideration stated in the deed. The consideration shall be in the form of a certified or cashier's check or postal money order. The portion to be returned to FHWA shall be made payable to the Alabama Department of Transportation and forwarded to the Region Engineer for submittal to the Region Right-of-way Manager/Area ROW Supervisor. The purchaser should be asked to record the deed and furnish a recorded copy to the LPA. The LPA shall furnish a copy to ALDOT.
11. The Area Office shall forward the proceeds to Office Engineer for TAP and Central Office Right-of-way Bureau for the sale of excess right-of-way.

DOCUMENT SAMPLES - ALDOT requires the following documents be used during property acquisition by the Local Public Agency for transportation projects. These, and other forms, are available for download on the [LPA website](#) and the [Right-of-Way website](#).

- [LPA Donation Request Letter](#)
- [LPA Waiver Template](#)
- [LPA ROW Checklist](#)
- [LPA Form ROW-10C Negotiator's Report](#)
- [LPA Written Offer Letter Appraisal](#)
- [LPA Written Offer Letter Waiver](#)
- [LPA ROW Recording Data Letter \(Acquired\)](#)
- [LPA ROW Recording Data Letter \(Existing\)](#)
- [LPA Certification for Physical Construction](#)
- [LPA Form RA-1 Preliminary Relocation Analysis](#)
- [LPA Form RA-2 Project Relocation Analysis](#)

CHAPTER 12 RAILROAD COORDINATION

This information should be used to assist with the development of plans and processing submittals for projects with possible railroad involvement. The LPA should identify projects that have a railroad crossing within the project limits or near the terminus and begin railroad coordination as soon as possible. There are different levels of railroad coordination required which are outlined in the following sections. Examples of the documentation needed for each level and the current required forms can be downloaded from the [Local Transportation Bureau website](#). Any projects with railroad involvement should refer to Chapter 2, pages 2.19 - 2.21 for applicable 900 series railroad project notes.

Section 12(a) Warning Device Checklist

A warning device checklist has been developed in accordance with the provisions of [Title 23 CFR 646.214\(b\)\(3\)\(i\)](#) and is used to determine the adequacy of existing rail-highway traffic control devices. A warning device checklist is required whenever a rail-highway crossing is located within or immediately adjacent to the project limits and within the projected limits of the public right of way. The LPA shall furnish the completed warning device checklist to Local Transportation Bureau (through the Region) as quickly as possible to avoid possible delays to the project.

Section 12(b) Construction Diagnostic Review

A diagnostic review has been developed in accordance with the provisions of [Title 23 CFR 646.214](#) and is used to determine if safety improvements are required at a rail-highway crossing. The ALDOT Rail Group will determine when a diagnostic review is needed and will be responsible for scheduling the review. This on-site review will be completed by the ALDOT Rail Group with input from the Region Railroad Coordinator, LPA, and railroad.

Section 12(c) Railroad Agreement Submittal Package

A railroad agreement is required whenever the State's contractor is performing work on the railroad right of way. When an agreement is needed the LPA shall furnish the Local Transportation Bureau (through the Region) a railroad agreement submittal package. The railroad agreement submittal package is divided into two categories and the necessary documentation for each category is listed below.

Subsection 12(c).1 Non-Bridge Projects (Resurfacing, Widening, Additional Lanes, New Alignment, Pedestrian Improvements, Surveying, Drilling, etc.)

The LPA shall furnish the Local Transportation Bureau (through the Region) a railroad agreement submittal package to include the following:

1. **Written Summary** to include name of railroad, DOT crossing number, railroad milepost, complete description of work being performed, and an estimated number of working days the contractor will be on the railroad right of way.
2. **Title Sheet** to include name of railroad and DOT crossing number.
3. **Typical Section** to include name of railroad, DOT crossing number, railroad milepost, railroad right of way limits, and paving limits.
4. **Project Note Sheet** to include all applicable railroad project notes.
5. **Railroad Plan View Sheet** to include name of railroad, DOT crossing number, railroad milepost, railroad right of way limits, paving limits, complete description of work being performed, required markings and legends, and existing rail-highway crossing warning devices.
6. **Cross-sections and Hydraulic Calculations** are required when drainage is conveyed on, over, or adjacent to the railroad right of way.

Please note that for surveying and drilling only, the railroad agreement submittal package shall be limited to a title sheet (if available), plan sheet or map showing the location of the drilling and/or surveying, and a written summary as described above.

Subsection 12(c).2 Bridge Projects (Bridge Replacement, Bridge Widening, Bridge Painting, Bridge Barrier Rail Retrofit, etc.)

The LPA shall furnish the Local Transportation Bureau (through the Region) a Preliminary Bridge Layout Submittal Package to include the following:

1. **Written Summary** to include name of railroad, DOT crossing number, railroad milepost, complete description of work being performed, type and size of existing and proposed structures with horizontal and vertical clearances, and an estimated number of working days that the contractor will be on the railroad right of way.
2. **Title Sheet** to include name of railroad and DOT crossing number.
3. **Typical Section**
4. **Plan Profile Sheet** to include a railroad traverse 500 feet each side of the centerline and the distance to the nearest milepost with milepost number.

5. **Utility Sheet**
6. **General Bridge Plan and Elevation** to include name of railroad, DOT crossing number, railroad milepost, railroad right of way limits, location and type of proposed foundations, and the horizontal and vertical clearances.
 - a. **Horizontal Clearance**
 - i. Horizontal clearance from centerline of tracks to the face of pier or abutment measured perpendicular to the tracks.
 - ii. Provision for future tracks. (ALDOT will advise when needed)
 - iii. The distance of the toe of footing shall be from the centerline of track measured perpendicular to the tracks.
 - iv. Requirements for crash walls and design criteria.
 - b. **Vertical Clearance**
 - i. Measured from top of rail to lowest point of the structure and extends 6 feet to either side of the centerline of track.

Once the Preliminary Bridge Layout is approved the LPA shall furnish the Local Transportation Bureau (through the Region) a complete set of plans, including bridge sheets. The Local Transportation Bureau will coordinate with the LPA and Bridge Bureau when additional information is needed.

Section 12(d) Certification of Railroad Involvement (RR Form 1)

A Certification of Railroad Involvement has been developed in accordance with the provisions of [Title 23 CFR 635.309\(b\)](#) and **is required for all federal-aid projects**. The LPA shall furnish the Local Transportation Bureau (through the Region) a completed RR Form 1 as part of their Office Engineer plan submittal.

1. **Check number 1** when there is no railroad involvement with the project.
2. **Check number 2** when there is railroad involvement, and a railroad agreement is required. (When the contractor will be working on the railroad right-of-way)
3. **Check number 3** when there is railroad involvement, and a railroad agreement is not required. (When the LPA or railroad completes the work prior to project)

**CHAPTER 13
STANDARDS FOR TRAFFIC
CLASSIFICATION COUNTS**

All traffic volume counts on LPA roads in the State of Alabama shall be in compliance with the following monitoring standards. The Alabama Department of Transportation will only accept traffic volume and classification data that are in compliance with these standards.

1. The device used to count traffic will accurately represent existing volumes. The counters will be installed according to the manufacturer specifications. Traffic recording devices will be utilized which have direct connections to a computer. This will eliminate data transcription.
2. Counts will be taken during periods that are normal for each roadway segment. Counts will not be taken on major holidays, during special events, on school holidays near schools or any other events that affect traffic volumes on the road. Counts will not be taken close to intersections, driveways or other locations where travel is not at a right angle to the sensor.
3. Traffic counts will be taken such as to represent the entire length of the project.
4. The counting units must be checked for accuracy to insure they are counting properly. This involves manually counting vehicles crossing the sensors for a period of four hours once each year, or if the data appears questionable for several counts, and comparing this total with what the machine counted at the same time.
5. The data will be collected and reported in one-hour intervals. There will be exactly 48 consecutive hours of data reported from each count site. The total reported will represent a 24-hour average from the data collected. If the site has more than two lanes, directional counts will be taken and reported. The reported data will include a map identifying the location(s) counted, the specific machine used to collect each count, the day, date, and hour data collection began and ended, and the total reported. The personnel installing the counters will also be identified for each count location. Classification count data will be reported by hour by direction.
6. Missing or inaccurate data may not be completed, filled-in or replaced for any type of traffic count, at any location.

CHAPTER 14 UTILITIES

This information should be used to assist with the development of plans and processing submittals pertaining to utilities within the limits of a proposed construction project. The LPA should coordinate with the utility owners as soon as possible to help identify and avoid potential utility conflicts. The current fillable utility agreement forms, and example utility certificate, can be downloaded from the [Local Transportation Bureau website](#) and are described below.

Section 14(a) - Utility Certificate

A Utility Certificate provides the name and status of each utility within the project limits and **is required for all federal-aid projects**. The LPA shall furnish to the Local Transportation Bureau (through the Region) a utility certificate as part of their Construction Bureau plan submittal, and it should include the following information:

1. **Project Number**
2. **Project Description**
3. **Name of Utility**
4. **Status of Each Utility**
 - a. **No Conflict (See Example, Page 14.2)**
 - i. State that the utility is not in conflict with the project and will remain in its existing location.
 - b. **Conflict (See Example, Page 14.3)**
 - i. State what the conflict is.
 - ii. State how the conflict will be handled. (By an agreement, or prior to project authorization without an agreement).
 - iii. State who will perform the work. (By company forces, contract let by the utility, or State contractor)
 - iv. State when the work will begin. (If a date is unknown a statement saying that it will begin within so many days of the utility receiving their notice to proceed will suffice)
 - v. State when the work will be completed. (If a date is unknown a statement saying the estimated number of days needed to complete the work will suffice)

UTILITY CERTIFICATE - EXAMPLE 1 (NO CONFLICTS)

Date

State Local Transportation Engineer
1409 Coliseum Boulevard
Montgomery, AL 36130

RE: Project Number
Sponsor Number
Project Description
County

Dear Sir:

The status of the utilities for the above referenced project is as follows:

The utilities on this project are not in conflict and will be retained in their existing location.

Signed by LPA Representative
Copy Region Engineer

UTILITY CERTIFICATE - EXAMPLE 2 (WITH CONFLICTS)

Date

State Local Transportation Engineer
1409 Coliseum Boulevard
Montgomery, AL 36130

RE: Project Number
Sponsor Number
Project Description
County

Dear Sir:

The status of the utilities for the above referenced project is as follows:

Cullman Water Works

There is a water line in conflict with the proposed project. A Form 3 agreement has been signed by the utility company and sent to the Region for further handling. The relocation work will be performed by the State's contractor.

Cullman Power Board

There are two power poles in conflict with the proposed project. The power poles will be relocated by company forces prior to the issuance of the project work order.

AT&T

There is a buried telephone cable in conflict with the proposed project. A Form 1 agreement has been signed by the utility company and sent to the Region for further handling. The relocation work will be performed by company forces. The work will begin within 60 days of the utility receiving their notice to proceed and will take 60 days to complete.

Cullman Gas

The gas line is not in conflict and will remain in its existing location.

Spectrum Communications

The facilities owned by Charter are not in conflict and will remain in its existing location.

Signed by LPA Representative
Copy Region Engineer

Section 14(b) - Utility Agreements

When utilities are to be relocated, whether part of the project cost or not, a proper utility agreement should be executed between the LPA and the utility. The original signed agreement should be forwarded to the Local Transportation Bureau (through the Region) for final approval and distribution. All utility agreements must include a detailed cost estimate (reimbursable agreements only) and a relocation plan, or the agreement will not be processed. The different type of utility agreements available for use by the LPA and utility company are briefly described below.

1. LPA Form No. 1 Non-Reimbursable Agreement

This is used when the utility is not eligible for reimbursement and will relocate the facilities at its own expense without cost to the project.

2. LPA Form No. 2 Reimbursable Agreement

This is used when the utility is eligible for reimbursement and will relocate the facilities either by the utility's own forces or a contract let by the utility.

3. LPA Form No. 3 Reimbursable Agreement

This is used when the utility relocation will be performed by the State's contractor. The required ALDOT pay items in the detailed estimate must also be included in the summary of quantities sheet and utility sheet of the plan assembly.

4. LPA Form No. 4 Supplemental Agreement

This is used when the actual cost of the reimbursable utility relocation exceeds the original agreement estimate amount by 25% or when additional work is required that was not covered in the original agreement. Contact the Local Transportation Bureau before submitting a supplemental agreement.

5. LPA Form No. 5 Non-Reimbursable Agreement

This is used when the utility is not eligible for reimbursement and the utility relocation will be performed by the State's contractor.

Under no circumstances should any utility relocation work, either non-reimbursable or reimbursable, begin until notified by the Local Transportation Bureau. Reimbursable agreements must be approved by the Bureau of Office Engineer and a notice to proceed for the utility relocation work will not be issued until the project is authorized by FHWA.

All utilities located on the right-of-way of Federal Aid projects at the time of construction or in the future shall be in accordance with the [ALDOT Utility Manual](#).

Section 14(c) - Utility Sheet Information

See Chapter 2, pages 2.35 - 2.36 for general guidelines for utility sheets.

See Chapter 2, page 2.25 for applicable utility notes.

CHAPTER 15 MAINTENANCE PROCEDURES

SECTION 15(a) - BRIDGE INSPECTIONS

All Local Public Agency owned structures (bridges and culverts) that are 20 feet or greater in length are required to have a detailed structural inspection performed every 24 months by an ALDOT Certified Bridge Inspector. Posted structures, along with structures in poor condition, are given more frequent interim inspections. All bridge inspections must be conducted in accordance with the [National Bridge Inspection Standards](#) (Chapter 23 of the Code of Federal Regulation, Part 650, subpart C), as well as the [Alabama Department of Transportation Bridge Inspection Manual](#).

If the LPA's bridge inspection program does not comply with the requirements outlined by the NBIS and ALDOT, the LPA will be in non-compliance and will be subject to having their federal and/or state funds suspended at the discretion of the ALDOT Director.

SECTION 15(b) - BRIDGE POSTING CERTIFICATIONS

Local Public Agencies shall load rate their structures that meet the NBI definition of a bridge in accordance with the [Alabama Department of Transportation Bridge Inspection Manual, Appendix IBM-137](#). The ALDOT Maintenance Bureau can assist with rating of most bridge structures except for trusses, corrugated metal culverts (multiplate and/or box), pre-cast concrete arches, re-purposed railroad rolling stock, etc. Accordingly, LPAs should be prepared to incur an expense for rating and to make provision for that task in any contracts as appropriate. All LPAs are required to annually certify, in writing, to the Local Transportation Bureau that all structures that require load posting have been posted in accordance with the current load rating standards. Any bridge owner that does not re-certify their load postings will be found to be in non-compliance with the NBIS and is subject to having any and all Federal or State funds suspended at the discretion of the ALDOT Director.

SECTION 15(c) - PROJECT MAINTENANCE

All Local Public Agency projects that have been constructed by agreement with ALDOT using federal or state funds are to be maintained by the LPA after completion.

Investments made by the State of Alabama and/or Federal Government should be protected by the LPA. LPAs should identify and address any maintenance needs that may impact the safety of the traveling public, as well as the structural and operational integrity of the project.

**CHAPTER 16
EXAMPLE LETTERS,
CHARTS, AND FORMS**

AIRPORT INVOLVEMENT

LPA LETTERHEAD

(Date)

State Local Transportation Engineer
Alabama Department of Transportation
Montgomery, AL 36110-2060

Dear Sir:

Re: Project No. _____
Sponsor No. _____
Town/City (If Applicable) _____
County _____

There is an airport within 2 miles of the above referenced project; however, the project does not effectively result in an increase in elevation. Actual increase in elevation = _____ feet.

Sincerely,

LPA Representative

SUBMITTED FOR CONCURRENCE:

CONCUR

State Local Transportation Engineer

Date

**DESIGN RISK ASSESSMENT RECORD
FOR DESIGN OF FLOOD PLAIN ENCROACHMENT**

DATE: _____
PROJECT NO: _____ SPONSOR PROJECT NO. _____
PROJECT DESCRIPTION: _____

LOCATION: _____

TOWN/CITY (If Applicable) _____ COUNTY: _____

1.0 Conventional Design Data:

Drainage Area: _____ Sq. Miles
Design Frequency _____ Years
Discharge: _____ Cu. Ft per sec.
Structure Size & Type: _____

1.1 Approximate Fill Height (culverts only): _____ Ft.

1.2 Estimated Structure Cost \$ _____

- 1.3 (a) Overtopping elevation: _____ Ft.
(b) Overtopping Discharge: _____ Cu. Ft per sec.
(c) Overtopping Frequency: _____ Year
(d) Upstream Stage: _____ Ft.

2.0 Are significant embankment/pavement repair costs likely at this location?

Yes _____ (Provide explanation below) No _____ (Proceed to Section 3.1)

Explanation: _____

3.0 Risk (Flood Damage)

3.1 Are there significant flood damages prior to design?

Yes _____ (Provide explanation below) No _____ (Proceed to Section 3.2)

Explanation: _____

DESIGN RISK ASSESSMENT RECORD (continued)

3.2 Are there significant flood damages after design?
Yes _____ (Provide explanation below) No _____ (Proceed to Section 4.0)
Explanation: _____

4.0 Are there any additional factors to be considered in the assessment process?
Yes _____ (Provide explanation below) No _____ (Proceed to Section 4.1)
Explanation: _____

4.1 Are there any recommended additional studies needed for clarification of risks?
Yes _____ (Provide explanation below) No _____ (Proceed to Section 5.0)
Explanation: _____

5.0 Are risks significant in relation to capital costs (Adjacent property, structures, etc.)?
Yes _____ (Provide explanation below) No _____ (Proceed to Section 6.0)
Explanation: _____

6.0 Is a risk analysis required?
Yes _____ (Provide explanation below) No _____ (Proceed to Section 6.1)
Explanation: _____

6.1 The risk associated with this encroachment are () are not () acceptable.
Capital costs are () are not () excessive.
Further studies involving risk are () are not () necessary.

LPA Representative

Date

EARTHWORK SUMMARY FOR PLAN ASSEMBLY

UNCLASSIFIED EXCAVATION: _____ Cu. Yds.

BORROW EXCAVATION: _____ Cu. Yds.

TOPSOIL FROM STOCKPILES: _____ Cu. Yds.

TOPSOIL: _____ Cu. Yds.

Note: If muck excavation, underwater backfill, underwater embankment, etc. are required, these items should also be shown in the earthwork summary

EARTHWORK SUMMARY SUBMITTAL SHEET

1. EXCAVATION AVAILABLE FOR FILL: Cu. Yds.

_____	Cu. Yds. (Cut)
Minus _____	Cu. Yds. (Topsoil in Cut)
Equals _____	Cu. Yds. (Subtotal)
Minus _____	Cu. Yds. (Shrinkage Quantity)
Equals _____	Cu. Yds. (Total)

2. BORROW NEEDED:

_____	Cu. Yds. (Fill)
Plus _____	Cu. Yds. (Topsoil Beneath Fill)
Minus _____	Cu. Yds. (Excavation Available for Fill)
Equals _____	Cu. Yds. (Subtotal)
÷ (*) _____	* 1 minus (Estimated % Shrinkage/100)
Equals _____	Cu. Yds. (Total)

3. UNCLASSIFIED EXCAVATION:

_____	Cu. Yds. (Cut)
Plus _____	Cu. Yds. (Topsoil Beneath Fill)
Equals _____	Cu. Yds. (Total)

4. TOPSOIL FROM STOCKPILES:

_____	Cu. Yds. (Topsoil Beneath Fill)
Plus _____	Cu. Yds. (Topsoil from Cut)
Equals _____	Cu. Yds. (Total)

5. REQUIRED TOPSOIL:

_____	Cu. Yds. (Topsoil Needed)
Minus _____	Cu. Yds. (Topsoil from Stockpiles)
Equals _____	Cu. Yds. (Total)

Note: If muck excavation, underwater backfill, underwater embankment, etc. are required, these items should also be shown in the earthwork summary

ENCROACHMENT REMOVAL NOTIFICATION

LPA LETTERHEAD

(Date)

Property Owner's Name & Address

Dear Sir or Madam:

A project has been scheduled for town/city/county Road _____, which will utilize Federal funding. During a review of the project, an encroachment was noted adjacent to your property on the town/city/county's right-of-way.

This encroachment does not conform to the Local Public Agency Road Design Policy for one or more of the following reasons: serves no benefit to the public or transportation related purpose, impairs or interferes with the free and safe flow of traffic, and/ or is inside the applicable clear zone. Therefore, this encroachment must be removed or relocated from within the LPA's right-of-way limits.

Please contact this office at the number above to discuss this notice. Thank you for your cooperation.

Yours Truly,

LPA Representative

ENCROACHMENT DESCRIPTION: _____

ADDITIONAL NOTES: _____

RIGHT-OF-WAY WIDTH: _____

**ENGINEERING AND INSPECTION (E & I)
REDUCTION LETTER**

LPA LETTERHEAD

(Date)

State Local Transportation Engineer
Alabama Department of Transportation
Montgomery, AL 36110-2060

Dear Sir:

Re: Project No. _____
Sponsor No. _____
Town/City (If Applicable) _____
County _____

Please be advise that the town/city/county of _____ County
respectively requests that _____ percent (____%) of the cost estimate be set up
for E & I on the above referenced project.

Sincerely,

LPA Representative

CC: Area Local Transportation Engineer

ENGINEERING PERSONNEL & EQUIPMENT CERTIFICATION

LPA LETTERHEAD

(Date)

State Local Transportation Engineer
Alabama Department of Transportation
Montgomery, AL 36110-2060

Dear Sir:

Re: Project No. _____
Sponsor No. _____
Town/City (If applicable) _____
County _____

This is to certify that the town/.city/county of _____ County has the following engineering equipment and personnel for use on the above referenced project.

EQUIPMENT:

Other miscellaneous equipment as needed to properly handle the project.

ENGINEERING PERSONNEL

_____	CERTIFIED TRAFFIC CONTROL INSPECTOR
_____	CERTIFIED CONCRETE TECHNICAN CERT. # _____ EXPIRATION DATE _____
_____	CERTIFIED ROADWAY TECHNICAN CERT. # _____ EXPIRATION DATE _____
_____	CERTIFIED STORMWATER QCI CERT. # _____ ISSUANCE DATE _____

It is also hereby agreed that the LPA will leave each piece of equipment on the project until the controlling item of work for that piece of equipment is completed.

Sincerely,

LPA Representative

A representative from this area has checked to assure that the equipment and personnel as listed above are adequate to inspect the construction of this project according to Alabama Department of Transportation standards, policies, and specifications

APPROVED: _____
Area Local Transportation Engineer

U.S. Department of Agriculture
FARMLAND CONVERSION IMPACT RATING

PART I (To be completed by Federal Agency)		Date Of Land Evaluation Request			
Name Of Project		Federal Agency Involved			
Proposed Land Use		County And State			
PART II (To be completed by NRCS)		Date Request Received By NRCS			
Does the site contain prime, unique, statewide or local important farmland? (If no, the FPPA does not apply – do not complete additional parts of this form).		Yes <input type="checkbox"/>	No <input type="checkbox"/>	Acres Irrigated	Average Farm Size
Major Crop(s)	Farmable Land In Govt. Jurisdiction Acres: %	Amount Of Farmland As Defined in FPPA Acres: %			
Name Of Land Evaluation System Used	Name Of Local Site Assessment System	Date Land Evaluation Returned By NRCS			
PART III (To be completed by Federal Agency)		Alternative Site Rating			
		Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly					
B. Total Acres To Be Converted Indirectly					
C. Total Acres In Site		0.0	0.0	0.0	0.0
PART IV (To be completed by NRCS) Land Evaluation Information					
A. Total Acres Prime And Unique Farmland					
B. Total Acres Statewide And Local Important Farmland					
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted					
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value					
PART V (To be completed by NRCS) Land Evaluation Criterion Relative Value Of Farmland To Be Converted (Scale of 0 to 100 Points)		0	0	0	0
PART VI (To be completed by Federal Agency) Site Assessment Criteria (These criteria are explained in 7 CFR 658.5(b))		Maximum Points			
1. Area In Nonurban Use					
2. Perimeter In Nonurban Use					
3. Percent Of Site Being Farmed					
4. Protection Provided By State And Local Government					
5. Distance From Urban Builtup Area					
6. Distance To Urban Support Services					
7. Size Of Present Farm Unit Compared To Average					
8. Creation Of Nonfarmable Farmland					
9. Availability Of Farm Support Services					
10. On-Farm Investments					
11. Effects Of Conversion On Farm Support Services					
12. Compatibility With Existing Agricultural Use					
TOTAL SITE ASSESSMENT POINTS		160	0	0	0
PART VII (To be completed by Federal Agency)					
Relative Value Of Farmland (From Part V)		100	0	0	0
Total Site Assessment (From Part VI above or a local site assessment)		160	0	0	0
TOTAL POINTS (Total of above 2 lines)		260	0	0	0
Site Selected:	Date Of Selection	Was A Local Site Assessment Used? Yes <input type="checkbox"/> No <input type="checkbox"/>			
Reason For Selection:					

(See Instructions on reverse side)

This form was electronically produced by National Production Services Staff

Form AD-1006 (10-83)

A downloadable version of Form AD-1006 may be obtained at the [USDA web page](#),

**FARMLAND CONVERSION IMPACT RATING
ALDOT ASSESSMENT CRITERIA FOR FORM AD-1006**

The following guidelines should be used in rating the twelve Site Assessment criteria:

1. How much land is in non-urban use within a radius of 1.0 mile from where the project is intended?

	<u>Points</u>
More than 90 percent	15
85 to 90 percent	14
80 to 84 percent	13
75 to 79 percent	12
70 to 74 percent	11
65 to 69 percent	10
60 to 64 percent	9
55 to 59 percent	8
50 to 54 percent	7
45 to 49 percent	6
40 to 44 percent	5
35 to 39 percent	4
30 to 34 percent	3
25 to 29 percent	2
20 to 24 percent	1
Less than 20 percent	0

2. How much of the perimeter of the site borders on land in non-urban use?

	<u>Points</u>
More than 90 percent	10
83 to 90 percent	9
76 to 82 percent	8
68 to 75 percent	7
60 to 67 percent	6
52 to 59 percent	5
44 to 51 percent	4
36 to 43 percent	3
28 to 35 percent	2
20 to 27 percent	1
Less than 20 percent	0

**FARMLAND CONVERSION IMPACT RATING
ALDOT ASSESSMENT CRITERIA FOR FORM AD-1006 (CONT.)**

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

	Points
More than 90 percent	20
87 to 90 percent	19
83 to 86 percent	18
80 to 82 percent	17
76 to 79 percent	16
72 to 75 percent	15
69 to 71 percent	14
65 to 68 percent	13
61 to 64 percent	12
58 to 60 percent	11
54 to 57 percent	10
50 to 53 percent	9
47 to 49 percent	8
43 to 46 percent	7
39 to 42 percent	6
36 to 38 percent	5
32 to 35 percent	4
28 to 31 percent	3
25 to 27 percent	2
21 to 24 percent	1
Less than 20 percent	0

4. Is the site subject to state or unit of local government policies or programs to protect farmland or covered by private programs to protect farmland?

Site is protected: 20 points
Site is not protected: 0 points

Note: This factor should always be 0

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

Not Applicable

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

Not Applicable

**FARMLAND CONVERSION IMPACT RATING
ALDOT ASSESSMENT CRITERIA FOR FORM AD-1006 (CONT.)**

7. Is the farm unit(s) containing the site (before the project) as large as the average-size farming unit in the county?

As large or larger = 10 points
95 percent as large = 9 points
90 percent as large = 8 points
85 percent as large = 7 points
80 percent as large = 6 points
75 percent as large = 5 points
70 percent as large = 4 points
65 percent as large = 3 points
60 percent as large = 2 points
55 percent as large = 1 point
50 percent as large or less = 0 points

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

Acreage equal to more than 25 percent = 25 points
20% - 24% = 20 points
15% - 19% = 15 points
10% - 14% = 10 points
5% - 9 % = 5 points
Acreage equal to less than 5 percent = 0 points

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

All = 5 points
Most = 4 points
Adequate = 3 points
Some = 2 points
Few = 1 point
None = 0 points

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

High = 20 points
Many = 15 points
Medium = 10 points
Few = 5 points
None = 0 points

**FARMLAND CONVERSION IMPACT RATING
ALDOT ASSESSMENT CRITERIA FOR FORM AD-1006 (CONT.)**

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

Substantial reduction = 25 points
Large reduction = 20 points
Medium reduction = 15 points
Small Reduction = 10 points
Slight Reduction = 5 points
No reduction = 0 points

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

Incompatible = 10 points
76% - 99 % = 8 points
51% - 75% = 6 points
25% - 50% = 4 points
1% - 24% = 2 points
Compatible = 0 points

**STORM RECURRENCE INTERVALS FOR USE IN HYDRAULIC
DESIGN OF LPA STRUCTURES LESS THAN BRIDGE SIZE**

<u>Structure Type</u>	<u>Return Frequency*</u>
Crossdrain	25 year
Sidedrain	10 year

*NOTE: Return frequency can be larger based upon the designer's discretion after a review of the specific factors involved in the design, such as high ADT volumes, speed, land use, etc. Local regulation shall govern if the return frequency is equal to or greater than those shown above.

Example Runoff Coefficients.

Urban areas - The use of average coefficients for various surface types, which are assumed not to vary through the duration of the storm, is common. The range of coefficients, classified with respect to the general character of the tributary reported in use is:

<u>Description of area</u>	<u>Runoff coefficients</u>
Business:	
Downtown areas	0.70 to 0.95
Neighborhood areas	0.50 to 0.70
Residential:	
Single-family areas	0.30 to 0.50
Multi-units, detached	0.40 to 0.60
Multi-units, attached	0.60 to 0.75
Residential (suburban)	0.25 to 0.40
Apartment dwelling areas	0.50 to 0.70
Industrial:	
Light areas	0.50 to 0.80
Heavy areas	0.60 to 0.90
Parks, cemeteries	0.10 to 0.25
Playgrounds	0.20 to 0.35
Railroad yard areas	0.20 to 0.35
Unimproved areas	0.10 to 0.30

It is often undesirable to develop a composite runoff coefficient based on the percentage of different types of surface in the drainage area. This procedure is often applied to typical "sample" blocks as a guide to selection of reasonable values of the coefficient for an entire area. Coefficients with respect to surface type currently in use are:

<u>Character or surface</u>	<u>Runoff coefficients</u>
Streets:	
Asphaltic and concrete	0.70 to 0.95
Brick	0.70 to 0.85
Roofs	0.75 to 0.95
Lawns; sandy soil:	
Flat, 2%	0.05 to 0.10
Average, 2% to 7%	0.10 to 0.15
Steep, 7%	0.15 to 0.20
Lawns; heavy soil:	
Flat, 2%	0.13 to 0.17
Average, 2% to 7%	0.18 to 0.22
Steep, 7%	0.25 to 0.35

The coefficients in these two tabulations are applicable for storms of 5-year to 10-year frequencies. Less frequent higher intensity storms will require the use of higher coefficients because infiltration and other losses have a proportionally smaller effect on runoff. The coefficients are based upon the assumption that the design storm does not occur when the ground surface is frozen.

Rural Areas	Soil Texture		
	Open Sandy Loam	Clay & Silt Loam	Tight Clay
Topography & Vegetation			
Woodland			
Flat 0-5% slope	0.10	0.30	0.40
Rolling 5-10% slope	0.25	0.35	0.50
Hilly 10-30% slope	0.30	0.50	0.60
Pasture			
Flat	0.10	0.30	0.40
Rolling	0.16	0.36	0.55
Hilly	0.22	0.42	0.60
Cultivated			
Flat	0.30	0.50	0.60
Rolling	0.40	0.60	0.70
Hilly	0.52	0.72	0.82

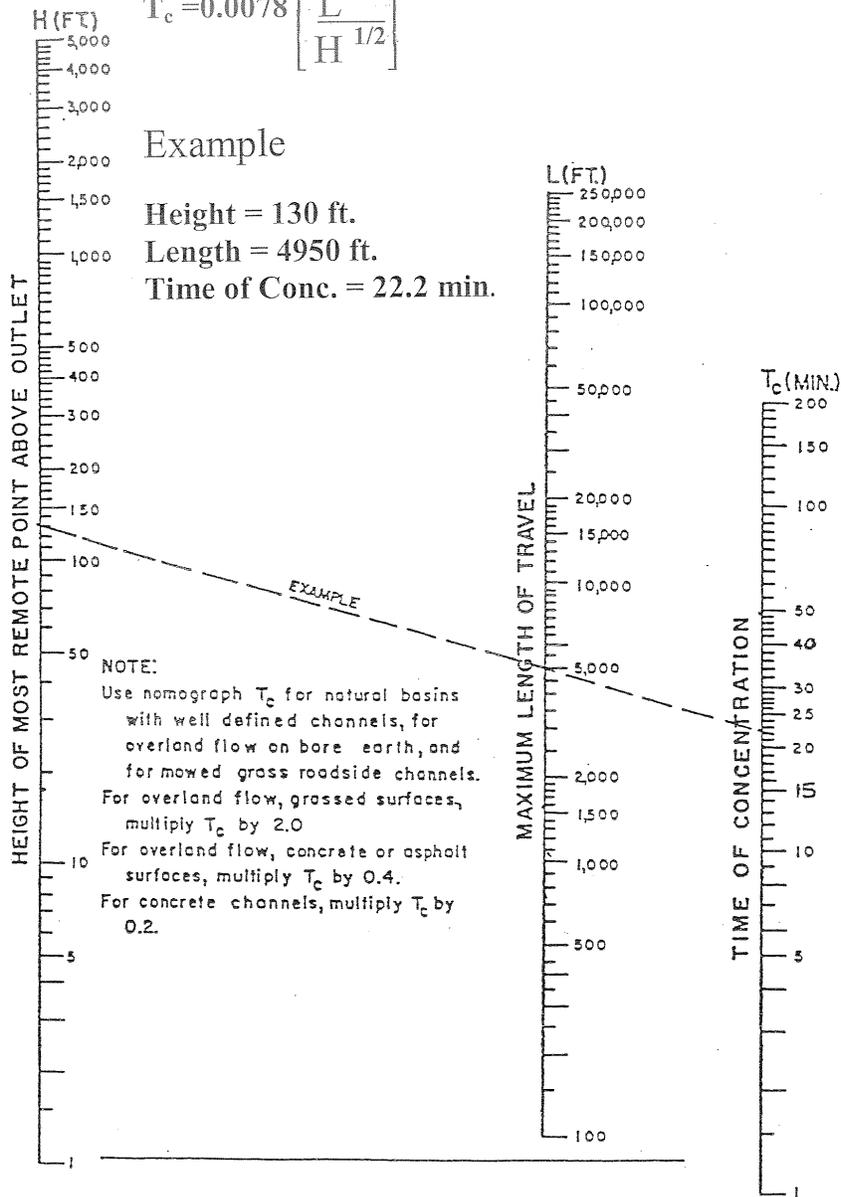
FROM: B. J. Barfield, R. C. Warner, and C. T. Haan, Applied Hydrology and Sedimentology for Disturbed Areas (Oklahoma Technical Press, 1983), p. 111-112.

Equation

$$T_c = 0.0078 \left[\frac{L^{3/2}}{H^{1/2}} \right]^{0.770}$$

Example

Height = 130 ft.
 Length = 4950 ft.
 Time of Conc. = 22.2 min.

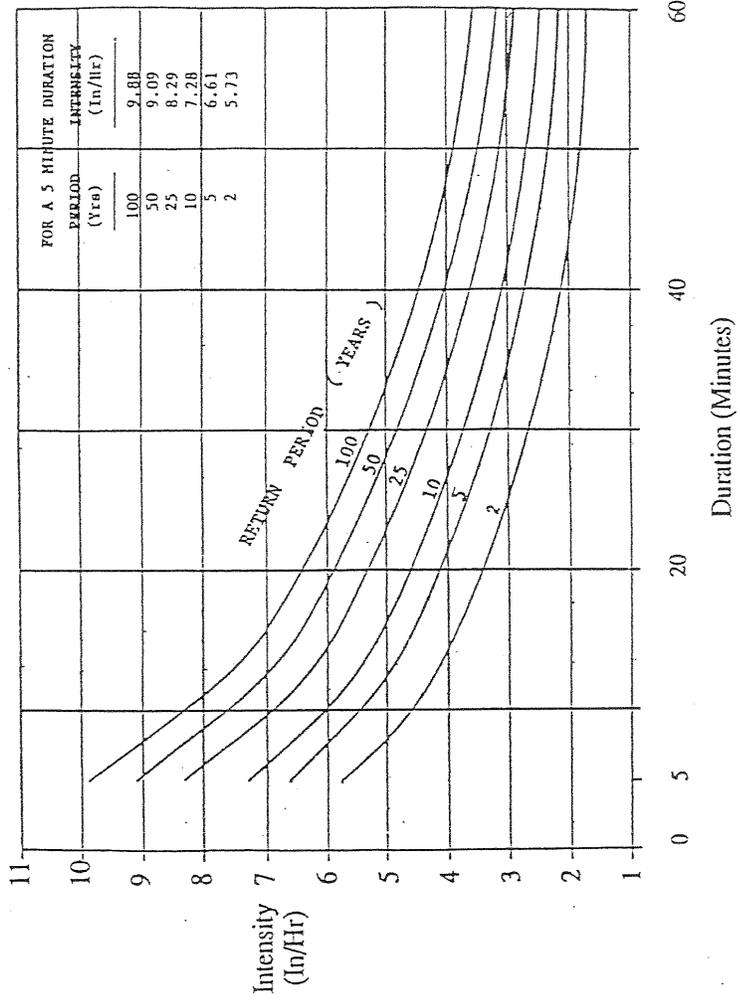


Time of Concentration Nomograph.

From Equation Developed By Z. P. Kirpich.

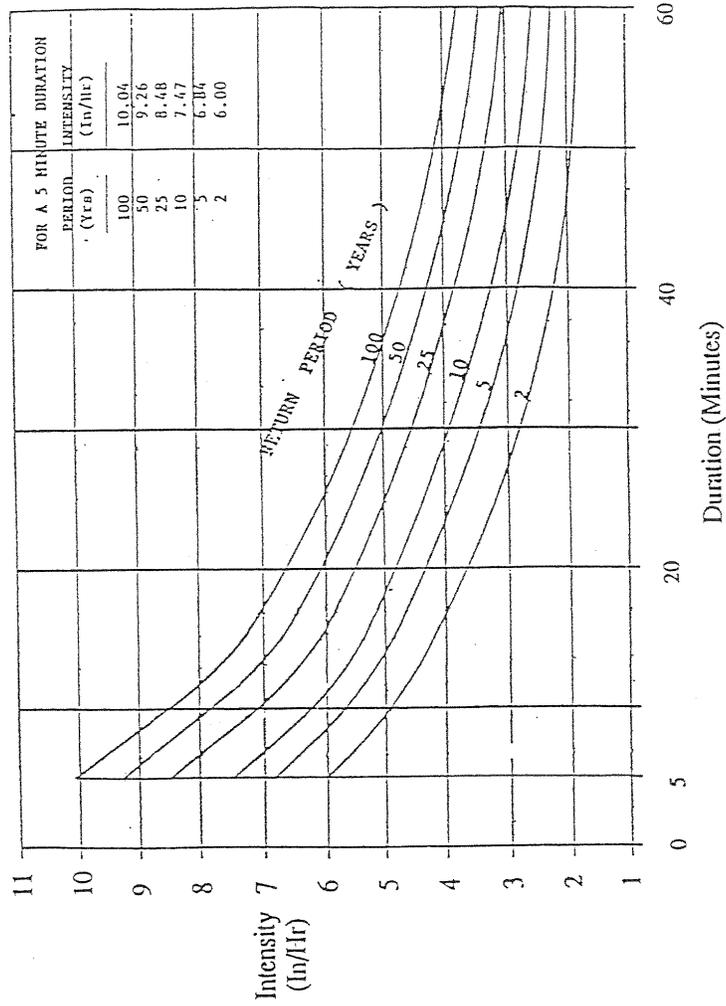
Intensity-Duration Curve For Huntsville.

From NWS Report Hydro-35



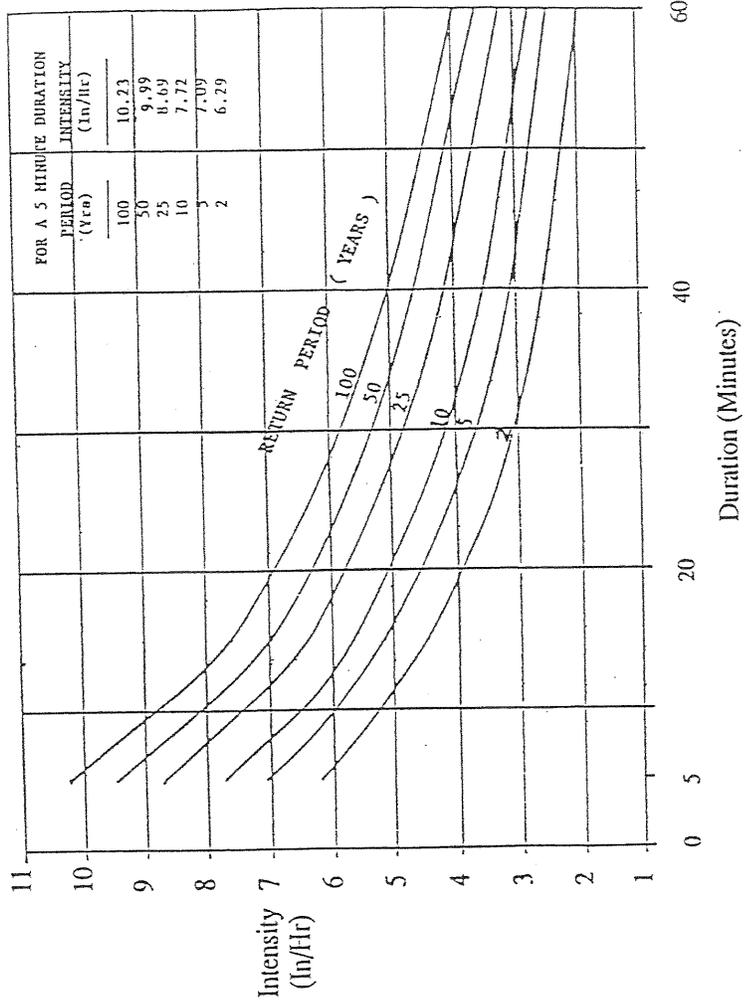
Intensity-Duration Curve For Birmingham.

From NWS Report Hydro-35



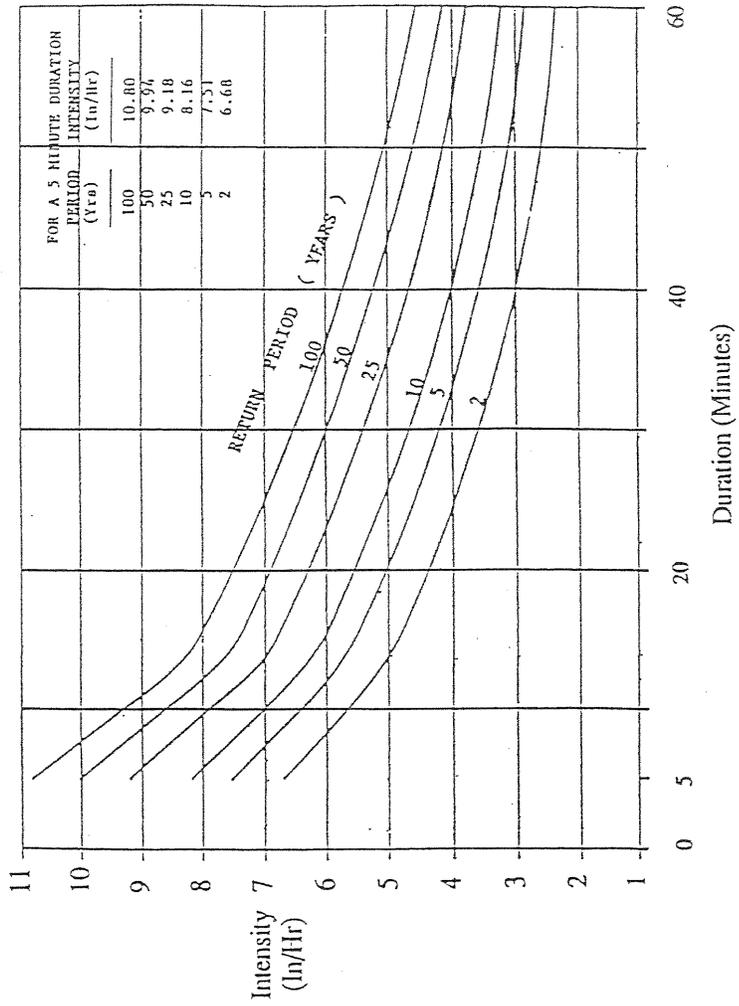
Intensity-Duration Curve For Montgomery.

From NWS Report Hydro-35



Intensity-Duration Curve For Mobile.

From NWS Report Hydro-35



Manning Equation Coefficients of Roughness

Manning's n range

I. Closed Conduits:		
A. Concrete Pipe	0.011 - 0.013	
B. Corrugated-metal pipe or pipe arch:		
1. 2-2/3 by 1/2 in corrugation (riveted pipe):		
a. Plain or fully coated.....	0.024	
b. Paved invert (ranged values are for 25% and 50% of circumference paved):		
(1) Flow full depth.....	0.021 - 0.018	
(2) Flow 08 depth	0.021 - 0.016	
(3) Flow 06 depth	0.019 - 0.013	
2. 6 by 2-in corrugation (field bolted).....		0.030
C. Cast-iron pipe, uncoated		0.013
D. Steel pipe		0.009 - 0.011
E. Monolithic concrete:		
1. Wood forms, rough		0.015 - 0.017
2. Wood forms, smooth.....		0.012 - 0.014
3. Steel forms.....		0.012 - 0.025
F. Cemented rubble masonry walls:		
1. Concrete floor and top		0.017 - 0.022
2. Natural floor		0.019 - 0.025
II. Open Channels, Lined (straight alignment):		
A. Concrete with surfaces as indicated:		
1. Formed, no finish		0.013 - 0.017
2. Trowel finish		0.012 - 0.014
3. Float finish		0.013 - 0.015
4. Float finish, some gravel on bottom.....		0.015 - 0.017
5. Guniting, good section.....		0.016 - 0.019
6. Guniting, wavy section.....		0.018 - 0.022
B. Concrete, bottom float finished, sides as indicated:		
1. Dressed stone in mortar		0.015 - 0.017
2. Random stone in mortar		0.017 - 0.020
3. Cement rubble masonry		0.020 - 0.025
4. Cement rubble masonry, plastered		0.016 - 0.020
5. Dry rubble (riprap).....		0.020 - 0.030

C. Gravel bottom, sides as indicated:	
1. Formed concrete	0.017 - 0.020
2. Random stone in mortar	0.020 - 0.023
3. Dry rubble (riprap).....	0.023 - 0.033
D. Asphalt	
1. Smooth	0.013
2. Rough	0.016
E. Concrete-lined excavated rock:	
1. Good section.....	0.017 - 0.020
2. Irregular section	0.022 - 0.027
III. Open Channels, Excavated (straight alignment, natural lining):	
A. Earth, uniform section:	
1. Clean, recently completed	0.016 - 0.018
2. Clean, after weathering.....	0.018 - 0.020
3. With short grass, few weeds.....	0.022 - 0.027
4. In gravelly soil, uniform section, clean.....	0.022 - 0.025
B. Earth, fairly uniform section:	
1. No vegetation	0.022 - 0.025
2. Grass, some weeds.....	0.025 - 0.030
3. Dense weeds or aquatic plants in deep channels.....	0.030 - 0.035
4. Sides clean, gravel bottom	0.025 - 0.030
5. Sides clean, cobble bottom	0.030 - 0.040
C. Dragline excavated or dredged:	
1. No vegetation	0.028 - 0.033
2. Light brush on banks.....	0.035 - 0.050
D. Rock:	
1. Based on design section.....	0.035
2. Based on actual mean section:	
a. Smooth and uniform.....	0.035 - 0.040
b. Jagged and irregular.....	0.040 - 0.045
E. Channels not maintained, weeds and brush uncut:	
1. Dense weeds, high as flow depth.....	0.080 - 0.120
2. Clean bottom, brush on sides	0.050 - 0.080
3. Clean bottom, brush on sides, highest stage of flow	0.070 - 0.110
4. Dense brush, high stage	0.100 - 0.140

IV. Channels & Swales w/Maintained Vegetation (Values shown are for velocities of 2 & 6 f.p.s.):

A. Depth of flow up to 0.7 foot:

- 1. Bermudagrass, Kentucky bluegrass, buffalograss
 - a. Mowed to 2 inches0.045 - 0.070
 - b. Length 4-6 inches0.050 - 0.090
- 2. Good stand, any grass:
 - a. Length about 12 inches.....0.090 - 0.180
 - b. Length about 24 inches.....0.150 - 0.300
- 3. Fair stand, any grass:
 - a. Length about 12 inches.....0.0800 - 0.140
 - b. Length about 24 inches.....0.1300 - 0.250

B. Depth of flow 0.7 - 1.5 feet:

- 1. Bermudagrass, Kentucky bluegrass, buffalograss
 - a. Mowed to 2 inches0.030 - 0.050
 - b. Length 4-6 inches0.040 - 0.060
- 2. Good stand, any grass:
 - a. Length about 12 inches.....0.070 - 0.120
 - b. Length about 24 inches.....0.100 - 0.200
- 3. Fair stand, any grass:
 - a. Length about 12 inches.....0.060 - 0.100
 - b. Length about 24 inches.....0.090 - 0.170

V. Street and Expressway Gutters:

- A. Concrete gutter, troweled finish..... 0.012
- B. Asphalt pavement:
 - 1. Smooth texture 0.013
 - 2. Rough texture 0.016
- C. Concrete gutter with asphalt pavement
 - 1. Smooth 0.013
 - 2. Rough 0.015
- D. Concrete pavement:
 - 1. Float finish 0.014
 - 2. Broom finish 0.016
- E. For gutters with small slope, where sediment may accumulate,
increase above values of x by 0.002

VI. Natural Stream Channels:

A. Minor streams (surface width at flood stage less than 100 feet):

1. Fairly regular section:

- a. Some grass & weeds, little or no brush0.030 - 0.035
- b. Dense growth of weeds, depth of flow materially greater than weed height0.035 - 0.050
- c. Some weeds, light brush on banks0.035 - 0.050
- d. Some weeds, heavy brush on banks0.050 - 0.070
- e. Some weeds, dense willows on banks0.060 - 0.080
- f. For trees within channel with branches submerged at high stage, increase all above values by0.010 - 0.020

2. Irregular sections, with pools, slight channel meander; increase

values given in 1 a-e about0.010 - 0.020

3. Mountain streams, no vegetation in channel, banks usually steep, trees and brush along banks submerged at high stage:

- a. Bottom of gravel, cobbles and few boulders0.040 - 0.050
- b. Bottom of cobbles, with large boulders0.050 - 0.070

B. Flood plains (adjacent to natural streams):

1. Pasture, no brush:

- a. Short grass.....0.030 - 0.035
- b. High grass0.035 - 0.050

2. Cultivated areas:

- a. No crop0.030 - 0.040
- b. Mature row crops.....0.035 - 0.045
- c. Mature field crops0.040 - 0.050

3. Heavy weeds, scattered brush0.050 - 0.070

4. Light brush and trees:

- a. Winter.....0.050 - 0.060
- b. Summer.....0.060 - 0.080

5. Medium to dense brush:

- a. Winter.....0.070 - 0.110
- b. Summer.....0.100 - 0.160

6. Dense willows, summer, not bent over by current0.150 - 0.200

7. Cleared land w/ tree stumps, 100-150 per acre:

- a. No sprouts0.040 - 0.050
- b. With heavy growth of sprouts.....0.060 - 0.080

8. Heavy stand of timber, a few down trees, little undergrowth:
- a. Flood depth below branches 0.100 - 0.120
 - b. Flood depth reaches branches..... 0.120 - 0.160
- C. Major streams (surface width at flood stage more than 100 ft.):
- Roughness coefficient is usually less than for minor streams of similar description on account of less effective resistance offered by irregular banks or vegetation on banks. Values of n may be somewhat reduced. Follow recommendation in publication cited if possible. The value of n for larger streams of most regular section, with no boulders or brush, may be in the range of 0.028 - 0.033

MANNING'S ROUGHNESS COEFFICIENTS FOR SHEET FLOW

SURFACE DESCRIPTION	n ¹
Smooth Surfaces (concrete, asphalt, gravel, or bare soil)	0.011
Fallow (no residue)	0.05
Cultivated Soils:	
Residue cover 20%	0.06
Residue cover 20%	0.17
Grass:	
Short grass prairie	0.15
Dense grasses	0.24
Bermudagrass	0.41
Range (natural)	0.13
Woods:	
Light underbrush	0.40
Dense underbrush	0.80

Source: Chow, V.T., 1959, Open Channel Hydraulics, McGraw-Hill, New York, NY

LETTER OF INVOLVEMENT

LPA LETTERHEAD

(Date)

State Local Transportation Engineer
Alabama Department of Transportation
Montgomery, AL 36130-3050

Dear Sir:

Re: Project No. _____
Sponsor No. _____
Town/City (If Applicable) _____
County _____

There is no involvement with lands from a public park, recreational area, wildlife refuge, historical or archeological site, navigable water, airport, or railroad on the above referenced project.

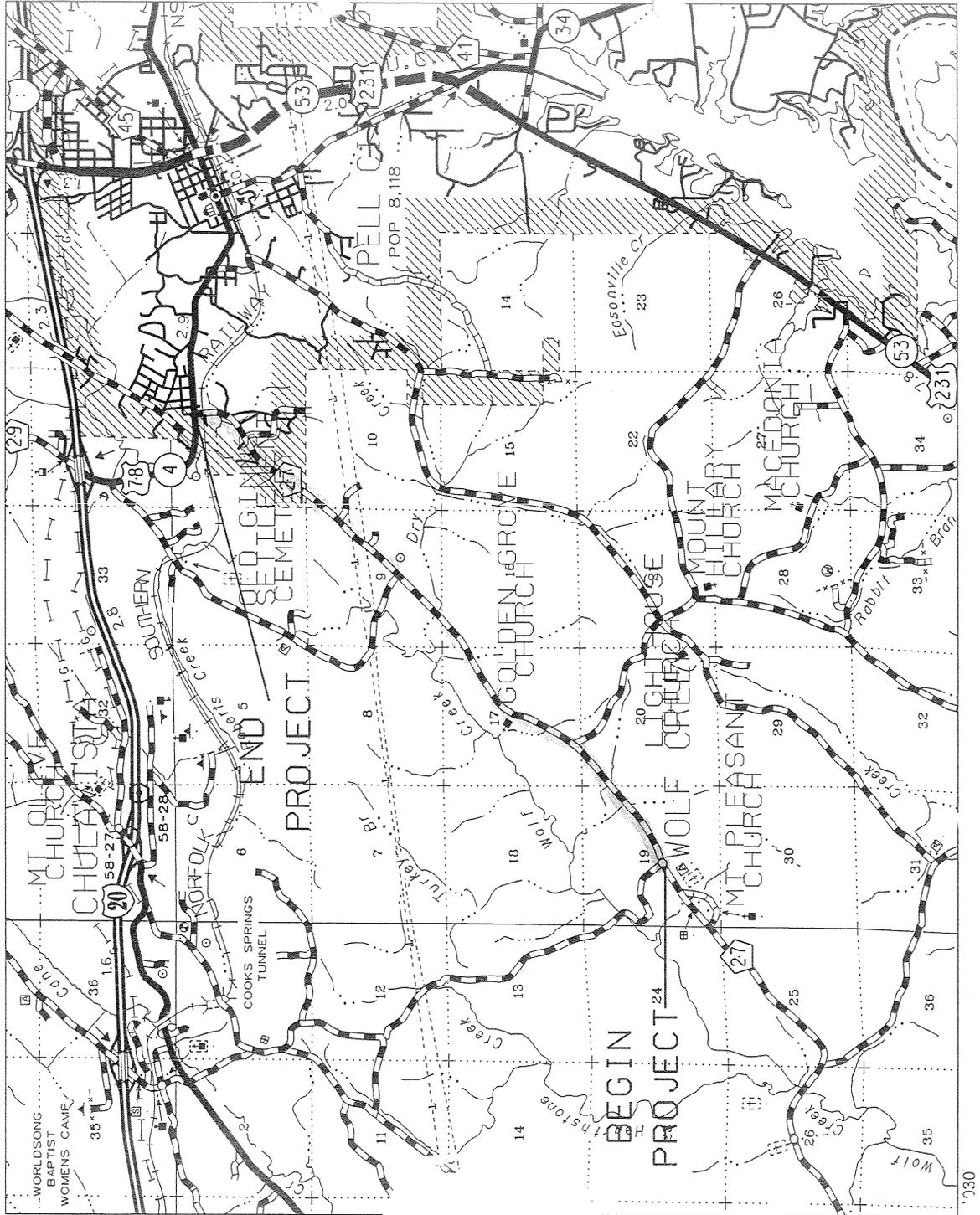
This is submitted in accordance with the current Procedural Guidelines for LPA Projects.

Sincerely,

LPA Representative

LOCATION MAP ATTACHED

LOCATION MAP



MATERIALS REPORT



Kay Ivey
Governor

ALABAMA DEPARTMENT OF TRANSPORTATION

EAST CENTRAL REGION
ALEXANDER CITY AREA
POST OFFICE BOX 1179
ALEXANDER CITY, ALABAMA 35011-1179
Telephone: (256) 234-4265 FAX: (256) 234-3474



John R. Cooper
Transportation Director

July 16, 2019

Mr. D.E. (Ed) Phillips, P.E.
Local Transportation Bureau
Alabama Department of Transportation
1409 Coliseum Blvd. Room D-101
Montgomery, Alabama 36110

RE: Project No. HRRR-0919 ()
CCP 09-10-18
Safety Improvements, Super Elevation
Correction, Shoulder Widening on CR-83
from CR-292 for Approximately 0.70 miles
Chambers County

Dear Mr. Phillips:

Attached you will find a materials report for the above-referenced project. After reviewing the information, it is being forwarded with the approval of this Office.

Sincerely,

Robert F. Camp, P.E.
Assistant Region Engineer - Operations
East Central Region
Alexander City Area

By: Timothy A. Burns
Timothy A. Burns, P.E.
Assistant Operations Engineer
Alexander City Area
Materials and Tests

RFC/TAB/JDC/jdc

Attachment

Cc: Mr. Winston J. Powe, III, P.E. (Construction Engineer)
Mr. Ken Cush, P.E. (County Transportation Engineer)
Mr. Josh Harvill, P.E. (Chambers County Engineer)
File

MATERIALS REPORT

CHAMBERS COUNTY HIGHWAY DEPARTMENT

JOSH HARVILL
COUNTY ENGINEER

DANIEL LUNDY
ASSISTANT COUNTY ENGINEER

P.O. Box 650
Lafayette, AL 36862
Telephone: 334-864-4377
Fax: 334-864-7850



Chambers
COUNTY
Highway Department
STRENGTH WOVEN IN

COMMISSIONERS

CHARLIE WILLIAMS, DIST. 1
DOUG JONES, DIST. 2
JAMES WILLIAMS SR., DIST. 3
SAM BRADFORD, DIST. 4
DAVID EASTRIDGE, DIST. 5
DEBRA RILEY, DIST. 6

July 11, 2019

Mr. William M. Corley, P.E.
Operations Engineer
ALDOT East Central Region
Alexander City Area
P.O. Box 1179
Alexander City, AL. 35011-1179

Attn: Mr. Timothy A. Burns, P.E.
Assistant Operations Engineer
Area Materials Engineer

RE: HRRR-0919()
CCP 09-10-18
Materials Report
County Road 83
Super Elevation Correction
Chambers County

Dear Sir:

Chambers County proposes safety improvements on County Road 83 from Station 5+50 north to Station 34+50 including super elevation correction, shoulder widening, raised pavement markers, traffic striping and signs. County Road 83 will be widened one foot from Sta. PC 9+21.60 to Sta. PT 18+50.00 (Curve #1) on the southbound lane only and from Sta. PC 21+48.10 to Sta. PT 31+17.10 (Curve #2) on the northbound lane only, to provide a 1-foot paved shoulder on the negative slope side of both curves. A 3-foot shoulder will be maintained throughout the curve; A 2-foot aggregate shoulder through the widened portion and a 3-foot aggregate shoulder throughout all other areas. Therefore, I am submitting for your review, a pavement analysis for the above referenced project.

General:

The existing pavement is a Bituminous Plant Mix approximately 3 inches thick, 22 feet wide, resurfaced in 2001. The roadway element condition is showing the early stages of distress such as cracking, rutting within the wheel paths at depths of up to 1/4", minor pot holing, minor raveling, and moderate block cracking up to 1/2" width.

The current ADT (2019) on CR-299 is 1,290 vehicles per day (vpd). The 20-year design (2039) ADT is 1,920 vpd. Truck volume is 10%. The proposed roadway will consist of multiple typical sections. ESAL Range A/B is used in the design of this project. See page 3 for calculations.

MATERIALS REPORT

Page 2 of 3
CCP 09-10-18
CR-83
Chambers County

Recommendations:

Chambers County recommends the following work be done.

Typical 1

Sta. 6+50.00 to 9+21.60; Sta. 18+50.00 to 21+48.10; Sta. 31+17.10 to 33+50.00

1. Place Item No. 424B-643 Superpave Bituminous Concrete Upper Binder Layer, Leveling, $\frac{3}{4}$ " MASM, ESAL Range A/B (Spot Leveling as Directed by the Engineer).
2. Place Item No. 424A-346 Superpave Bituminous Concrete Wearing Surface Layer, Leveling, $\frac{1}{2}$ " MASM, ESAL Range A/B (135-145 lbs/SY, 22' wide).
3. Place Item No. 430B-043 Aggregate Surfacing (1" Down, Crusher Run).

Typical 2

Sta. 9+21.60 to 18+50.00

1. Place Item No. 424C-351 Superpave Bituminous Concrete Base Layer, Widening, 1 1/2" MASM, ESAL Range A/B (330 lbs/SY, 1' wide on left side).
2. Place Item No. 424B-643 Superpave Bituminous Concrete Upper Binder Layer, Leveling, $\frac{3}{4}$ " MASM, ESAL Range A/B (Spot Leveling as Directed by the Engineer).
3. Place Item No. 424A-346 Superpave Bituminous Concrete Wearing Surface Layer, Leveling, $\frac{1}{2}$ " MASM, ESAL Range A/B (135-145 lbs/SY, 23' wide).
4. Place Item No. 430B-043 Aggregate Surfacing (1" Down, Crusher Run).

Typical 3

Sta. 21+48.10 to 31+17.10

1. Place Item No. 424B-643 Superpave Bituminous Concrete Upper Binder Layer, Leveling, $\frac{3}{4}$ " MASM, ESAL Range A/B (Spot Leveling as Directed by the Engineer).
2. Place Item No. 424A-346 Superpave Bituminous Concrete Wearing Surface Layer, Leveling, $\frac{1}{2}$ " MASM, ESAL Range A/B (135-145 lbs/SY, 23' wide).
3. Place Item No. 424C-351 Superpave Bituminous Concrete Base Layer, Widening, 1 1/2" MASM, ESAL Range A/B (330 lbs/SY, 1' wide right side).
4. Place Item No. 430B-043 Aggregate Surfacing (1" Down, Crusher Run).

Items to be installed along entire project not standard to each typical.

1. Place item No. 405A-000 Tack Coat.
2. Place Joint Sealant for Hot Mix Asphalt Pavement, cost to be subsidiary to Item 424.
3. County to install all permanent signs required on the project.

MATERIALS REPORT

Page 3 of 3
CCP 09-10-18
CR-83
Chambers County

ESAL Calculations:

2019 ADT: 1290
2039 ADT: 1920
TADT: 10%

$$[(C+P)/2](TADT)(0.99)(FDD)(FLD)(7300) = \text{\#ESAL'S}$$

$$[(1290+1920)/2](0.10)(0.99)(0.50)(1.00)(7300) = 579,997 < 1.0 \times 10^6 \quad \text{ESAL RANGE A/B}$$

This information is submitted for your review and approval.

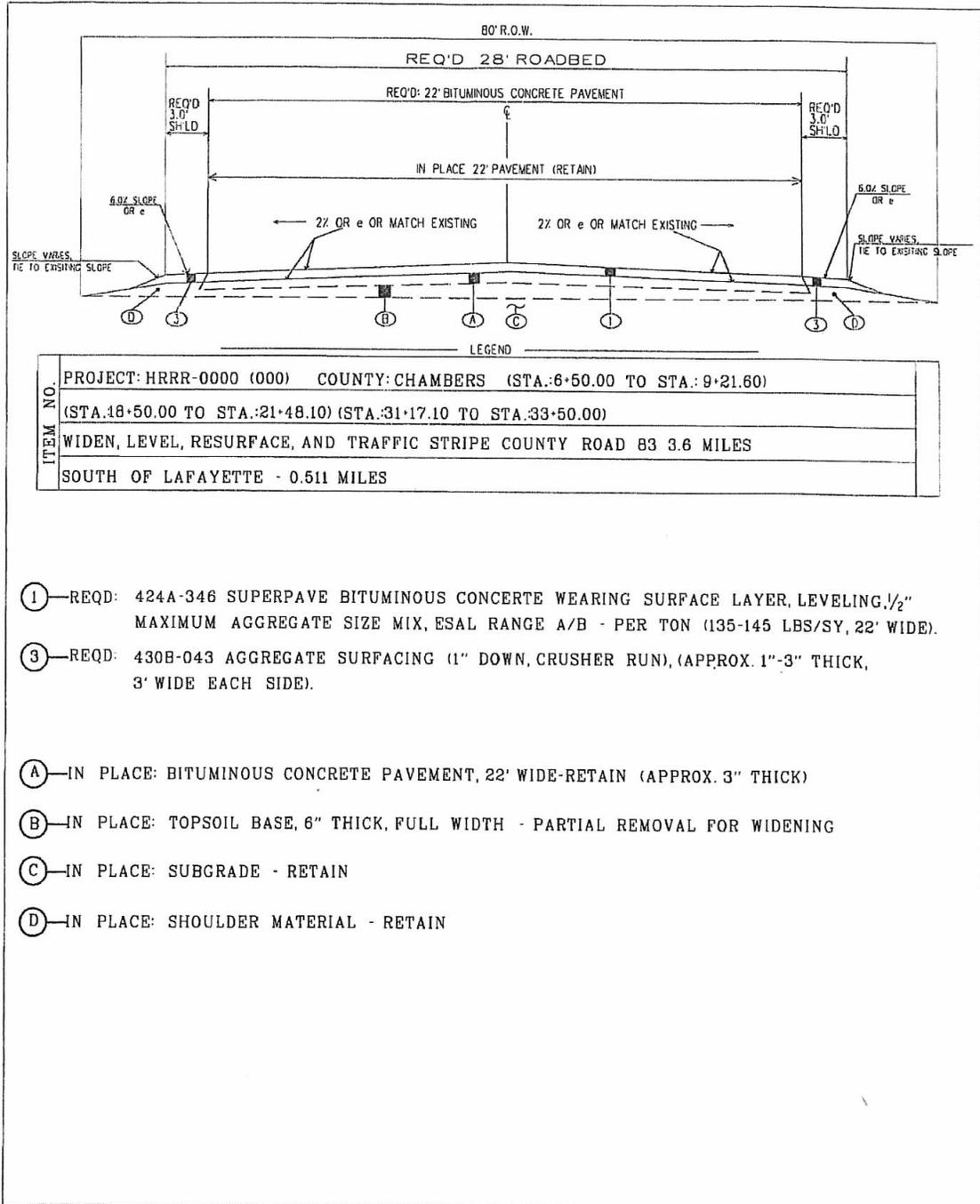
Sincerely,


Josh Harvill
County Engineer

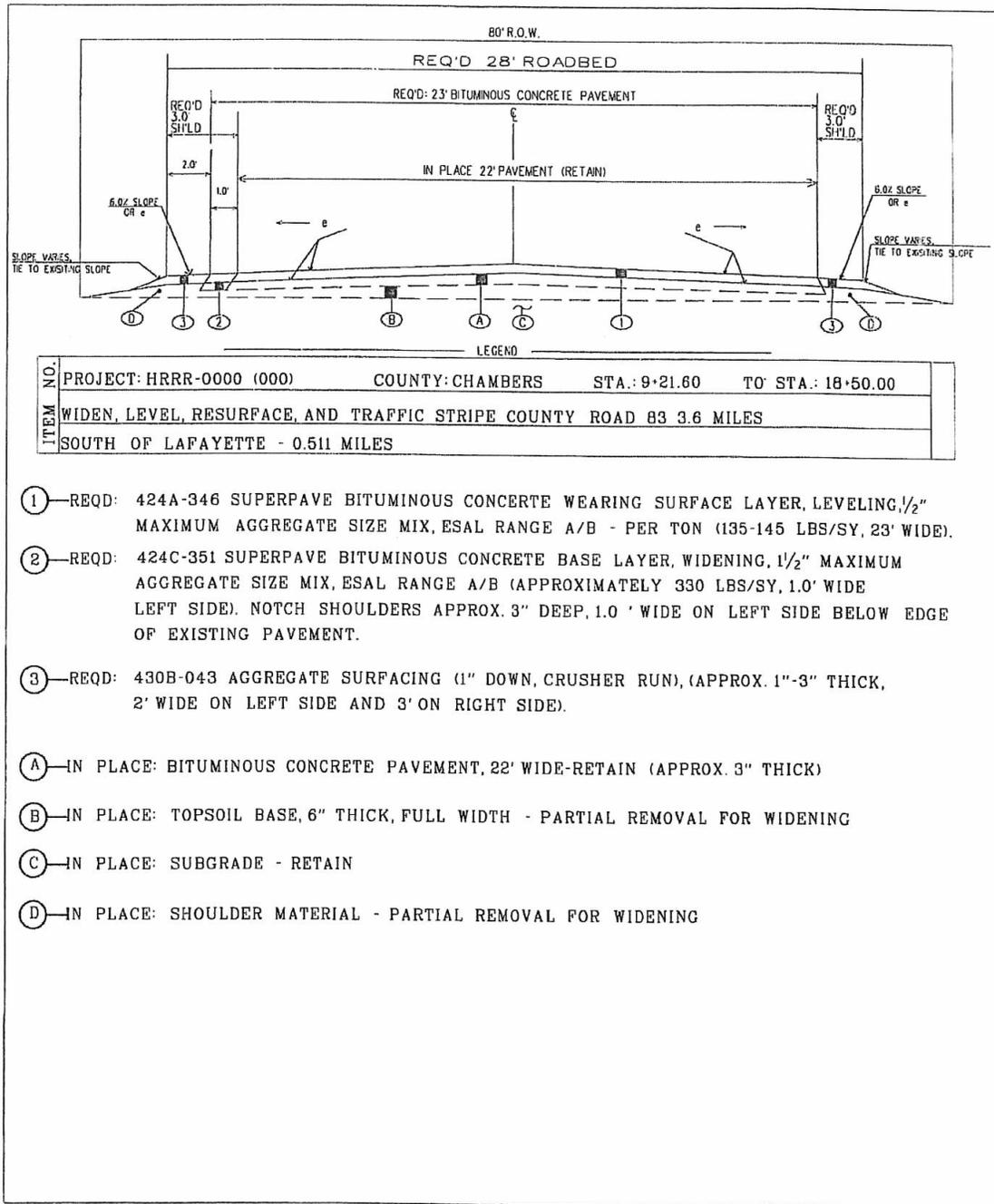
cc. Mr. Ken Cush, P.E. (County Transportation Engineer)

Attachments: Location Map, Typical Sections (3), 2019 Traffic Counts

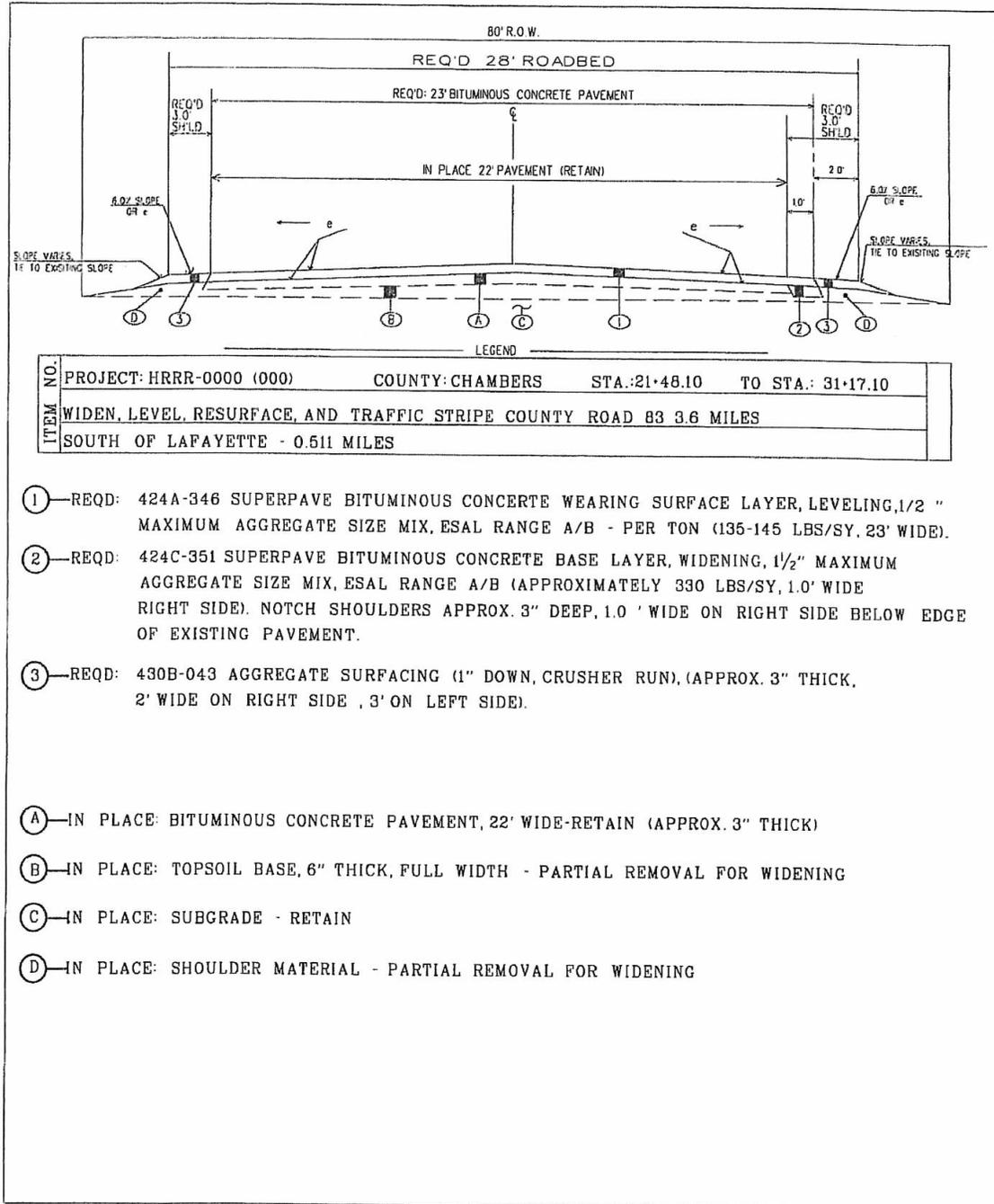
MATERIALS REPORT



MATERIALS REPORT



MATERIALS REPORT



MATERIALS REPORT

DATED TRAFFIC VOLUME:

DATE	3/15/2019					
PROJECT	HRRR-0919(), CCP 09-10-18					
COUNTY	CHAMBERS					
CURRENT YEAR ADT	2017					
LOCATION						
CURRENT YEAR ADT	1240					
% TRUCKS	10.0%					

LOCATION						
ADT 2019	1290					
ADT 2029	1570					
ADT 2039	1920					
% TRUCKS	10.0%					

Joshua A. Sanford

FOR Brad Lindsey, P.E.
Local Transportation Deputy Bureau Chief

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
(NPDES) PERMIT CERTIFICATION**

LPA LETTERHEAD

State Local Transportation Engineer
Alabama Department of Transportation
Montgomery, AL 36110-2060

Dear Sir:

Re: Project No. _____
Sponsor No. _____
Town/City (If Applicable) _____
County _____

This is to advise you that:

() A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT will be required from the ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (ADEM) covering stormwater run-off from construction, excavation, land clearing, or other land disturbance activities and associated areas for the above referenced project. The LPA, under authority of the LPA governing body, will be responsible for acquiring this permit prior to the project pre-construction meeting or initiation of any construction activities by county forces.

() There is no construction or other land disturbance activity being performed that will require a NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT covering stormwater run-off or any other State or Federal laws or regulations which will require a permit for the above referenced project. The total disturbance area, including equipment staging outside of the project limits, is less than 1 acre.

() ADEM has authorized an exemption for guardrail, shoulder, and minor improvements associated with roadway pavement resurfacing even if 1 acre or greater will be disturbed. It has been determined that all discharge associated with this project's activities are exempt discharges as specified in NPDES General Permit, ALR100000, Part 1.C(e). No NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT will be required from ADEM at this time. See the attached letter where ADEM has been notified of this project's exemption.

() This project **will require** a Corps of Engineers' Nationwide 404 permit. This project consists of a road crossing and involves a filled area of no more than 1/10 acres (0.04 hectares). There is no roadway fill in special aquatic sites, including wetlands. This project meets the conditions covered in the Department of Defense Regulation 33 CFR Part 330 - NATIONWIDE PERMITS and as approved in the Categorical Exclusion for the above referenced project.

() This project **will require** a Corps of Engineers' 404 permit to cover a road crossing fill consisting of more than 1/10 acres or the roadway fill occurs in special aquatic sites, including wetlands.

() This project **will not require** a Corps of Engineers' Nationwide 404 permit.

CERTIFIED BY:

LPA Representative

Date _____

Chairman, County Commission/
Mayor/City Clerk

Date _____

CONCURRED

Area Local Transportation Engineer

Date _____

NON-CONTRACT ITEMS OF WORK CERTIFICATION

LPA LETTERHEAD

(Date)

State Local Transportation Engineer
Alabama Department of Transportation
1409 Coliseum Boulevard
Montgomery, AL 36110-2060

Dear Sir:

RE: Project No. _____
Sponsor No. _____
Town/City (If Applicable) _____
County _____

This is to certify that all non-contract items identified in the Project Engineering Record (PER) to be completed prior to project letting and listed below, have been completed by LPA forces.

Sincerely,

LPA Representative

Cc: Area Local Transportation Engineer

NOTICE OF FENCE ON LPA RIGHT OF WAY

LPA LETTERHEAD

(Date)

Property Owner's Name & Address

Dear Sir or Madam:

A project has been scheduled for town/city/county Road ____, which will utilize Federal funding. During a review of the project, a fence was noted in front of your property on the town/city/county's right-of-way.

At this time, the town/city/county is not requiring removal of the fence, but this letter serves as notice to you, the owner of the item, that the following provisions apply:

1. The owner of the fence may be assuming liability if the item remains on the town/city/county's right of way.
2. In the event that the fence needs to be replaced, upgraded, refurbished for any reason, including an act of God, it must be relocated and installed outside of the right of way.
3. The fence may be required to be removed or relocated off the right of way, in the future, if in the opinion of the LPA Representative it interferes with or restricts the operation, maintenance, or improvement of the subject right of way.

It is the town/city/county's intent to record this notice in the _____ County Probate Office as an encumbrance to your property to ensure that if your property is sold, potential buyers are made aware of these provisions.

Please contact this office at the number above to discuss this notice. Thank you for your cooperation.

Yours Truly,

LPA Representative

ENCROACHMENT DESCRIPTION: FENCE- _____

RIGHT-OF-WAY WIDTH: _____

NOTIFICATION OF PROJECT EXEMPTION

LPA LETTERHEAD

(Date)

Chief, Water Division
Alabama Department of Environmental Management
1400 Coliseum Boulevard
Montgomery, AL 36110-2059

Dear Sir:

RE: Project No.
Sponsor No.
Town/City (If Applicable)
County

The above referenced project involves resurfacing with minor improvements. The existing pavement will be widened by paving shoulders 2' each side to provide enhanced safety. Excess material from widening will be placed along the existing graded shoulder that remains and/or the existing front slope or removed and disposed of in accordance with ALDOT Standard Specifications to ensure compliance with ADEM regulations. The project may also include minor drainage and guardrail improvements to accommodate the additional shoulder widening in some areas.

Our agency has determined that all discharges associated with the activities described above are "exempt discharges," as specified in NPDES General Permit, ALR100000, Part 1.C(e). Based on this determination this agency will not seek coverage under said permit for this project. This agency will implement and inspect best management practices throughout the life of the project regarding any minor land disturbance activities to ensure stormwater discharges do not result in water quality concerns and/or adversely affect state waters. Should an inspection reveal that stormwater discharges associated with the minor land disturbance activities has resulted in water quality concerns and/or a water of the state has been impacted adversely, NPDES permit coverage will be obtained.

If you have any questions, concerns, or need any further information regarding this activity, please feel free to contact by email at or by phone at.

Sincerely,

LPA Representative

Cc: File

OVERTOPPING REQUEST

LPA LETTERHEAD

(Date)

State Local Transportation Engineer
Alabama Department of Transportation
Montgomery, AL 36110-2060

Re: Project No. _____
Sponsor No. _____
Town/City (If applicable) _____
County _____

We are forwarding one set of prints of the plan & profile sheet and a partial set of bridge plans for the above referenced project. We are requesting that your office please furnish the overtopping data for this structure.

Sincerely,

LPA Representative

Copy: Area Local Transportation Engineer

PLANS, SPECIFICATIONS, AND ESTIMATE (PS&E) REVIEW – EXAMPLE

(Date)

State Local Transportation Engineer
Alabama Department of Transportation
Montgomery, AL 36110-2060

Re: Project No. _____
Sponsor _____

A PS&E Review on the above-referenced project was held on _____, at the _____ office in _____.

The following people were in attendance:

Attendees/Agency: _____

A set of plans containing comments from the Local Transportation Bureau was distributed to all attendees. The following items were discussed and agreed upon during the meeting:

General

1. The environmental document (SED) has been approved with no commitments needed.
2. No ROW acquisitions or easements will be required.
3. The ALDOT Utility Manager is coordinating with all UT owners and expects minimal conflicts.
4. The current project estimate is within the budget agreed upon by all parties.

Sheet 2

1. Planing shown on the typical sections will be changed to milling.
2. The two undercutting details will be combined into one detail and the table from the materials report will be added.

Sheet 2A

1. Note 203 is okay as is.
2. A station reference will be added to note 302.
3. The L.A. Abrasion note is not needed for this project.

Sheet 2C

1. Note 528 should reference the ALDOT Traffic Engineer rather than City Engineer.
2. The first and last sentences of note 530 will be deleted.
3. Note 531 will be omitted.

Sheet 3

1. Temporary striping, side drain pipe, and end treatments will be added to the quantities.

Sheet 4

1. The ROW limits for Sunset Drive will be added.
2. The required profile grade is okay as shown since it represents PG from typical.

Sheet 10

1. The gap between the existing and required curbs will be removed.

All other comments, as noted on the review plans, will be corrected as requested in the markups.

The LPA was advised that the revised plans and required supporting documents would need to be received by Area office within two weeks to meet the scheduled letting date.

Area Local Transportation Engineer

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ALABAMA DEPARTMENT OF TRANSPORTATION
LOCAL TRANSPORTATION BUREAU
REQUEST FOR BRIDGE HYDRAULIC DESIGN

LOCATION

1. Project No. _____ Sponsor Project No. _____
Town/City (If Applicable) _____ County: _____
2. Stream Name: _____
3. Section: _____ Township: _____ Range: _____
LPA Road No. and/or Name: _____
Sta. Existing Structure: _____ Sta. Proposed Structure: _____

GENERAL DATA

4. Drainage Area: _____
5. Extreme high-water date of occurrence: _____
Information obtained from: _____
Location of high-water: _____
Elevation of high-water: _____
6. List buildings in flood plain: _____
Location: _____ Floor Elevation: _____
7. Is there excessive local scour? Yes () No () Explain: _____

8. Is stream deepening or filling? Yes () No ()
9. Is stream widening? Yes () No () (Show direction): _____
10. Does stream carry an appreciable amount of large driftwood? Yes () No ()
11. Are there any flood studies (Flood Insurance Studies, etc.)? Yes () No ()
Type of study: _____
12. Does governing community have any policies or guidelines? Yes () No ()
Comments: _____

13. Water surface elevation at date of survey: Elevation: _____ Date: _____
14. Is there any evidence of rock outcrops or general knowledge of subsurface conditions that would prohibit the use of driven piles? Yes () No ()

PRESENT OR OLD STRUCTURE(S)

BRIDGE

- 15. Overall Floor Length: _____ Bridge Width: _____
- 16. Number and Length of Spans: _____
- 17. Superstructure: Type _____ Type of Floor: _____
- 18. Substructure: Type _____ Skew Angle: _____
- 19. Date Built: _____ BIN _____
- 20. Condition of Bridge: _____

BRIDGE CULVERT

- 21. Span: _____ Rise: _____ Number of Barrels: _____
- 22. Barrel Shape: _____ Length: _____ Skew Angle: _____
- 23. Culvert Material: _____
- 24. Culvert Invert Elevation: Inlet _____ Outlet _____
- 25. Inlet Type (see HDS5 or HY-8): _____
- 26. Date Built: _____ BIN: _____
- 27. Condition of Culvert: _____

By: _____
LPA Representative

Date: _____

**RESOLUTION (PAVEMENT PRESERVATION AND 3R)
COUNTY PROJECTS - EXAMPLE**

RESOLUTION

COUNTY OF _____

SPONSOR NO. _____

STATE OF ALABAMA

WHEREAS the County Commission of _____ County, Alabama, is desirous of constructing or improving, by force account, by contract, or both, a section of road included in the _____ County Road System and described as follows:

WHEREAS, the county agrees to all of the provisions of the County-wide agreement executed between the State and the County covering preliminary engineering by State forces and equipment on the project, and

WHEREAS, the county intends to apply for Federal Aid funds for the construction of the above referenced project, and

WHEREAS, the County agrees to all of the provisions of any agreement which has been executed or will be executed covering the construction of the project.

Done at the _____ session of the _____
of _____ County, this day of _____, 20_____.

Governing Body

Member

Chairman

Member

Member

Member

Member

Member

**RESOLUTION (PAVEMENT PRESERVATION AND 3R)
TOWN/CITY PROJECTS - EXAMPLE**

RESOLUTION

TOWN/CITY OF _____

COUNTY OF _____

SPONSOR NO. _____

STATE OF ALABAMA

WHEREAS, the Town/City of _____, Alabama, is desirous of constructing or improving, by force account, by contract, or both, a section of road included in the _____ Town/City road system and described as follows:

WHEREAS, the Town/City agrees to all of the provisions of the Town/City-wide agreement executed between the State and the Town/City covering preliminary engineering by State forces and equipment on the project, and

WHEREAS, the Town/City intends to apply for Federal Aid funds for the construction of the above referenced project, and

WHEREAS, the Town/City agrees to all of the provisions of any agreement which has been executed or will be executed covering the construction of the project.

Mayor

Date _____

I, the undersigned qualified and acting Town/City clerk of the Town/City of _____, Alabama, do hereby certify that the above and foregoing is a true copy of a resolution lawfully passed and adopted by the Town/City Council named therein at a regular meeting of such Council held on the _____ day of _____, 20____, and that such resolution is on file in the Town/City Clerk's Office.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of the Town/City on the _____ day of _____, 20____.

Town/City Clerk

**RESOLUTION (BRIDGE REPLACEMENT)
COUNTY PROJECTS - EXAMPLE**

RESOLUTION

COUNTY OF _____ SPONSOR NO _____
STATE OF ALABAMA

WHEREAS, the County Commission of _____ County, Alabama, is desirous of constructing or improving, by force account, by contract, or both, a section of road included in the _____ County Road System and described as follows:

Replacement of _____ ft. bridge over _____ on County Road No. _____ at _____.
Bridge Identification Number (BIN) _____
Sufficiency Rating - _____ Status - _____
Location Map Attached

WHEREAS, the county agrees to all of the provisions of the County-wide agreement executed between the State and the County covering preliminary engineering by State forces and equipment on the project, and

WHEREAS, the county intends to apply for Federal Aid funds for the construction of the above referenced project, and

WHEREAS, the County agrees to all of the provisions of any agreement which has been executed or will be executed covering the construction of the project.

Done at the _____ session of the _____
of _____ County, this day of _____, 20_____.

Governing Body

Member

Chairman

Member

Member

Member

Member

Member

**RESOLUTION (BRIDGE REPLACEMENT)
TOWN/CITY PROJECTS - EXAMPLE**

RESOLUTION

TOWN/CITY OF _____

COUNTY OF _____ SPONSOR NO. _____

STATE OF ALABAMA

WHEREAS, the Town/City of _____, Alabama, is desirous of constructing or improving, by force account, by contract, or both, a section of road included in the _____ Town/City road system and described as follows:

Replacement of _____ ft. bridge over _____ on Road/Street
Name at _____.
Bridge Identification Number (BIN) _____
Sufficiency Rating - _____ Status - _____
Location Map Attached

WHEREAS, the Town/City agrees to all of the provisions of the Town/City-wide agreement executed between the State and the Town/City covering preliminary engineering by State forces and equipment on the project, and

WHEREAS, the Town/City intends to apply for Federal Aid funds for the construction of the above referenced project, and

WHEREAS, the Town/City agrees to all of the provisions of any agreement which has been executed or will be executed covering the construction of the project.

Mayor Date _____

I, the undersigned qualified and acting Town/City clerk of the Town/City of _____, Alabama, do hereby certify that the above and foregoing is a true copy of a resolution lawfully passed and adopted by the Town/City Council named therein at a regular meeting of such Council held on the _____ day of _____, 20____, and that such resolution is on file in the Town/City Clerk's Office.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of the Town/City on the _____ day of _____, 20____.

Town/City Clerk

RIGHT-OF-WAY ENCROACHMENT CERTIFICATION

LPA LETTERHEAD

(Date)

State Local Transportation Engineer
Alabama Department of Transportation
1409 Coliseum Boulevard
Montgomery, AL 36110-2060

Dear Sir:

RE: Project No. _____
Sponsor No. _____
Town/City (If Applicable) _____
County _____

This is to certify that any rights-of-way encroachments, as defined within the LPA Road Design Policy, have been removed.

LPA Representative

Date

Cc: Area Local Transportation Representative

SCOPE OF WORK REVIEW - EXAMPLE

Date

To: _____
State Local Transportation Engineer
Alabama Department of Transportation
Montgomery, AL 36110-2060

From: _____
Region Engineer

By: _____
Area Local Transportation Engineer

Re: Project No. _____
Sponsor No. _____
Town/City (If Applicable) _____
County _____

Project Description: _____

Functional Classification of Road: _____
Setting (Urban vs. Rural): _____
Requested letting date: _____
Funding Source: _____
Review date: _____

Attendees/Agency: _____

The estimated current traffic volume for this road is 2052 vpd and the 2031 projected volume is 2370 vpd with 5% trucks. The design speed is 45 mph.

An analysis of the crash data indicates there were five (5) multi-vehicle and three (3) single vehicle crashes within the project limits. There was one (1) crash that resulted in a Class A (incapacitating) injury. No contributing road defects or large number of concentrated accidents were indicated, so no action needs to be taken.

The existing roadway consists of a 20 ft. wide bituminous treatment KG pavement on a full width compacted granular soil base course 6 in. thick. The roadway will need to be patched, leveled at several locations due to rutting, and widened to 22 ft. prior to resurfacing. The shoulders that now exist are 4 feet wide. The required 3 feet shoulders will be flushed with aggregate surfacing and maintained. The exiting right-of-way (ROW) is 80 ft. No additional ROW is required.

There is a total of eight (8) horizontal and ten (10) vertical curves within the project limits. Four (4) horizontal and three (3) vertical curves will not meet the 45 mph design speed. A benefit/cost analysis will be performed to determine the appropriate action (superelevation corrections or horizontal alignment signs per the MUTCD) that may be required for the horizontal curves that do not meet the design speed. One (1) of the vertical curves that does not meet the design speed is a crest located near an intersection, so the appropriate warning signs per the MUTCD will be placed to enhance safety in the area by county forces, prior to project authorization.

There is one bridge located within the project limits (Structure Number 026-70-143Z, BIN 026942) from station 5+00 to station 6+10. This bridge has a substandard guardrail system which must be removed; no end anchors are present. The existing rail is a "Class A" steel beam guardrail with post spacing of 6 ft.-3 in. on center. Guardrail and guardrail end anchors will be installed to meet MASH standards. The clear width (i.e., curb to curb width) is 22 ft. and the bridge is 110 ft. long. Since this is a narrow bridge, narrow bridge signs will be placed at the structure by county forces, prior to project authorization. This structure is not posted and will carry legal loads. It has a sufficiency rating of 68.

There are currently 2:1 existing side slopes from Sta 10+00 to Sta 15+50 left of centerline. Since the desirable clear zone is 7', a benefit/cost analysis will be performed to determine if these slopes should be flattened to 3:1. All other areas in the project limits will provide at minimum 10' of clear zone once county forces remove two (2) trees right of Sta 10+42 and extend three (3) cross drain pipes, prior to project authorization. All other cross drain structures are sufficient in length and construction.

An existing power pole right of station 9+22 is in conflict and must be relocated. The appropriate utility agreement and relocation details will be provided by the County.

The following items of work are to be performed as part of the contract items of work:

1. Patch, level, widen the roadway to provide a 22' traveled way (2-11'lanes). Flush and maintain required 3' shoulders utilizing aggregate surfacing.
2. Provide superelevation corrections at horizontal curves (if necessary).
3. Provide new guardrail (Class B) and end anchors at the existing bridge. Type Special and Type 20 (MASH) end anchors will be installed.
4. Flatten 2:1 existing side slopes (Sta 10+00 to Sta 15+50) to 3:1 (if necessary).
5. Place new centerline and edge striping.
6. Place stop lines (markings) as necessary throughout the project limits.

LPA forces will perform the following items of work at no cost to the project, prior to project authorization:

1. Install permanent traffic signs as required by the MUTCD (horizontal alignment signs if necessary, vertical grade signs, and narrow bridge signs).
2. Remove two trees right of station 10+42.
3. Extend three cross drain pipes.

This information is submitted for your use and further handling.

SLOPE WAIVER REQUEST - EXAMPLE

To: _____
State Local Transportation Engineer
Alabama Department of Transportation
Montgomery, AL 36110-2060

Re: Project No. _____
Sponsor No. _____
Town/City (If Applicable) _____
County _____

We respectfully request a waiver from the required 3:1 slopes to use 2:1 slopes for the areas in the table shown below:

BEGIN STATION	END STATION	SIDE
100 + 50	103 +75	BOTH
108 + 20	112 + 10	LEFT
128 + 70	129+ 15	BOTH
142 + 20	144 + 35	RIGHT

This request is due to right-of-way constraints, as shown on the attached cross sections. These areas shall be protected by guardrail, and erosions control product S2 shall be used for stabilization of the proposed slopes. An updated page 5 of the PER has been attached as an addendum for the PER (approved _____) to reflect the use of the 2:1 slopes. This revised page has updated entries for Clear Zone Width Provided, Maximum Frontslope Required, and Waiver Request in the Roadside Design section that reflect the use of the 2:1 slopes.

Please contact us if you have any questions or need any additional information.

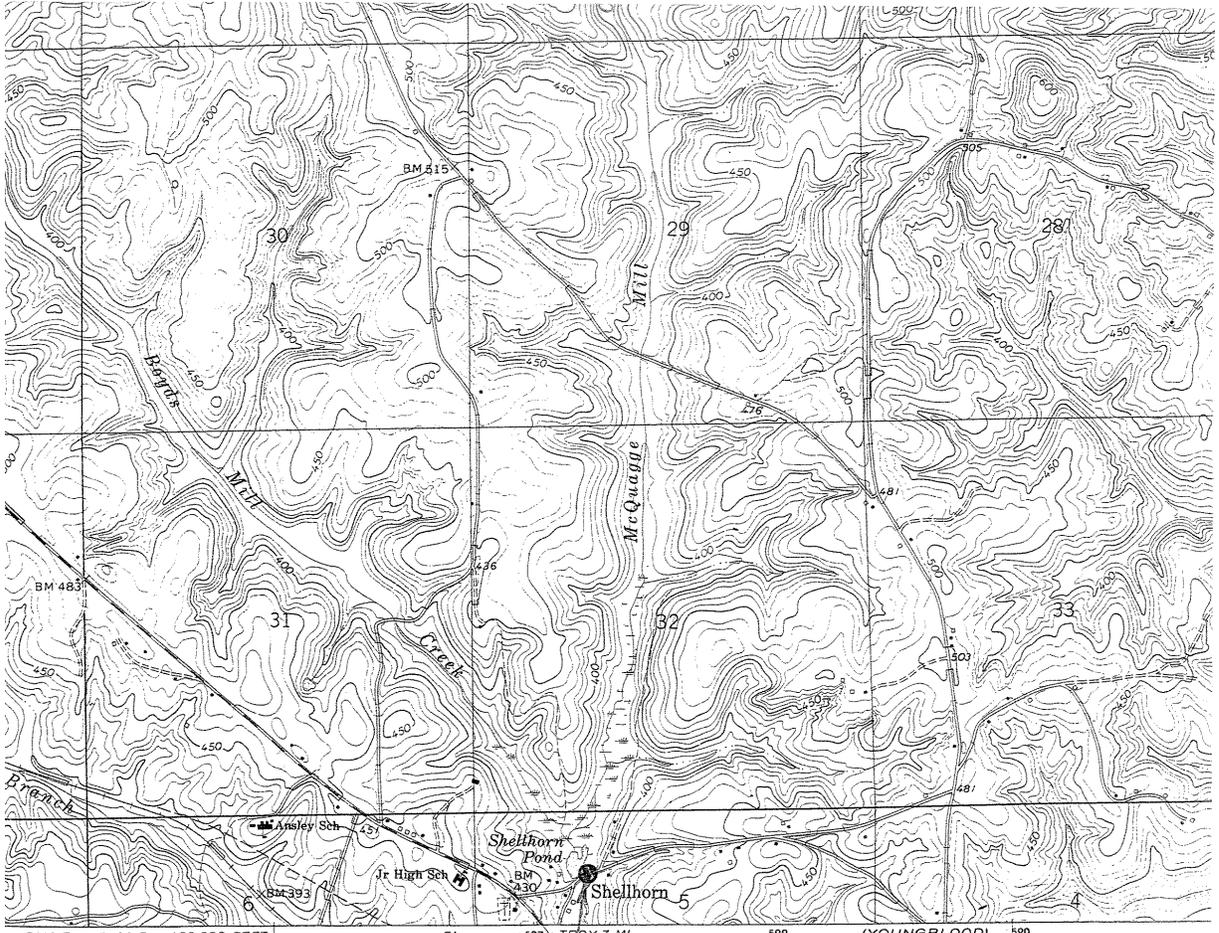
LPA Representative

Date

Concurrence _____
State Local Transportation Engineer

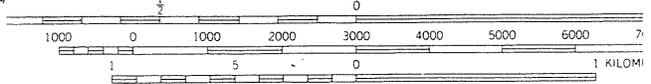
Cc: Area Local Transportation Representative

USGS MAP - EXAMPLE

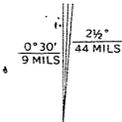


PROJECT NO. PCP 55-18-01
 ACGBBRZ-5500()
 BOYDS MILL CREEK; CO. RD. 13

SCALE 1:24 000



CONTOUR INTERVAL 10 FEET
 DATUM IS MEAN SEA LEVEL



ANISLEY QUAD

cked

UTM GRID AND 1968 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS

Appendix A

Tables and Figures

The following tables and figures have been taken from the 2018 AASHTO Green Book:

Table 5-1. Minimum Design Speeds for Local Roads in Rural Areas

Type of Terrain	U.S. Customary					Metric				
	Design Speed (mph) for Specified Design Volume (veh/day)					Design Speed (km/h) for Specified Design Volume (veh/day)				
	under 50	50 to 250	250 to 400	400 to 2,000	2,000 and over	under 50	50 to 250	250 to 400	400 to 2,000	2,000 and over
Level	30	30	40	50	50	50	50	60	80	80
Rolling	20	30	30	40	40	30	50	50	60	60
Mountainous	20	20	20	30	30	30	30	30	50	50

Table 5-2. Maximum Grades for Local Roads in Rural Areas

Type of Terrain	U.S. Customary										Metric								
	Maximum Grade (%) for Specified Design Speed (mph)										Maximum Grade (%) for Specified Design Speed (km/h)								
	15	20	25	30	35	40	45	50	55	60	20	30	40	50	60	70	80	90	100
Level	9	8	7	7	7	7	7	6	6	5	9	8	7	7	7	7	6	6	5
Rolling	12	11	11	10	10	10	9	8	7	6	12	11	11	10	10	9	8	7	6
Mountainous	17	16	15	14	14	13	12	10	10	—	17	16	15	14	13	12	10	10	—

NOTE: Short lengths of grade in rural areas, such as grades less than 500 ft [150 m] in length, one-way downgrades, and grades on low-volume roads (AADT less than 2,000 veh/day) may be up to 2 percent steeper than the grades shown in this table.

Table 5-3. Design Controls for Stopping Sight Distance and for Crest and Sag Vertical Curves

U.S. Customary				Metric			
Initial Speed (mph)	Design Stopping Sight Distance (ft)	Rate of Vertical Curvature, K^a (ft/%)		Initial Speed (km/h)	Design Stopping Sight Distance (m)	Rate of Vertical Curvature, K^a (m/%)	
		Crest	Sag			Crest	Sag
15	80	3	10	20	20	1	3
20	115	7	17	30	35	2	6
25	155	12	26	40	50	4	9
30	200	19	37	50	65	7	13
35	250	29	49	60	85	11	18
40	305	44	64	70	105	17	23
45	360	61	79	80	130	26	30
50	425	84	96	90	160	39	38
55	495	114	115	100	185	52	45
60	570	151	136				
65	645	193	157				

^a Rate of vertical curvature, K , is the length of curve per percent algebraic difference in the intersecting grades (i.e., $K = L/A$). (See Sections 3.2.2 and 3.4.6 for details.)

Table 5-4. Design Controls for Crest Vertical Curves Based on Passing Sight Distance

U.S. Customary			Metric		
Design Speed (mph)	Design Passing Sight Distance (ft)	Rate of Vertical Curvature, K^a (ft/%)	Design Speed (km/h)	Design Passing Sight Distance (m)	Rate of Vertical Curvature, K^a (m/%)
20	400	57	30	120	17
25	450	72	40	140	23
30	500	89	50	160	30
35	550	108	60	180	38
40	600	129	70	210	51
45	700	175	80	245	69
50	800	229	90	280	91
55	900	289	100	320	119
60	1000	357			
65	1100	432			

^a Rate of vertical curvature, K , is the length of curve per percent algebraic difference in the intersecting grades (i.e., $K = L/A$). (See Sections 3.2.4 and 3.4.6 for details.)

Table 5-5. Minimum Width of Traveled Way and Shoulders for Two-Lane Local Roads in Rural Areas

U.S. Customary				Metric			
Design Speed (mph)	Minimum Width of Traveled Way (ft) for Specified Design Volume (veh/day)			Design Speed (km/h)	Minimum Width of Traveled Way (m) for Specified Design Volume (veh/day)		
	under 400	400 to 2000	over 2000		under 400	400 to 2000	over 2000
15	18	20 ^a	22	20	5.4	6.0 ^a	6.6
20	18	20 ^a	22	30	5.4	6.0 ^a	6.6
25	18	20 ^a	22	40	5.4	6.0 ^a	6.6
30	18	20 ^a	22	50	5.4	6.0 ^a	6.6
35	18	20 ^a	22	60	5.4	6.0 ^a	6.6
40	18	20 ^a	22	70	6.0	6.6	6.6
45	20	22	22	80	6.0	6.6	6.6
50	20	22	22	90	6.6	6.6	6.6 ^b
55	22	22	22b	100	6.6	6.6	6.6 ^b
60	22	22	22b	All speeds	Width of graded shoulder on each side of the road (m)		
65	22	22	22b		0.6	1.0	1.8
All speeds	Width of graded shoulder on each side of the road (ft)						
	2	3	6				

- ^a For roads in mountainous terrain with design volume of 400 to 600 veh/day, an 18-ft [5.4-m] traveled-way width may be used.
- ^b Consider using traveled-way width of 24 ft [7.2 m] where substantial truck volumes are present or agricultural equipment frequently uses the road

Table 5-6. Minimum Clear Roadway Widths and Design Loadings for New and Reconstructed Bridges

U.S. Customary			Metric		
Design Volume (veh/day)	Minimum Clear Roadway Width for Bridges ^a	Design Loading Structural Capacity	Design Volume (veh/day)	Minimum Clear Roadway Width for Bridges ^a	Design Loading Structural Capacity
under 400	Traveled way + 2 ft (each side)	HL-93	under 400	Traveled way + 0.6 m (each side)	HL-93
400 to 2,000	Traveled way + 3 ft (each side)	HL-93	400 to 2,000	Traveled way + 1.0 m (each side)	HL-93
over 2,000	Approach roadway width ^b	HL-93	over 2,000	Approach roadway width ^b	HL-93

^a Where the approach roadway width (traveled way plus shoulders) is surfaced, that surface width should be carried across the structures.

^b For bridges in excess of 100 ft [30 m] in length, the minimum width of traveled way plus 3 ft [1 m] on each side is acceptable.

Table 5-7. Maximum Grades for Recreational Roads

Type of Terrain	U.S. Customary						Metric				
	Maximum Grade (%) for a Specified Design Speed (mph)						Maximum Grade (%) for a Specified Design Speed (km/h)				
	15	20	25	30	35	40	20	30	40	50	60
Level	8	8	7	7	7	7	8	8	7	7	7
Rolling	12	11	10	10	9	9	12	11	10	10	9
Mountainous	18	16	15	14	13	12	18	16	15	14	12

Table 5-8. Design Controls for Stopping Sight Distance and for Crest and Sag Vertical Curves—Recreational Roads

U.S. Customary			
Initial Speed (mph)	Design Stopping Sight Distance (ft)	Rate of Vertical Curvature, K^a (ft/%)	
		Crest	Sag
Two-lane roads and one-way, single-lane roads			
15	80	3	10
20	115	7	17
25	155	12	26
30	200	19	37
35	250	29	49
40	305	44	64
Two-way, single-lane roads			
15	160	12	27
20	230	25	44
25	310	45	65
30	400	74	89
35	500	116	117
40	610	172	147

Metric			
Initial Speed (km/h)	Design Stopping Sight Distance (m)	Rate of Vertical Curvature, K^a (m/%)	
		Crest	Sag
Two-lane roads and one-way, single-lane roads			
20	20	1	3
30	35	2	6
40	50	4	9
50	65	7	13
60	85	11	18
Two-way, single-lane roads			
20	40	2	6
30	70	7	13
40	100	15	21
50	130	26	29
60	170	44	40

^a Rate of vertical curvature, K , is the length of curve per percent algebraic difference in the intersecting grades (i.e., $K = L/A$). (See Sections 3.2.2 and 3.4.6 for details.)

Table 5-9. Guidelines for Minimum Radius of Curvature for New Construction of Unpaved Surfaces with No Superelevation [adapted from (20)]

U.S. Customary					
Design speed (mph)	Minimum radius (ft) for specified traction coefficient				
	0.7	0.6	0.5	0.4	0.3
15	50	50	60	75	100
20	75	90	110	135	180
25	120	140	170	210	280
30	170	200	240	300	400
35	235	275	330	410	545
40	305	360	430	535	715
45	390	450	540	675	900

Metric					
Design speed (km/h)	Minimum radius (m) for specified traction coefficient				
	0.7	0.6	0.5	0.4	0.3
20	15	15	15	20	25
30	20	25	30	35	50
40	40	45	50	65	85
50	60	70	80	100	135
60	85	95	115	145	190
70	110	130	155	195	260

Table 5-10. Design Controls for Passing Sight Distance for Crest Vertical Curves—Recreational Roads

U.S. Customary			Metric		
Design Speed (mph)	Design Passing Sight Distance (ft)	Rate of Vertical Curvature, K^a (ft/%)	Design Speed (km/h)	Design Passing Sight Distance (m)	Rate of Vertical Curvature, K^a (m/%)
20	400	57	30	120	17
25	450	72	40	140	23
30	500	89	50	160	30
35	550	108	60	180	38
40	600	129	70	210	51
45	700	175	80	245	69
50	800	229	90	280	91
55	900	289	100	320	119
60	1,000	357			
65	1,100	432			

^a Rate of vertical curvature, K , is the length of curve per percent algebraic difference in the intersecting grades (i.e., $K = L/A$). (See Sections 3.2.4 and 3.4.6 for details.)

Table 5-11. Widths of Traveled Way and Shoulders—Recreational Roads

Type of Road	U.S. Customary		Metric	
	Traveled-Way Width (ft) ^a	Shoulder Width (ft)	Traveled-Way Width (m) ^a	Shoulder Width (m)
Primary access roads (two lanes)	22–24	2	6.6–7.2	0.6–1.2
Circulation roads (two lanes)	20–22	2	6.0–6.6	0.6–1.2
Area roads (two lanes)	18–20	0–2	5.4–6.0	0.0–0.6
Area roads (one lane) ^b	12	0–1	3.6	0.0–0.3

^a Widening on the inside of sharp curves should be provided; additional width equal to 400 [35] divided by the curve radius in feet [meters] is recommended.

^b Roadway widths greater than 14 ft [4.2 m] should not be used because drivers will tend to use the facility as a two-lane road.

Table 5-12. Design Speeds for Resource Recovery and Local Service Roads

Type of Terrain	U.S. Customary		Metric	
	Design Speed (mph) for Roads with Specified Number of Lanes		Design Speed (km/h) for Roads with Specified Number of Lanes	
	Single Lane	Two Lanes	Single Lane	Two Lanes
Level	30	40	50	60
Rolling	20	30	30	50
Mountainous	10	20	15	30

Table 6-1. Minimum Design Speeds for Collectors in the Rural Context

Type of Terrain	U.S. Customary			Metric		
	Design speed (mph) for Specified Design Volume (veh/day)			Design speed (km/h) for Specified Design Volume (veh/day)		
	0 to 400	400 to 2,000	over 2,000	0 to 400	400 to 2,000	over 2,000
Level	40	50	60	60	80	100
Rolling	30	40	50	50	60	80
Mountainous	20	30	40	30	50	60

Note: Where practical, design speeds higher than those shown should be considered.

Table 6-2. Maximum Grades for Collectors in Rural Areas

Type of Terrain	U.S. Customary										Metric							
	Maximum Grade (%) for Specified Design Speed (mph)										Maximum Grade (%) for Specified Design Speed (km/h)							
	20	25	30	35	40	45	50	55	60		30	40	50	60	70	80	90	100
Level	7	7	7	7	7	7	6	6	5		7	7	7	7	7	6	6	5
Rolling	10	10	9	9	8	8	7	7	6		10	10	9	8	8	7	7	6
Mountainous	12	11	10	10	10	10	9	9	8		12	11	10	10	10	9	9	8

Note: Short lengths of grade in rural areas, such as grades less than 500 ft [150 m] in length, one-way downgrades, and grades on low-volume rural collectors (AADT less than 2,000 veh/day) may be up to 2 percent steeper than the grades shown above.

Table 6-3. Design Controls for Stopping Sight Distance and for Crest and Sag Vertical Curves

U.S. Customary				Metric			
Design Speed	Design Stopping Sight Distance	Rate of Vertical Curvature, K^a (ft/%)		Design Speed	Design Stopping Sight Distance	Rate of Vertical Curvature, K^a (m/%)	
		crest	sag			Crest	Sag
(mph)	(ft)			(km/h)	(m)		
20	115	7	17	30	35	2	6
25	155	12	26	40	50	4	9
30	200	19	37	50	65	7	13
35	250	29	49	60	85	11	18
40	305	44	64	70	105	17	23
45	360	61	79	80	130	26	30
50	425	84	96	90	160	39	38
55	495	114	115	100	185	52	45
60	570	151	136				
65	645	193	157				

^a Rate of vertical curvature, K , is the length of curve per percent algebraic difference in the intersecting grades (i.e., $K = L/A$). (See Sections 3.2.2 and 3.4.6 for details.)

Table 6-4. Design Controls for Crest Vertical Curves Based on Passing Sight Distance

U.S. Customary			Metric		
Design Speed (mph)	Design Passing Sight Distance (ft)	Rate of Vertical Curvature, K^a (ft/%)	Design Speed (km/h)	Design Passing Sight Distance (m)	Rate of Vertical Curvature, K^a (m/%)
20	400	57	30	120	17
25	450	72	40	140	23
30	500	89	50	160	30
35	550	108	60	180	38
40	600	129	70	210	51
45	700	175	80	245	69
50	800	229	90	280	91
55	900	289	100	320	119
60	1,000	357			
65	1,100	432			

^a Rate of vertical curvature, K , is the length of curve per percent algebraic difference in the intersecting grades (i.e., $K = L/A$). (See Sections 3.2.4 and 3.4.6 for details.)

Table 6-5. Minimum Width of Traveled Way and Shoulders

U.S. Customary				Metric			
Design Speed (mph)	Minimum Width of Traveled Way (ft) for Specified Design Volume (veh/day)			Design Speed (km/h)	Minimum Width of Traveled Way (m) for Specified Design Volume (veh/day)		
	under 400	400 to 2000	over 2000		Under 400	400 to 2000	over 2000
20	20 ^a	20	22	30	6.0 ^a	6.0	6.6
25	20 ^a	20	22	40	6.0 ^a	6.0	6.6
30	20 ^a	20	22	50	6.0 ^a	6.0	6.6
35	20 ^a	22	22	60	6.0 ^a	6.6	6.6
40	20 ^a	22	22	70	6.0	6.6	6.6
45	20	22	22	80	6.0	6.6	6.6
50	20	22	22	90	6.6	6.6	6.6 ^b
55	22	22	22 ^b	100	6.6	6.6	6.6 ^b
60	22	22	22 ^b				
65	22	22	22 ^b				
All Speeds	Width of Shoulder on Each Side of Road (ft)			All Speeds	Width of Shoulder on Each Side of Road (m)		
	2	4	6		0.6	1.5	2.4

^a An 18-ft [5.4-m] minimum width may be used for roadways with design volumes under 250 veh/day.

^b Consider using lane width of 24 ft [7.2 m] where substantial truck volumes are present or agricultural equipment frequently uses the road.

Note: See text for roadside barrier and offtracking considerations.

Table 6-6. Minimum Roadway Widths and Design Loadings for New and Reconstructed Bridges

U.S. Customary			Metric		
Design Volume (veh/day)	Minimum Clear Roadway Width for Bridges ^a	Design Loading Structural Capacity	Design Volume (veh/day)	Minimum Clear Roadway Width for Bridges ^a	Design Loading Structural Capacity
under 400	Traveled way + 2 ft (each side)	HL-93	under 400	Traveled way + 0.6 m (each side)	HL-93
400 to 2,000	Traveled way + 4 ft (each side) ^b	HL-93	400 to 2,000	Traveled way + 1.2 m (each side) ^b	HL-93
over 2,000	Approach roadway (width) ^b	HL-93	over 2,000	Approach roadway (width) ^b	HL-93

- a Where the approach roadway width (traveled way plus shoulders) is surfaced, that surface width should be carried across the structures.
- b For bridges in excess of 100 ft [30 m] in length, the minimum width of traveled way plus 3 ft [1 m] on each side is acceptable.

Table 6-7. Maximum Grades for Collector Streets in the Urban and Urban Core Contexts

Type of Terrain	U.S. Customary										Metric							
	Maximum Grade (%) for Specified Design Speed (mph)										Maximum Grade (%) for Specified Design Speed (km/h)							
	20	25	30	35	40	45	50	55	60	30	40	50	60	70	80	90	100	
Level	9	9	9	9	9	8	7	7	6	9	9	9	9	8	7	7	6	
Rolling	12	12	11	10	10	9	8	8	7	12	12	11	10	9	8	8	7	
Mountainous	14	13	12	12	12	11	10	10	9	14	13	12	12	11	10	10	9	

Table 7-1. Minimum Sight Distances for Arterials in Rural Areas

U.S. Customary			Metric		
Design Speed (mph)	Minimum Stopping Sight Distance (ft)	Minimum Passing Sight Distance (ft)	Design Speed (km/h)	Minimum Stopping Sight Distance (m)	Minimum Passing Sight Distance (m)
20	115	400	30	35	120
25	155	450	40	50	140
30	200	500	50	65	160
35	250	550	60	85	180
40	305	600	70	105	210
45	360	700	80	130	245
50	425	800	90	160	280
55	495	900	100	185	320
60	570	1000	110	220	355
65	645	1100	120	250	395
70	730	1200	130	285	440
75	820	1300			
80	910	1400			

Table 7-2. Maximum Grades for Arterials in Rural Areas

Type of Terrain	U.S. Customary											Metric									
	Maximum Grade (%) for Specified Design Speed (mph)											Maximum Grade (%) for Specified Design Speed (km/h)									
	20	25	30	35	40	45	50	55	60	65 and above	30	40	50	60	70	80	90	100	110 and above		
Level	5	5	5	5	5	5	4	4	3	3	5	5	5	5	5	4	4	3	3		
Rolling	8	8	7	7	6	6	5	5	4	4	8	8	7	6	6	5	5	4	4		
Mountainous	10	9	8	8	8	7	7	6	6	5	10	9	8	8	7	7	6	6	5		

Table 7-3. Minimum Width of Traveled Way and Usable Shoulder for Arterials in Rural Areas

U.S. Customary				Metric			
Design Speed (mph)	Minimum Width of Traveled Way (ft) ^a for Specified Design Volume (veh/day)			Design Speed (km/h)	Minimum Width of Traveled Way (m) ^a for Specified Design Volume (veh/day)		
	under 400 ^c	400 to 2000	over 2000		under 400 ^c	400 to 2000	over 2000
40	20	22	24	60	6.0	6.6	7.2
45	20	22	24	70	6.0	6.6	7.2
50	22	22	24	80	6.6	6.6	7.2
55	22	24	24	90	6.6	7.2	7.2
60	22	24	24	100	6.6	7.2	7.2
65	22	24	24	110	6.6	7.2	7.2
70	22	24	24	120	6.6	7.2	7.2
75	22	24	24	130	6.6	7.2	7.2
All speeds	Width of Usable Shoulder (ft) ^b			All speeds	Width of Usable Shoulder (m) ^b		
	4	6	8		1.2	1.8	2.4

^a On roadways to be reconstructed, an existing 22-ft [6.6-m] traveled way may be retained where the alignment is satisfactory and there is no crash pattern suggesting the need for widening.

^b Preferably, usable shoulders on arterials in rural areas should be paved; however, where volumes are low or a narrow section is needed to reduce construction effects, the paved shoulder width may be a minimum of 2 ft [0.6 m] provided that bicycle use is not intended to be accommodated on the shoulder.

^c Where frequent use by trucks is anticipated, additional traveled-way width should be considered.

Table 7-4a. Maximum Grades for Arterials in Urban Areas, U.S. Customary

Type of Terrain	Maximum Grade (%) for Specified Design Speed (mph)								
	20	25	30	35	40	45	50	55	60
Level	8	7	7	7	7	6	6	5	5
Rolling	10	10	9	8	8	7	7	6	6
Mountainous	13	12	11	10	10	9	9	8	8

Table 7-4b. Maximum Grades for Arterials in Urban Areas, Metric

Type of Terrain	Maximum Grade (%) for Specified Design Speed (km/h)							
	30	40	50	60	70	80	90	100
Level	8	7	7	7	6	6	5	5
Rolling	10	10	9	8	7	7	6	6
Mountainous	11	12	11	10	9	9	8	8

Table 9-7. Design Intersection Sight Distance—Case B1, Left Turn from Stop

U.S. Customary				Metric			
Design Speed (mph)	Stopping Sight Distance (ft)	Intersection Sight Distance for Passenger Cars		Design Speed (km/h)	Stopping Sight Distance (m)	Intersection Sight Distance for Passenger Cars	
		Calculated (ft)	Design (ft)			Calculated (m)	Design (m)
15	80	165.4	170	20	20	41.7	45
20	115	220.5	225	30	35	62.6	65
25	155	275.6	280	40	50	83.4	85
30	200	330.8	335	50	65	104.3	105
35	250	385.9	390	60	85	125.1	130
40	305	441.0	445	70	105	146.0	150
45	360	496.1	500	80	130	166.8	170
50	425	551.3	555	90	160	187.7	190
55	495	606.4	610	100	185	208.5	210
60	570	661.5	665	110	220	229.4	230
65	645	716.6	720	120	250	250.2	255
70	730	771.8	775	130	285	271.1	275
75	820	826.9	830				
80	910	882.0	885				

Note: Intersection sight distance shown is for a stopped passenger car to turn left onto a two-lane highway with no median and grades 3 percent or less. For other conditions, the time gap should be adjusted and the sight distance recalculated.

Table 9-9. Design Intersection Sight Distance—Case B2, Right Turn from Stop

U.S. Customary				Metric			
Design Speed (mph)	Stopping Sight Distance (ft)	Intersection Sight Distance for Passenger Cars		Design Speed (km/h)	Stopping Sight Distance (m)	Intersection Sight Distance for Passenger Cars	
		Calculated (ft)	Design (ft)			Calculated (m)	Design (m)
15	80	143.3	145	20	20	36.1	40
20	115	191.1	195	30	35	54.2	55
25	155	238.9	240	40	50	72.3	75
30	200	286.7	290	50	65	90.4	95
35	250	334.4	335	60	85	108.4	110
40	305	382.2	385	70	105	126.5	130
45	360	430.0	430	80	130	144.6	145
50	425	477.8	480	90	160	162.6	165
55	495	525.5	530	100	185	180.7	185
60	570	573.3	575	110	220	198.8	200
65	645	621.1	625	120	250	216.8	220
70	730	668.9	670	130	285	234.9	235
75	820	716.6	720				
80	910	764.4	765				

Note: Intersection sight distance shown is for a stopped passenger car to turn right onto or to cross a two-lane roadway with no median and with grades of 3 percent or less. For other conditions, the time gap should be adjusted and the sight distance recalculated.

Table 9-11. Design Intersection Sight Distance—Case B3, Crossing Maneuver

U.S. Customary				Metric			
Design Speed (mph)	Stopping Sight Distance (ft)	Intersection Sight Distance for Passenger Cars		Design Speed (km/h)	Stopping Sight Distance (m)	Intersection Sight Distance for Passenger Cars	
		Calculated (ft)	Design (ft)			Calculated (m)	Design (m)
15	80	143.3	145	20	20	36.1	40
20	115	191.1	195	30	35	54.2	55
25	155	238.9	240	40	50	72.3	75
30	200	286.7	290	50	65	90.4	95
35	250	334.4	335	60	85	108.4	110
40	305	382.2	385	70	105	126.5	130
45	360	430.0	430	80	130	144.6	145
50	425	477.8	480	90	160	162.6	165
55	495	525.5	530	100	185	180.7	185
60	570	573.3	575	110	220	198.8	200
65	645	621.1	625	120	250	216.8	220
70	730	668.9	670	130	285	234.9	235
75	820	716.6	720				
80	910	764.4	765				

Note: Intersection sight distance shown is for a stopped passenger car to turn right onto or to cross a two-lane roadway with no median and with grades of 3 percent or less. For other conditions, the time gap should be adjusted and the sight distance recalculated.

Table 9-15. Design Intersection Sight Distance—Case C2, Left or Right Turn at Yield-Controlled Intersections

U.S. Customary			
Design Speed (mph)	Stopping Sight Distance (ft)	Length of Leg	
		Passenger Cars	
		Calculated (ft)	Design (ft)
15	80	176.4	180
20	115	235.2	240
25	155	294.0	295
30	200	352.8	355
35	250	411.6	415
40	305	470.4	475
45	360	529.2	530
50	425	588.0	590
55	495	646.8	650
60	570	705.6	710
65	645	764.4	765
70	730	823.2	825
75	820	882.0	885
80	910	940.8	945

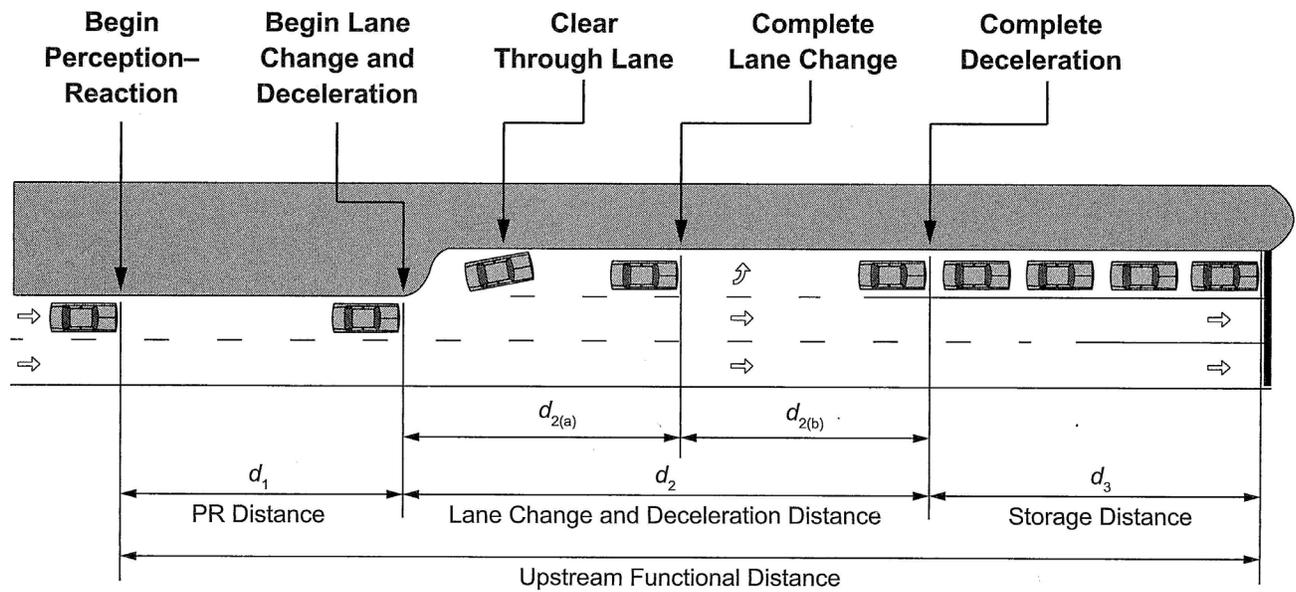
Metric			
Design Speed (km/h)	Stopping Sight Distance (m)	Length of Leg	
		Passenger Cars	
		Calculated (m)	Design (m)
20	20	44.5	45
30	35	66.7	70
40	50	89.0	90
50	65	111.2	115
60	85	133.4	135
70	105	155.7	160
80	130	177.9	180
90	160	200.2	205
100	185	222.4	225
110	220	244.6	245
120	250	266.9	270
130	285	289.1	290

Note: Intersection sight distance shown is for a passenger car making a right or left turn without stopping onto a two-lane road.

Table 9-17. Intersection Sight Distance—Case F, Left Turn from the Major Road

U.S. Customary				Metric			
Design Speed (mph)	Stopping Sight Distance (ft)	Intersection Sight Distance		Design Speed (km/h)	Stopping Sight Distance (m)	Intersection Sight Distance	
		Passenger Cars				Passenger Cars	
		Calculated (ft)	Design (ft)			Calculated (m)	Design (m)
15	80	121.3	125	20	20	30.6	35
20	115	161.7	165	30	35	45.9	50
25	155	202.1	205	40	50	61.2	65
30	200	242.6	245	50	65	76.5	80
35	250	283.0	285	60	85	91.7	95
40	305	323.4	325	70	105	107.0	110
45	360	363.8	365	80	130	122.3	125
50	425	404.3	405	90	160	137.6	140
55	495	444.7	445	100	185	152.9	155
60	570	485.1	490	110	220	168.2	170
65	645	525.5	530	120	250	183.5	185
70	730	566.0	570	130	285	198.8	200
75	820	606.4	610				
80	910	646.8	650				

Note: Intersection sight distance shown is for a passenger car making a left turn from an undivided roadway. For other conditions and design vehicles, the time gap should be adjusted and the sight distance recalculated.



Where:

d_1 = distance traveled while driver recognizes upcoming turn lane and prepares for the left-turn maneuver

$d_{2(a)}$ = distance traveled while decelerating and changing lanes from the through-lane into the turn lane

$d_{2(b)}$ = distance traveled during deceleration after lane change

d_3 = distance provided for the storage of the queue of stopped vehicles waiting to turn

Figure 9-32. Functional Area Upstream of an Intersection Illustrating Components of Deceleration Lane Length

Table 9-20. Desirable Lane Change and Deceleration Distances

U.S. Customary		Metric	
Speed (mph)	Lane Change and Deceleration Distance (ft)	Speed (km/h)	Lane Change and Deceleration Distance (m)
20	70	30	25
25	105	40	35
30	150	50	50
35	205	55	65
40	265	65	85
45	340	70	105
50	415	80	130
55	505	90	155
60	600	95	185
65	700	105	215
70	815	110	250

Notes:

1. The lane change and deceleration lengths are shown as d_2 in Figure 9-32.
2. Deceleration lengths are based on a 6.5 ft/s^2 [2.0 m/s^2] deceleration throughout the entire length. Larger deceleration rates may be used when deceleration lengths based on 6.5 ft/s^2 [2.0 m/s^2] are impractical.
3. Access points should not be located in the deceleration areas.

Table 2-5a. Minimum Turning Radii of Design Vehicles (U.S. Customary Units)

Design Vehicle Type	Passenger Car	Single-Unit Truck	Single-Unit Truck (Three Axle)	Intercity Bus (Motor Coach)		City Transit Bus	Conventional School Bus (65 pass.)	Large ^a School Bus (84 pass.)	Articulated Bus	Intermediate Semi-trailer
Symbol	P	SU-30	SU-40	BUS-40	BUS-45	CITY-BUS	S-BUS36	S-BUS40	A-BUS	WB-40
Minimum Design Turning Radius (ft)	23.8	41.8	51.2	41.7	44.0	41.6	38.6	39.1	39.4	39.9
Centerline Turning Radius (CTR) (ft)	21.0	38.0	47.4	37.8	40.2	37.8	34.9	35.4	35.5	36.0
Minimum Inside Radius (ft)	14.4	28.4	36.4	24.3	24.7	24.5	23.8	25.3	21.3	19.3
Design Vehicle Type	Interstate Semitrailer		"Double Bottom" Combination	Rocky Mtn Double	Triple Semi-trailer/Trailers	Turnpike Double Semi-trailer/Trailer	Motor Home	Car and Camper Trailer	Car and Boat Trailer	Motor Home and Boat Trailer
Symbol	WB-62*	WB-67**	WB-67D	WB-92D	WB-100T	WB-109D*	MH	P/T	P/B	MH/B
Minimum Design Turning Radius (ft)	44.8	44.8	44.8	82.0	44.8	59.9	39.7	32.9	23.8	49.8
Centerline ^b Turning Radius (CTR) (ft)	41.0	41.0	40.9	78.0	40.9	55.9	36.0	30.0	21.0	46.0
Minimum Inside Radius (ft)	7.4	1.9	19.1	55.6	9.7	13.8	26.0	18.3	8.0	35.0

* Design vehicle with 48-ft trailer as adopted in 1982 Surface Transportation Assistance Act (STAA).

** Design vehicle with 53-ft trailer as grandfathered in with 1982 Surface Transportation Assistance Act (STAA).

a School buses are manufactured from 42-passenger to 84-passenger sizes. This corresponds to wheelbase lengths of 11.0 to 20.0 ft, respectively. For these different sizes, the minimum design turning radii vary from 28.1 to 39.1 ft and the minimum inside radii vary from 17.7 to 25.3 ft.

b The turning radius assumed by a designer when investigating possible turning paths is set at the centerline of the front axle of a vehicle. If the minimum turning path is assumed, the CTR approximately equals the minimum design turning radius minus one-half the front width of the vehicle.

References

1. *A Policy on Geometric Design of Highways and Streets*. American Association of State Highways and Transportation Officials, Washington, D.C., 2018