

**Arizona Department of Transportation  
Intermodal Transportation Division  
Roadway Engineering Group  
Predesign Section**

**Project Scoping Document Guidelines**

**Revised  
September, 2011**

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# 1. Introduction

## 1.1. Project Scoping

Project Scoping is an integral part of the [ADOT Project Development Process \(ADOT internal link only\)](#). The detailed information provided from the Scoping Phase is used in the [Priority Programming Process](#) by the Multimodal Planning Division (MPD) for inclusion of projects for construction in the Five-Year Transportation Facilities Construction Program.

Project Scoping defines the design concept and cost for projects which have been identified for development through the ADOT Planning Process. Needs are considered through the planning process and solutions that are consistent with the [Vision for Arizona Transportation \(bqAZ\)](#) and the [State's Long-Range Plan \(What Moves You Arizona\)](#) are identified for development. Individual potential highway projects come from various organizations including ADOT Districts, other state agencies, local councils of governments, local governments, and the federal government. A list of potential projects submitted by the initiating entities is assembled annually by MPD. Working with the Intermodal Transportation Division's (ITD) senior staff, the MPD staff critique and prioritize the potential projects. MPD staff and ADOT management evaluate the suggested corridor programs and determine those which warrant study. From the list of potential projects, MPD staff and priority programming team prepare a short-list of those projects deemed to be the best candidates to be considered for the Five-Year Transportation Construction Program. ADOT subprogram projects and privately funded projects are also included in the Five-Year Transportation Construction Program.

The scoping document provides specific information for programming as well as to guide the subsequent stages of the Project Development Process. Project Scoping for private and locally funded projects on the State Highway System must also follow ADOT guidelines and be approved by ADOT. Preparation of project scoping documents may be the responsibility of one of several ADOT functional units including Pre-design Section, Valley Project Management, Statewide Project Management, Bridge Group and Traffic Group. A Scoping Project Manager from the responsible functional unit leads the project scoping development.

## 1.2. Purpose of Project Scoping Document Guidelines

The Project Scoping Document Guidelines, like the Project Development Process, benefits from continuous process improvement. These guidelines are periodically reviewed and updated to reflect scoping issues as they evolve and refined tools and techniques are developed.

The Project Scoping Document Guidelines describe the report formats, data requirements and supplemental activities required for the development of ADOT scoping documents. Supplemental reports, such as Traffic Studies and Drainage Reports are also typically required during project scoping however those report requirements are defined elsewhere.

## 1.3. Project Scoping Concepts

Project Scoping is a term that combines engineering and environmental study into one process to define a project based on informed decision making.

Major Project Scoping solutions are [Context Sensitive Solutions \(CSS\)](#). Multi-disciplinary teams work together to find solutions that meet the transportation needs within the project environment or context. CSS is a process that recognizes the need to consider highway projects as more than just transportation but as an integration with community values regarding the purpose and need of a project whereby the overall

solution balances safety, mobility, and preservation of scenic, aesthetic, historic, and environmental resources.

#### **1.4. Types of Scoping Documents**

The scope of a project must be well documented. Scoping documents are a compilation of all the activities undertaken during a study that result in the final decisions as reflected in the project scope. The final report should document the flow and timeline of the activities undertaken for a study including data gathered, analysis, team meetings, public involvement, stakeholder coordination and other items that influence the final decision.

Projects require a level of scoping commensurate with the type of proposed work. There are several types of project scoping documents that may be prepared during project development; Scoping Letter (SL), Project Assessment (PA), Design Concept Report (DCR) or Location/Design Concept Report (L/DCR), Feasibility Report (FR), Corridor Location Report (CLR), and Alternatives Selection Report (ASR).

All reports developed by ADOT shall conform to specific formats and include certain data identified by the Project Scoping Document Guidelines. In general the SL and PA guidelines conform to [ADOT Policy and Implementation Memorandum 88-2](#) and the DCR guidelines conform to [ADOT Policy and Implementation Memorandum 89-5](#). The Project Scoping Document Guidelines further define the requirements of these ADOT Policy memorandums.

## 2. Scoping Letters and Project Assessments

### 2.1. Definitions

**Scoping Letter (SL)** – A Scoping Letter is a document that describes the scope, schedule and cost of a project. This is the simplest form of project scoping documentation. There is no Initial document distributed for comment to the full Project Team but a Draft is distributed to the relevant technical reviewers for comment and approval of the proposed solution. Therefore, there is no formal Summary of Comments (SOC). The Scoping Letter usually attains consensus on the project solution at the Field Review Meeting. The Scoping Letter format is similar to the Project Assessment Format though it usually contains less information overall. A Scoping Letter is approved with a Project Determination Form. Examples of projects that could be scoped with a Scoping Letter include simple pavement overlay projects, installation of a roadside barrier or a turn-lane.

**Project Assessment (PA)** - A Project Assessment is a document that describes the scope, schedule and cost of a project. A Project Assessment is utilized to document projects more complex than those addressed with a Scoping Letter. Projects scoped with a Project Assessment usually involve a single or limited number of project alternatives. The initial document is distributed to all the project stakeholders for review and comment. A Summary of Comments is prepared to assure consensus on scope, schedule and cost. The SOC includes initial comment responses and final disposition of all comments received on the Initial PA. A Final Project Assessment is approved with a Project Determination Form. Examples of projects that could be scoped with a Project Assessment include standard pavement preservation projects, passing/climbing lanes and certain capacity improvement projects (limited widening).

### 2.2. Scoping Letter and Project Assessment Outline

- Project Determination (Approved Document)
- Cover Sheet
- A. Introduction
- B. Background Data
- C. Project Scope
- D. Development Considerations
- E. Other Requirements
- F. Estimated Costs
- G. Required Action
- H. Service Involvement Sheet
- I. Itemized Cost Estimate
- J. Vicinity Map

### 2.3. Scoping Letter and Project Assessment Data Requirements:

**Project Determination** - The Project Determination includes the appropriate approval signatures, confirms the appropriate class of environmental documentation and notes cost and major funding sources. It also documents the anticipated level of public involvement required during design. Project Determinations may be distributed by electronic signature format (eForm) or by hard-copy Project Determination forms prepared by the Scoping Project Manager.

**Cover Sheet** - All PA's shall have a Cover Sheet. The following information shall be included on the Cover Sheet:

1. The ADOT Project Number, which includes the Transportation Accounting System (TRACS) Project Number, shall be listed. If a TRACS Number is not available, a partial Project Number will be listed such

as the following: 180 CO 215 H \_\_ 01 C. The Scoping Project Manager will provide the project numbers for all projects as generated via the Project Master from ADOT Project Accounting.

2. The Federal Project Number shall be listed. If a Federal Project Number is not available, a partial number will be listed. The Federal Project Number will be attained by the Scoping Project Manager from Project Accounting.

3. The name of the highway section (i.e., Kingman – Wickenburg Highway)

4. The name of the project (Location Name – i.e., Peacock Wash – Silver Springs Rd TI)

5. The route number of the highway

6. The words “DRAFT SCOPING LETTER” – “FINAL SCOPING LETTER” or "INITIAL PROJECT ASSESSMENT" - "FINAL PROJECT ASSESSMENT”;

7. The words "Prepared for the ARIZONA DEPARTMENT OF TRANSPORTATION by [name of preparer or Consultant firm]"

**A. Introduction** - All reports shall have an Introduction Section. The following information shall be included in the section:

1. The ADOT and Federal Project Numbers

2. The name of the project. The name of the project is the *Location Name* of the project as it appears in the Priority Programming database and will appear in the ADOT Five-Year Transportation Facilities Construction Program.

3. The milepost limits of the project shall be specified. These limits may or may not be the same as the limits originally requested or programmed for the project. A footnote is utilized to note project Location Name changes and milepost limit changes made during the Field Review.

4. The type of project (ADOT Program Category; Pavement Preservation, Passing Lane, Safety, etc.)

5. The route number of the highway

6. The name of the town or city the project is located in (or the names of the two nearest towns or major features the project is located between)

7. The name of the county the project is located in

8. The ADOT District the project is located in

9. The current programming status of the project shall be stated. If a project is listed in the ADOT Five-Year Transportation Facilities Construction Program, the following program information shall be included: the item number, year of advertisement, type of funding, and the programmed budget. If not programmed, state so.

10. The standard AASHTO classification of the existing highway (minor or major collector, minor or major arterial, Interstate, etc.). State whether or not the project is located on the National Highway System (NHS).

11. A brief narrative shall be included concerning the purpose of the project.

**B. Background Section** - All reports shall have a Background Section. The following information shall be included in the section:

1. A listing of the original and subsequent construction projects that incorporated all or part of the project segment. The project numbers and the year each project was constructed shall be included in the list.
2. A description of the surrounding terrain and corridor
3. The posted speeds within the improvement section shall be listed. If there are multiple posted speeds, each speed and its associated milepost limits shall be listed.
4. The Construction and Design Year Traffic Volumes (AADT's), Peak Hour Factor (K), Distribution Factor (D), and Percent Trucks (T). Projects other than Pavement Preservation Projects may require additional traffic data and analysis.
5. The total number of accidents within the improvement section during the last five years shall be listed. The starting and ending dates of the five year period shall also be noted. The total number of injury accidents and accidents resulting in deaths shall be listed.
6. The total number of major structures and underpasses within the improvement section shall be listed. Any irrigation ditches, storm drains, or other hydraulic conveyances within or adjacent to the improvement section shall be identified and listed. The names of any organizations that control/administer water delivery systems within the improvement section (such as a local water user group) shall be identified.
7. The name and characteristics of the surrounding watershed(s) shall be included. The existing drainage system within the improvement section shall be briefly described, and any outfalls shall be identified. Any drainage studies that have been developed for the improvement section or the local governing jurisdictions shall be identified.
8. The existing right-of-way within the improvement section shall be described. The minimum and maximum widths of the right-of-way shall be noted. If utility relocation is anticipated, the type of right-of-way, easement or deed, shall be identified. Any special use permits or highway easement deeds granted to ADOT by the US Forest Service or other government agencies shall be identified. Also, the type of ownership of the surrounding land - private, US Forest Service, Indian Reservation, or other - shall be listed.
9. Any potentially hazardous sites (abandoned gas stations, printing plants, industrial enterprises, medical facilities, etc.) within or adjacent to the improvement section shall be identified and described.
10. Any utilities and railroad crossings within the improvement section shall be identified and described.

**C. Project Scope** - All reports shall have a Project Scope Section. For Pavement Preservation Projects the scope of the project shall be prepared in accordance with the [ADOT Guidelines for Scoping Pavement Preservation Projects](#).

The following information shall be included in the section:

1. A complete description of the proposed improvements.
2. A description of the proposed highway cross section - number of lanes, lane widths, median width, shoulder widths, etc.
3. A description of the proposed paving improvement shall be included: mill and replace; overlay; seat & crack/overlay; the type of the surface course; the type of base and sub-base courses; the type of surface treatments; and the type of any special shoulder construction. The ADOT Materials Section shall, upon request, provide the preliminary pavement section.
4. The type of striping and pavement markers proposed shall be identified. In addition, the party (the District or Contractor) responsible for applying the striping and installing the markers will be identified.

5. The project termini, including a description of the transitions or tie-ins to any past or future projects, shall be described. The exact mileposts of the construction limits proposed for the project shall be determined and listed. These limits may or may not be the same as the originally programmed or requested milepost limits.

6. Any proposed signing improvements, whether they are new or replacement.

7. A description of any proposed detours, or temporary transitions to adjacent projects

8. Any proposed new or reconstructed drainage and irrigation facilities (culverts, bridges, storm drains, ditches, bank treatments, scour protection, etc.) shall be described. If a drainage study is needed to develop the drainage concept for a project, this fact shall be noted, and the reasons for the study shall be described under section "D".

9. A description of the type and quantity of earthwork required for the project

10. All proposed safety improvements (elimination/reconstruction of guardrail, slope flattening, culvert extensions, bridge rail replacement, hazard removal, etc.) shall be described. Culverts and headwalls are reviewed during scoping and action documented in the PA. If culverts are not extended then object markers are to be placed at the headwalls. This will be in accordance with the headwall marking details provided by Traffic Engineering.

11. Any proposed intersection improvements (signalization, signal reconstruction, phasing, controls, etc.) shall be described.

12. Any proposed geometric improvements (curve reconstruction, widening, realignment, etc.) shall be fully described. The new geometry will be specified in a conceptual plan. The conceptual plan will include: A north arrow, the existing geometry (dashed line), the new geometry (solid line), curve data, grades, dimensions, centerlines, etc.

If certain features, such as superelevation improvements, are to be upgraded to meet or partially meet current AASHTO Criteria, a description of the improvements, including the milepost limits, shall be included. The need for additional survey during design shall be noted.

13. Other specified work requested

**D. Development Considerations** - All PA's shall have a Development Section. The following information shall be included in the section:

1. If a DCR is needed to further develop the scope of a project, this fact shall be noted. The alternatives to be considered and issues to be resolved in the DCR shall be discussed.

2. For Pavement Preservation Projects the following statement shall be included: "Environmental Planning Group will determine if there are any specific environmental or archaeological concerns and prepare the required documentation." For other types of projects the identification of environmental issues will be developed in coordination with EPG

3. All projects shall state whether or not the project is in a non-attainment area.

4. If **potential** hazardous waste sites within or adjacent to the project right-of-way have been visually identified, these sites shall be described. If project construction activities (clearing, grading, excavation, etc.) will disturb more than 1 acre of land area, an Arizona Pollutant Discharge Elimination System (AZPDES) Permit (or NPDES on Tribal Lands) will be required. Note if a Storm Water Pollution Prevention Plan (SWPPP) is required. All projects on the White Mountain Apache Reservation must file the NOI along with the SWPPP and go through the Tribal NPDES permit process regardless of acreage of disturbed area.



5. The following statement shall be included: In accordance with Federal Regulation 23 CRF, Part 650, Subpart B, construction projects that are federally funded shall provide design features to reduce erosion and minimize sedimentation during and after construction, when applicable.
6. All public and private groups, agencies, or others affected by a project, shall be identified. A project's specific impact on each group shall be described.
7. State whether or not new R/W or a TCE(s) is required. If new right-of-way will be needed for a project the amount of new right-of-way (in acres) shall be specified. TCE areas, if known, shall be noted.
8. If certain utilities will be relocated or reconstructed, these utilities and their associated impacts shall be identified and described. Prior Rights will be noted if any utilities will be impacted.
9. Design Exception requirements are specified in the [ADOT Design Exception and Design Variance Process Guide](#). The review requirements for AASHTO controlling criteria are specified in the [Guide for Review of the AASHTO Controlling Design Criteria on Existing ADOT Roadways](#). If design exceptions are to be requested, the exceptions shall be identified and described. If the project is not located on the National Highway System the ADOT Assistant State Engineer (Roadway Group) shall be requested to approve any required design exceptions. An AASHTO review and Design Exceptions for non-NHS routes may apply if the Project Team identifies a need to further evaluate the AASHTO controlling design criteria. If the project is located on the National Highway System the Design Exceptions will be requested from the FHWA in a separate letter after concurrence of the Design Exception Memorandum from the Assistant State Engineer (Roadway Group). For Project Assessment-level scoping documents the Design Exception approval shall be attained during scoping and the approval of the exceptions shall be noted in the Final PA.

**E. Other Requirements** - All PA's shall have an "Other Requirements" Section. The following information shall be included in the section:

1. If the project is not listed in the ADOT Five Year Transportation Facilities Program, this fact shall be noted. If the project is listed in the Five-Year Program, the program year and type of funding shall be stated.
2. Discuss federal funds and if the project will be administered under the ADOT-FHWA Operating Partnership agreement.
3. If the project has been scheduled by PPMS, the schedule model and advertisement date shall be identified. If the project has not been scheduled, this fact shall be noted.
4. The responsible design party (ADOT or Design Consultant) shall be identified. The design and construction durations and the month the District wants to advertise or construct.
5. Anticipated schedule delays shall be noted and discussed. Such delays include time for utilities/railroad coordination, traffic involvement, seasonal conflicts (recreation, elevation, irrigation) etc.

**F. Estimated Cost** - All PA's shall have an Estimated Cost Section. Cost estimates shall be prepared in E2C2 and provided in the standard format. The following information shall be included in the section:

1. Any special assumptions or basis used for a cost estimate shall be described and explained. The thicknesses of the paving materials proposed for a project shall be noted. For improvements to horizontal curve superelevation, note that paving quantities have been included.
2. The reference used to obtain the unit costs for an estimate shall be noted (this is usually the latest edition of the ADOT publication entitled "Construction Costs").
3. A summary of the itemized cost estimate shall be included. If applicable to a project, the costs are

summarized into four categories: Preliminary Engineering (used if design will be performed by a consultant), Right-of-Way (used if new right-of-way will be purchased), utilities and Construction.

All funding sources for project elements shall be noted. If funding is unknown then include a statement of that fact.

**G. Action Required Section** - All PA's shall have an "Action Required by the Project Review Board (PRB) and Priority Planning Action Committee" Section (PPAC). One or more of the following actions may be requested:

1. For projects to be added to the Five-Year Transportation Facilities Construction Program in future program years:

This project will be submitted by the District to the Priority Programming Section of the Multimodal Planning Division for inclusion in the Five-Year Transportation Facilities Construction Program.

2. For projects to be added to the Five Year Transportation Facilities Construction Program during the Design Phase the following text shall be utilized:

Action will be required by the Priority Planning Advisory Committee (PPAC) and the Project Review Board (PRB) to program and fund this project.

3. For Pavement Preservation Projects the following text shall be utilized:

*For projects currently in the Program;* This project is currently programmed in the FYxx – Fyyy Five-Year Transportation Facilities Construction Program. During Final Design the Project Manager may be required to submit this project to the Project Review Board (PRB) and the Priority Planning Advisory Committee (PPAC) for scope, schedule or budget updates.

*For projects not currently in the Program;* This project shall be submitted by the Multimodal Planning Division for programming in the Five-Year Transportation Facilities Construction Program. During Final Design the Project Manager may be required to submit this project to the Project Review Board (PRB) and the Priority Planning Advisory Committee (PPAC) for scope, schedule or budget updates.

All scoped Pre-design projects that are not already in the Five-Year Transportation Facilities Construction Program are given a 'Programming Pool' status in the Priority Programming database. This is a pool of scoped projects that are eligible for construction funding.

**H. Service Involvement Sheet** - All PA's shall have a Service Involvement Sheet. A Service Involvement Sheet is a table that lists each of the involved parties and the type of involvement they have with the project. The following information shall be included on the Service Involvement Sheet:

1. The sheet shall have eight columns, and the first column shall have the heading "Field Review". If a listed party attends the field review, an X shall be placed in this column.

2. The second column shall have the heading "Contact". If a listed party has been contacted concerning the project, an X shall be placed in this column.

3. The third column shall have the heading "Service Involvement". The name of an involved party's affiliation (Forest Service, ADOT Location Services, etc.) shall be listed in this column, not the name of an individual.

4. The fourth through the seventh columns shall have the headings "Significant", "Minimum", "None", and "Unknown" respectively. An X shall be placed in the column best describing the degree of involvement of a listed party.

5. The eighth column shall have the following heading: "Comments - Identifying issues which make involvement significant or minimal." The type of involvement of each listed party, shall be briefly described in this column. For example, if Location Services will be responsible for performing a survey for the project, the following will appear in the column: "Location Survey required."

**I. Itemized Cost Estimate** - All PA's shall have an Itemized Cost Estimate. The following information shall be included in the estimate:

1. The estimate shall be in the format of a table with five columns. The columns will have the following headings: "Item", "Unit", "Quantity", "Unit Price", and "Amount".

2. Pay items applicable to the project will be listed in the "Item" Column. Pay items will be taken from the current edition of the ADOT "Construction Costs" Publication. For pavement preservation projects, pay items are grouped under two categories: Pavement and Safety. Examples of the different types of cost estimates will be provided by the Scoping Project Manager.

3. The ADOT standard unit of measure for each pay item shall be listed in the "Unit" Column. The standard unit of measure for a pay item is listed in the ADOT "Construction Costs" Publication. Also, the ADOT Publication entitled "Standard Specifications for Road and Bridge Construction" can be used to determine how a pay item is measured.

4. The estimated quantities for each pay item shall be listed in the "Quantity" Column.

5. The unit price for each pay item shall be listed in the "Unit Price" Column. The unit price used shall be based on a sampling of previous construction projects located in the general vicinity of the project. This information can be obtained from the ADOT "Construction Costs" Publication or from the ADOT "Bid Tabs."

6. The product of the "Unit Price" and "Quantity" for each pay item shall be listed in the "Amount" Column.

7. Subtotals shall be calculated and listed at several intervals within the estimate. The Scoping Project Manager shall provide an example of an itemized cost estimate showing the proper subtotals.

8. The total itemized cost shall be listed at the bottom of the estimate.

**J. Vicinity Map** - A project Vicinity Map shall be included with a PA to help clarify the project location. The 8.5" x 11" map shall be reproduced from a portion of an ADOT County Atlas Map (can be obtained from ADOT Engineering Records) or other available sources. The beginning and ending milepost limits shall be indicated on the map. If requested, the Scoping Project Manager will provide the Consultant with an example of such a map.

## 3.0 Major Study Scoping Documents

### 3.1 Definitions

The Design Concept Report is the primary report type for scoping Major Projects such as existing highway corridor expansion, highways on new alignment, two-lane to four-lane highway conversion and new or reconstructed highway interchanges. There are also documents produced in support of Design Concept Reports during studies or as stand alone documents that outline planning efforts to date and future scoping requirements to further develop a project.

**Design Concept Report (DCR) and Location/Design Concept Report (L/DCR)** - A DCR or L/DCR is prepared for major projects where location and the design concept need to be defined at a higher level than a Project Assessment. A DCR documents the project parameters such as design criteria, project location, design concept (15% plans) and construction cost. A DCR is typically prepared in conjunction with an environmental document which is prepared in conformance with the National Environmental Policy Act (NEPA). After completion of a DCR a project can be programmed for design and construction. Several types of supporting studies may be prepared prior to or as documentation steps in a Design Concept Study. An L/DCR is prepared when location is also an issue. Studies involving relatively long segments of highway for which long-range concepts are to be established are referred to as corridor studies. The major products of a corridor study are a Design Concept Report and an Environmental Document.

**Feasibility Report (FR)** - A FR is prepared for major projects where design concept is an issue. Feasibility Reports may be similar to Design Concept Reports but may require fewer technical reports and are not prepared in conjunction with an Environmental Document. Feasibility Reports evaluate alternatives for major projects in a manner consistent with the principles of 'Linking Planning and NEPA' (23 CFR 450.212) and 'Planning and Environmental Linkages' (PEL). An Environmental Overview will be prepared in conjunction with the Feasibility Report and be included as a chapter in the report. The Environmental Overview is not a stand-alone document. Examples of projects in which a Feasibility Report could be prepared include evaluation of highway interchange upgrade options, right-of-way definition for corridor protection and ultimate long-range corridor concept planning with the identification of interim improvements such as passing lanes. The recommendations of a Feasibility Report may need to be further studied in a Design Concept Report. The required Environmental Documentation for a project scoped with a Feasibility Report will typically be prepared during a future Design Concept Study or during future individual design projects. Some Feasibility Reports, such as one that identifies multiple passing lane projects or studies an alternative within existing right-of-way, may not require a DCR and may be programmed for Design after the document is approved. Environmental Documentation for such projects will be completed during Design.

**Corridor Location Report (CLR)** - A CLR is a corridor-level location study which evaluates alternative corridors (usually 1/4 mile to 1 mile wide) to define a single preferred corridor or corridors in which alignment studies will be performed. A single corridor for further study should be the goal of the report but may not be possible and one or more corridors may be recommended for further study based on the corridor alternatives analysis. A CLR may be the first step in the L/DCR process when there is a need to define a new corridor before preparing the L/DCR. A Corridor Location Report may be done in a phased approach (separate contract) in advance of the L/DCR and environmental documentation or as part of the same contract. When prepared as a phased approach under a separate study in advance of NEPA, the Corridor Location Report is prepared consistent with the FHWA-defined principles of 'Linking Planning and NEPA' and 'Planning and Environmental Linkages.'

**Alternatives Selection Report (ASR)** - An ASR is completed as a development step in the L/DCR process when there is a need to screen or refine multiple alternatives. An ASR may be required when there is a need to screen a wide range of alternatives down to a reasonable number of alternatives for detailed study in an L/DCR and Environmental Document. Examples include screening a number of highway

alignments within a selected corridor or study area, screening alternatives with multiple access management options or screening the number of interchange configurations under consideration. General corridor location decisions should be documented in a Corridor Location Report and not an Alternatives Selection Report. An ASR is not a stand-alone document for construction programming purposes.

### **3.2 Location/Design Concept Report Outline**

All DCR's shall follow the standard report format outlined below. Variations should be approved by the Scoping Project Manager.

- Cover
- Approval Memo (Final Report)
- Title Sheet
- Table of Contents
- List of Figures and Tables
- Executive Summary

#### **1.0 Introduction**

- 1.1 Foreword
- 1.2 Need for the Project
- 1.3 Description of the Project
- 1.4 Characteristics of the Corridor (or Study Area)
- 1.5 Agency and Public Scoping

#### **2.0 Traffic and Crash Data**

- 2.1 Crash Analysis
- 2.2 Traffic Analysis

#### **3.0 Location Analysis (Leave Blank if DCR Only)**

- 3.1 Introduction
- 3.2 Description of Corridor Alternatives
- 3.3 Evaluation of Corridor Alternatives
- 3.4 Agency and Public Coordination
- 3.5 Recommendations

#### **4.0 Design Concept Alternatives**

- 4.1 Introduction
- 4.2 Design Concept Alternatives Considered and Discontinued
- 4.3 Design Concept Alternatives Studied in Detail
- 4.4 Evaluation of Alternatives
- 4.5 Recommendations

#### **5.0 Major Design Features (Preferred Alternative)**

- 5.1 Introduction
- 5.2 Design Controls
- 5.3 Horizontal and Vertical Alignment
- 5.4 Access
- 5.5 Right-of-Way
- 5.6 Drainage
- 5.7 Section 401 and 404 of the Clean Water Act
- 5.8 Floodplain Considerations
- 5.9 Earthwork

- 5.10 Construction Phasing and Traffic Control
- 5.11 Traffic Design
- 5.12 Utilities, Railroad and Irrigation Systems
- 5.13 Structures
- 5.14 Preliminary Pavement Design
- 5.15 Habitat Connectivity
- 5.16 Multimodal Considerations
- 5.17 Design Exceptions
- 5.18 Intergovernmental Agreements

**6.0 Itemized Cost Estimate**

- 6.1 Cost Estimate of the Preferred Alternative
- 6.2 Estimate of Future Maintenance Costs
- 6.3 Detailed Cost Estimates of Other Alternatives Considered

**7.0 Implementation Plan**

- 7.1 Preferred Alternative Recommended Construction Phases and Cost Estimates

**8.0 AASHTO Controlling Design Criteria and Design Exceptions**

- 8.1 AASHTO Non-Conforming Geometric Design Elements
- 8.2 AASHTO Design Exceptions
- 8.3 ADOT RDG Non-Conforming Geometric Design Elements
- 8.4 ADOT Design Exceptions

**9.0 Social, Economic and Environmental Concerns**

- 9.1 Environmental Documentation
- 9.2 Mitigation Measures

**Appendix**

- A. AASHTO Controlling Design Criteria Report (if prepared)
- B. Typical Sections of the Preferred Alternative
- C. Plans of the Preferred Alternative
- D. Alternatives Considered
- E. Other Sections - as Required

**10.0 Access Management Plan or Interchange Access Management Plan (if required)**

**3.3 Location/Design Concept Report Data Requirements**

All DCR's shall follow the standard report format outlined in Section 3.2 and described below. Variations should be approved by the Scoping Project Manager.

**Cover Sheet** - All DCR's shall have a Cover Sheet. The following information shall be listed on the Cover Sheet:

1. The words "Location/Design Concept Report" or "Design Concept Report" (Initial or Final)
2. The name of the study (i.e., SR 95 Realignment Study) and the Location Name of the project (i.e., I-40 to SR 68)
3. The ADOT Contract Number, ADOT Project Number and Federal Project Number

4. The statement "Prepared for the ARIZONA DEPARTMENT OF TRANSPORTATION by [name of Consultant firm]"

5. The date the report is published

**Approval Memo** - All Final Design Concept Reports shall have Design Approval Memorandum with the appropriate concurrences and final approval for the project. The Scoping Project Manager will prepare the memorandum.

**Title Sheet** - All DCR's shall have a Title Sheet. The Title Sheet shall contain the same information as the Cover Sheet. In addition, the Title Sheet shall contain the following information:

1. The ADOT District in which the project is located
2. The county in which the project is located

**Table of Contents** - All DCR's shall have a Table of Contents.

**List of Figures and Tables** - All DCR's shall have a List of Figures and Tables.

**Executive Summary** - All DCR's shall have an Executive Summary. The summary shall include, but not be limited to, the following data:

1. The ADOT Project Number and Federal Project Number
2. The project location, milepost limits, route number, county, and length of the project
3. The programmed budget and or estimated cost
4. The responsible design party (ADOT or Consultant)
5. Future or concurrent projects that will be adjacent to, or within, the improvement section
6. A Description of any Inter-governmental Agreements (IGA's) or other types of agreements that have been made in regards to the project
7. The purpose of the project shall be discussed, and a brief narrative, describing the project scope, shall be included. The preferred (Initial) or selected (Final) alternative shall be identified.
8. The amount and cost of any new right-of-way that is needed (for the preferred or selected alternative only)

**1.0 Introduction** - All DCR's shall have an Introduction Chapter. The Chapter shall contain the following sections:

### *1.1 Foreword*

The Foreword shall include, but not be limited to, the following data:

- a. The AASHTO Classification for the highway - major or minor collector, major or minor arterial, interstate, etc.
- b. The posted speed shall be listed. If there is more than one posted speed, the speeds and their associated milepost limits shall be listed.
- c. The major traffic generators shall be identified and discussed.
- d. Project Location and Vicinity maps shall be included.

## *1.2. Need for the Project*

This section of the report should include a complete analysis of why the project is needed. The analysis should describe how the existing highway is functioning, or why a new highway is needed, and the reasons that prompted ADOT to study or scope a project at this location.

## *1.3 Description of the Project*

The "Description of the Project" Section shall include a general description of the proposed scope of work. The following data shall be included:

- a. The project limits.
- b. The termini of the project shall be noted. Each terminus shall be identified by milepost and station.
- c. General information on the programming of the project and/or scoping request shall be included. Describe the objectives of the project.

## *1.4 Characteristics of the Corridor or Study Area*

The "Characteristics of the Corridor" (or Study Area) Section shall include, but not be limited to, the following data:

- a. The width of the existing pavement and the type of pavement section
- b. The lane and shoulder widths of the existing highway shall be listed. If curb and gutter is present, the locations shall be listed.
- c. The design speed of the existing highway shall be listed. If there is more than one design speed, the speeds and their associated milepost limits shall be listed.
- d. All previous projects constructed within the improvement section shall be identified. The project numbers and construction dates shall be listed in a table.
- e. The horizontal and vertical alignments of the existing highway shall be described.
- f. A description of the existing right-of-way shall be included. The minimum and maximum right-of-way widths shall be noted, and the type of right-of-way, easement or deed, shall be identified. The types of ownership within the project - private, Forest Service, Indian Tribe, etc. - shall be identified.
- g. The drainage characteristics of the corridor shall be described. Any watersheds, drainages, or waterways within or adjacent to the project shall be identified. A description of all drainage and irrigation facilities within or adjacent to the project shall be included. If there are any agencies or other authorities responsible for the drainage or irrigation facilities, they shall be identified.
- h. The total number of each type of existing drainage structure (bridges, pipes, and concrete box culverts) shall be listed. A brief description of the major bridge structures within the project shall be included.
- i. The surrounding topography and terrain shall be described. The primary geology, soils, and vegetation shall be identified.
- j. The future land use proposed for the area shall be described. If there are any major developments proposed, they shall be identified and described.



### *1.5 Agency and Public Scoping*

This section shall include, but not be limited to, the following data:

- a. A general description of the scoping and public involvement process for the project.
- b. Agency scoping Issues, Concerns and Opportunities.
- c. Public scoping Issues, Concerns and Opportunities.

**2.0 Traffic and Crash Data** - All DCR's shall have a "Traffic and Crash Data" Chapter that utilizes information from the project Traffic Report. Traffic data and analysis is typically the keystone for a project's purpose and need and is an important part of project development. A draft Initial Traffic Report shall be prepared in advance of the Initial DCR for major corridor or interchange study projects. A Traffic Report shall be prepared in advance of and in support of a Corridor Location Report or Alternatives Selection Report.

The data and analysis may be different for different types of projects but generally the chapter shall contain the following sections:

#### *2.1 Crash Analysis*

Crash Analysis is typically performed for existing segments of highway to be evaluated. The "Crash Analysis" Section of the report should include the following data:

- a. Source of Data

The sources that provide traffic data for the report shall be referenced. In most cases, ADOT will be the only accident data source.

- b. Crash Data

An itemized list that shows the types and numbers of accidents within the improvement section during the last five year period shall be included. In addition, the total number of accidents, the number of accidents involving injuries, and the number of accidents involving deaths shall be listed. The accidents shall be itemized according to type; rear-end, ran-off-road, hit fixed object, etc.

- i. The beginning and ending dates of the accident sample shall be listed.

- ii. Review of Crash Data

If ADOT Traffic has reviewed the accidents within the improvement section and prepared a report, the report shall be referenced and any conclusions reached shall be cited. The consultant shall not draw any conclusions from reviewing accident data unless the ADOT Traffic Studies Branch has reviewed and approved these conclusions.

#### *2.2. Traffic Analysis*

The "Traffic Operations Analysis" Section of the report should include the following data:

- a. Source of Data

The sources that provide traffic data for the report shall be referenced. This may be ADOT MPD, an MPO or COG or an agency sponsored sub-area planning study. It is important that high quality traffic data be forecasted.

## Traffic Data

- i. The Average Annual Daily Traffic (AADT) Volumes, in vehicles per day. The volumes for existing and design years shall be listed. Interim or opening-year data may also be required. Data for crossroads and/or ancillary roadway networks may also be required. ADOT RDG standard is to evaluate traffic for 20 years after the expected completion of the facility. Note that the design year may be constrained by available model data.
- ii. The Design Hour Traffic Factor (K), in percent
- iii. The Directional Distribution Factor (D), in percent.
- iv. The Truck Factor (T), in percent
- v. If needed, intersection counts (including turning movements) and diagrams shall be included.
- vi. If the project is a Traffic Interchange or Intersection, the data listed above will be expanded to include ramps, crossroads, or all legs of the intersection. The data may also be expanded to include projections of traffic on adjacent interchanges and area wide systems.
- vii. Traffic Operational Analysis

This section will discuss the operational analysis methodology and the results of the traffic analysis. Traffic data requirements and measures of Effectiveness should be tailored to the individual project needs. For complex projects early agreement on the traffic study inputs and methodologies should be agreed to by ADOT and FHWA with an Assumptions Document when a Change of Access Report will also be prepared for the project. The Traffic Operational Analysis section shall include but not be limited to:

- Alternatives selection phase analysis (if required). Traffic forecast model results, daily volumes for proposed corridors and planning-level LOS analysis. Traffic forecast model runs shall accurately reflect the proposed network in the design year.
- Detailed alternatives capacity analysis. Corridor evaluation will utilize traffic engineering methodologies such as the Highway Capacity Manual and may include peak-hour micro-simulation analysis (if required). Programs such as VISSIM or CORSIM may be utilized for corridor analysis and programs such as SYNCHRO may be utilized for intersection or interchange analysis.
- For traffic interchange projects the analysis should be closely coordinated with the anticipated level of analysis required for a Change of Access Report and approval.
- Additional traffic data and analysis may be needed for No-Build networks in support of the project Purpose and Need (NEPA).

**3.0 Location Analysis (For the Location Design Concept Report only)** - When location is an issue for a project, a "Location Analysis" Chapter shall be included. The Chapter shall contain the following sections:

### *3.1 Introduction*

Reasons why location is an issue shall be discussed. The discussion should include background information explaining why particular alternative locations are being evaluated and what issues are involved in the development of the different alternatives. The level of engineering and environmental analysis should be commensurate with the alternatives to be considered and differentiated. The goal is to show relative impacts from the various alternative choices so informed decisions can be made about

alternatives to carry forward. References to an already completed Corridor Location Report should be incorporated if a separate document has been completed.

### *3.2 Description of Corridor Alternatives*

This section shall include a complete description of each alternative corridor proposed. The alignments and impacts of each alternative shall be fully described. For realignment projects the existing corridor shall be included in the corridor alternatives.

### *3.3 Evaluation of Corridor Alternatives*

The pros and cons of each alternative location will be discussed. Logical and objective screening criteria should be developed based on previously identified project goals and issues. In general, each alternative shall be evaluated for the following impacts: present and future land use, right-of-way, environmental, cultural resources, archeological, cost, constructability, traffic control, safety, drainage, earthwork, floodplains, utilities, structures, socio-economic considerations, and design exceptions.

A matrix chart shall be prepared to evaluate the alternatives. Each alternative shall be listed at the left of the matrix, and each impact shall be listed at the top. A score shall be assigned to each impact to indicate its relative difference between alternatives. Impacts shall be weighted so one impact can be directly compared to another. The criteria used to assign scores to the different impacts shall be explained and discussed.

For some projects several levels of screening may be necessary.

### *3.4 Agency and Public Coordination*

A summary of major agency and public scoping as well as input received during alternatives development and evaluation.

### *3.5 Recommendations*

The recommended location shall be identified, and the reasons and logic used to select it shall be explained.

## **4.0 Design Concept Alternatives - The Chapter shall contain the following sections:**

### *4.1 Introduction*

This section shall include background information explaining why particular Design Concept Alternatives are being evaluated and what issues are relevant to development of the alternatives.

### *4.2 Design Concept Alternatives Considered and Discontinued*

This section shall include a brief description of each Design Concept Alternative that was considered and discontinued. The alignments and impacts of each alternative shall be briefly described. The reasons for dropping the alternatives shall be explained. If an Alternatives Selection Report was prepared to screen a wide range of alternatives then only summary information needs to be included here.

### *4.3 Design Concept Alternatives Studied in Detail*

This section shall include a complete description of each Design Concept Alternative that was considered for further development. The alignments and impacts of each alternative shall be fully described.

### *4.4 Evaluation of Alternatives*

The pros and cons of each alternative will be discussed. Each alternative shall be evaluated for the following impacts: present and future land use, right-of-way, environmental, cultural resources,

archeological, cost, constructability, traffic control, safety, capacity, level of service, drainage, earthwork, floodplains, utilities, structures, socio-economic considerations, public involvement and community support and design exceptions.

A matrix chart shall be prepared to evaluate the alternatives. Each alternative shall be listed at the left of the matrix, and each impact shall be listed at the top. A score shall be assigned to each impact to indicate its relative difference between alternatives. Impacts shall be weighted so one impact can be directly compared to another. The criteria used to assign scores to the different impacts shall be explained and discussed.

#### *4.5 Recommendations*

The recommended alternative shall be identified, and the reasons and logic used to select it shall be explained. Design concept alternatives shall be closely coordinated with the environmental document.

**5.0 Major Design Features of the Preferred Alternative** - This Chapter shall contain the following sections:

#### *5.1 Introduction*

This section shall describe the purpose of this chapter. If a separate Roadway Design Criteria Report has been prepared for the project it shall be referenced here. Land use and issues related to land use shall be documented.

#### *5.2 Design Controls*

This Section shall include a complete list of the Design Controls proposed for the recommended alternative. The following Design Controls shall be listed in the report:

- a. Project Design Year
- b. Design Speed(s)
- c. Slope Standards
- d. Typical Section (Lane & Shoulder width)
- e. Superelevation
- f. Maximum Degree of Curve
- g. Maximum Grade
- h. Type of Access Control
- i. Right-of-Way Width

#### *5.3 Horizontal and Vertical Alignment*

This section shall include a complete description and discussion of the horizontal and vertical alignments proposed for the recommended alternative. The beginning and ending stations of the alignments shall be listed as well as the number of curves, spirals, and tangents.

#### *5.4 Access*

The "Access" Section shall include a description of the access control for the recommended alternative. The following data shall be included:

- a. The type of access control shall be described.
- b. Any special features that are needed to provide access control (such as fencing, gates, and curbs) shall be identified and discussed.
- c. Any special access roads or entrances (such as substation entrances) shall be identified.
- d. Any access required for future developments shall be identified and described.

Extensive access control issues may be documented in a separate Access Management chapter of the DCR if necessary.

### *5.5 Right-of-Way*

This section shall include a complete discussion of the right-of-way requirements for the recommended alternative. The following data shall be included:

- a. The quantity (in acres) and location of any new right-of-way required.
- b. Any private or public groups who control the needed right-of-way, such as the Forest Service, Bureau of Land Management, Arizona State Land Department, Railroads, or Indian Tribal Councils, shall be identified. If special right-of-way impacts are involved, they shall be described. For example, if only a partial take of a parcel is needed, the associated impacts on the landowner should be discussed. If operations of a business located on the property will be affected, this should be noted.

### *5.6 Drainage*

This section shall include a description of the drainage impacts associated with the recommended alternative, and a description of the proposed improvements. The following data shall be included:

- a. A Preliminary Initial Drainage Report shall be prepared in advance of the Initial DCR. If a drainage study is completed or additional study is needed for the project, this fact shall be noted. The drainage work to be addressed by the study shall be described.
- b. Any drainage facility improvements proposed for the project - cut ditches, channels, storm drains, catch basins, culverts, bank protection, scour protection, channel reconstruction, etc. - shall be identified and described.
- c. Upstream and downstream impacts caused by drainage improvements shall be identified and discussed.

### *5.7 Section 401 and 404 of the Clean Water Act*

This section shall include a statement concerning whether or not the recommended alternative qualifies for any nationwide or individual permits required under Section 404 of the Clean Water Act. If permits are required, the following standard declaration shall be included: "ADOT Environmental Planning Group shall apply for all permits required."

### *5.8 Floodplain Considerations*

This section shall include a description of the floodplain impacts associated with the recommended alternative. A statement shall be included noting whether or not any areas have been identified by FEMA as 100-year floodplains. If the proposed project encroaches on a floodplain, the impacts associated with the encroachment shall be identified and described.

### *5.9 Earthwork*

This section shall include a description of the earthwork impacts for the recommended alternative. The following data shall be included:

- a. The estimated total embankment, borrow, or waste shall be specified.
- b. Any special earthwork, such as cut ditches or slope flattening, shall be described.
- c. Any nearby borrow pits or waste disposal sites shall be identified

d. If the right-of-way is controlled by the Forest Service, Indian Tribal Council, or other involved party, the preferences of the party concerning the earthwork shall be noted. The Forest Service often has specific requirements concerning the location of pits, interim stockpiling of materials, treatment of side slopes, and the disposal of waste.

e. A statement shall be included concerning whether or not the earthwork will be balanced. If the earthwork will not be balanced, the quantity of borrow or waste shall be specified.

#### *5.10 Construction Phasing and Traffic Control*

This section shall include discussion of the construction phasing and constructability and traffic control issues of the recommended alternative. The following data shall be included:

a. Any special features of the project that will make the improvements difficult to construct will be identified and discussed. For example, when a bridge will be constructed in stages on the existing alignment and the existing bridge is to remain as a detour, constructability will be an issue.

b. A detailed description of proposed detours, tie-ins to adjacent projects, construction phasing, and other traffic control measures

c. The following sentence shall be included: "Traffic control shall be specified by a traffic control plan or procedures and guidelines in the ADOT Traffic Control Manual for Highway Construction and Maintenance."

d. The following sentence shall be included: "Access to adjacent properties shall be maintained during construction." If special measures are to be taken to provide access, a description of the measures shall be included.

#### *5.11 Traffic Design*

This section shall include discussion of any intersections that will be upgraded as part of the recommended alternative. All intersection improvements including signalization, signing, and marking shall be identified and discussed. New or upgraded interchanges shall be described. Guide signs, lighting, pavement markings and Freeway Management Systems shall be discussed as needed.

#### *5.12 Utilities, Railroads and Irrigation Systems*

This section shall include a description of all utilities, railroads and irrigation systems located within the recommended alternative, and their associated impacts. If any of the utilities, railroads or irrigation systems are to be relocated or reconstructed, this fact shall be noted.

#### *5.13 Structures*

The "Structures" Section shall include a description of all new structures or structure upgrades proposed for the recommended alternative.

#### *5.14 Preliminary Pavement Design*

This section shall include a description of the pavement design proposed for the recommended alternative.

#### *5.15 Habitat Connectivity*

This section shall include a description of the any components of the project regarding habitat connectivity or wildlife linkages incorporated in the study. Concepts and proposals for items such as wildlife fencing or special crossing structures or safety features shall be noted here. Accommodations such as culvert or bridge improvements to facilitate wildlife movement and habitat connectivity shall be documented. Wildlife-vehicle collision or accident data conducted as part of the study will be included under Crash

Analysis in Section 2. Details of any accommodations or connectivity features included in the project are further defined in the Design Concept Alternatives Section. Separate technical reports or documents such as proposals for wildlife crossing structure funding can be included in the Appendix as necessary. Separate technical data such as wildlife migration/GPS data that may be conducted by others beyond the completion of project scoping should be referenced but will not be included in the DCR. Additional information can be found on the EPG website:

[http://www.azdot.gov/Highways/EPG/EPG\\_Common/Documents\\_Technical\\_Wildlife\\_Connectivity.asp#crossing](http://www.azdot.gov/Highways/EPG/EPG_Common/Documents_Technical_Wildlife_Connectivity.asp#crossing)

#### *5.16 Multimodal Considerations*

Multimodal considerations and coordination shall be documented in the Design Concept Report. Issues identified during agency scoping and/or in coordination with ADOT Multimodal Planning Division, metropolitan or regional planning organizations (MPO's or COG's) or local transit agencies shall be documented. Relevant engineering feasibility issues from Regional Transportation Plans, Statewide Framework Plans, Planning And Local Assistance (PARA) Studies and consideration of multimodal components such as park-and-ride and multiuse paths and crossings should be documented. Details of any accommodations or incorporation of transit components in the project are further defined in the Design Concept Alternatives Section. Any separate technical reports that have been prepared as part of a study shall be referenced. Coordination and/or accommodation of pedestrian or bicycle facilities shall be documented.

#### *5.17 Design Exceptions*

AASHTO and RDG Design Exceptions anticipated for New or Widening/Reconstruction projects shall be determined in conjunction with the alternatives development and the selection of a Preferred Alternative regardless of project programming status. AASHTO Design Exceptions for existing features to remain shall be developed during design if the project is not currently programmed. Design Exceptions shall be documented as outlined in Section 8.0.

#### *5.18 Intergovernmental Agreements*

This section shall include a description of the project agreements that will need to be agreed to during Design for items such as funding, maintenance and enhancements.

**6.0 Itemized Cost Estimate** - This Chapter shall contain the following sections:

#### *6.1 Cost Estimate of the Preferred Alternative*

This section will contain the detailed cost estimate for the Preferred Alternative including design, right-of-way, utilities and construction. The total cost estimate for the Preferred Alternative will be included. Cost estimates for each project identified in the Preferred Alternative shall be included in this section. For projects with multiple phases and/or projects the project estimates shall be as outlined in the Implementation Plan as described in Section 7.

#### *6.2 Estimate of Future Maintenance Costs*

This section will contain maintenance cost for the Preferred Alternative only.

#### *6.3 Detailed Cost Estimates of Other Alternatives Considered*

This section will contain the detailed cost estimates for alternatives other than the recommended. Each estimate will be properly identified and separated from the others.

**7.0 Implementation Plan (if required)** - This section shall include a description how the projects are to be implemented in sequence and their associated costs and construction year (if known). For major corridor projects there may be multiple construction projects within multiple phases of construction.

**8.0 AASHTO Controlling Design Criteria and Design Exceptions** - Data describing the existing roadway features will be taken from the AASHTO Controlling Design Criteria Report. Projects are evaluated for compliance with AASHTO controlling criteria as outlined in the [Guide for Review of the AASHTO Controlling Design Criteria on Existing ADOT Roadways](#). The [ADOT Design Exception and Design Variance Process Guide](#) represents guidelines for determining which projects require evaluation.

This chapter will describe the non-conforming AASHTO design elements of the existing highway, those existing features that will remain as part of the proposed improvements and those elements for which AASHTO and/or ADOT design exceptions will be requested. The Preferred Alternative will be utilized to determine which existing features, that will remain as part of the project, and which new features require Design Exceptions. The following sections will be included in this chapter:

### *8.1 AASHTO Non-Conforming Geometric Design Elements*

This section will describe the non-conforming AASHTO design elements of the existing highway

- a. Lane and Shoulder Widths
- b. Vertical Alignment and Stopping Sight Distance
- c. Horizontal Alignment and Stopping Sight Distance (stopping sight distance, superelevation and degree of curvature)
- d. Posted Speed(s)
- e. Grades (including operational impacts of truck traffic)
- f. Cross Slopes
- g. Vertical Clearance (underpasses)
- h. Bridge - Clear width (curb to curb), rail type and strength, and the structural capacity
- i. Other Considerations - In this section, other elements of the highway (those that are not any of the "thirteen criteria") will be evaluated and discussed. These other elements may include intersection sight distance, recovery areas, horizontal clearance, etc.

### *8.2 AASHTO Design Exceptions*

For existing roadway design elements to remain on NHS routes, design exceptions are required for design values not meeting the AASHTO Controlling Design Criteria outlined in the *ADOT Guide for Review of the AASHTO Controlling Design Criteria on Existing ADOT Roadways*. New construction must also conform to AASHTO requirements though the ADOT RDG exceeds or meets AASHTO requirements so by conforming to the RDG the project will meet AASHTO criteria.

If the project is located on a non-NHS route then AASHTO design exceptions are not required regardless of project funding. An AASHTO review and Design Exceptions for non-NHS routes may apply if the Project Team identifies a need to further evaluate the AASHTO controlling design criteria. A statement that no Design Exceptions are required shall be noted in the DCR.

If the project is located on the NHS the Assistant State Engineer (Roadway Engineering Group) shall petition the FHWA for approval of the non-conforming features to remain or new features if they do not conform to AASHTO requirements. This request will be made in writing, separate from the Design Concept Report. The consultant shall note in the Initial DCR that the FHWA has been petitioned for the design exceptions. The Draft Final DCR shall not be circulated for approval signatures until approval of the design exceptions is obtained. Approval of the Design Exceptions shall be noted in the Final DCR.

For unfunded projects that are not likely to have any construction projects programmed within five years the DCR shall outline the design exception requirements but note that design exceptions for existing features non-conforming to AASHTO will be re-evaluated and requested for approval during subsequent design projects.



### *8.3 ADOT RDG Non-Conforming Geometric Design Elements*

This section will describe the non-conforming ADOT design elements of new construction. New construction must be in conformance with the RDG *for all routes* or ADOT-approved Design Exceptions are required. Design Exceptions for new construction are based on the *ADOT Design Exception/Design Variance Process Guide*. Of the thirteen AASHTO Controlling Criteria only those design elements that do not meet RDG standards in excess of the AASHTO criteria need to be listed here. All of the non-conforming AASHTO features listed in Section 8.1 do not need to be repeated in Section 8.3.

Note; any elements other than the thirteen AASHTO criteria, when referencing the RDG for variance approval, are referred to as a Design Variance.

### *8.4 ADOT RDG Design Exceptions*

If design exceptions are required for ADOT RDG elements only, the Assistant State Engineer (Roadway Engineering Group) shall be petitioned for approval of the exceptions. The supporting reasons for the request shall be fully explained. The petition will be made by a letter separate from the DCR. A request for Design Exceptions shall be noted in the Initial DCR. Approval of the Design Exceptions shall be noted in the Final DCR. All projects requiring ADOT RDG Design Exceptions shall be completed during project scoping regardless of the timing of the project in order to ensure the Preferred Alternative is viable.

If the project is located on the NHS it may require AASHTO design exceptions in addition to ADOT RDG design exceptions. The Assistant State Engineer (Roadway Engineering Group) shall approve the ADOT RDG design exceptions and petition the FHWA for approval of the AASHTO design exceptions as outlined in Section 2 above. The ADOT approval for AASHTO design exceptions will be attained by way of a concurrence Memorandum i.e. the concurrence is ADOT-level approval. The Assistant State Engineer for Bridge Group shall concur on the design exception memorandum if any design exceptions are required for structure related features (excluding bridge width and vertical clearance). The Memorandum is sent to FHWA with a cover letter requesting specific approval by FHWA of the non-conforming AASHTO features.

Design Exception requests with both AASHTO and RDG design elements should be clearly differentiated in the Design Exception Memorandum.

**9.0 Environmental Documentation** - This section shall describe the type of accompanying Environmental Document that has been completed in conjunction with the L/DCR. The consultant shall note in the Initial DCR the type of environmental document being prepared and the expected submittal date of the Draft ED if known.

The Initial DCR will usually be distributed in advance of an Environmental Assessment to assure consensus on the Preferred Alternative. The typical order of distribution shall be; Initial DCR, Draft ED, Final ED and Final DCR.

However, for an EIS or a complex EA the IDCR will be distributed in conjunction with the Draft EIS or Draft EA. The Final DCR shall be distributed after the Record of Decision (EIS) or FONSI (EA) has been attained.

The Final DCR shall note the type and the date of approval of the Environmental Document. Major environmental concerns can be noted in the DCR but the Environmental Document shall contain all the project environmental analysis and conclusions.

**Appendix** - All DCR's shall have the Appendices listed below. The appendices will be tabbed for quick reference.

#### *A. AASHTO Controlling Design Criteria Report*

This appendix will contain the review (inventory) of the thirteen AASHTO Controlling Design Criteria. For large scale projects this may be excluded from the appendix and cited by reference only with approval

of the Scoping Project Manager. The report would be located on the ADOT Information Data Warehouse through the Project Reference.

#### *B. Typical Sections of the Preferred Alternative*

This appendix will contain the typical cross sections proposed for the project. The effective milepost limits for each typical section will be noted at the top of the sheet. If alternative sections were evaluated and dropped, these sections will also be shown and clearly identified. The recommended sections will be clearly identified as the recommended ones and separated from the others.

#### *C. Plans of the Recommended Alternative*

Drawings for all Horizontal and Vertical Alignments proposed and evaluated shall be placed in this appendix. The alignments for the Preferred Alternative shall be placed before the others and noted as the **Recommended Alternative** in the DCR. Each alternative will be clearly identified and separated from the others.

#### *D. Alternatives Considered*

Drawings for other alternatives considered and evaluated shall be placed in this appendix.

#### *E. Other Sections – As Required*

Other appendices may be added for information as required.

### **3.4 Supplemental Scoping Documents**

Report outlines should be submitted to the Scoping Project Manager for approval.

**Change of Access Report (COAR)** – Modification to an existing Interstate access point or a new access to an Interstate requires a Change of Access approval from FHWA. Information is available on the Predesign website:

[http://www.azdot.gov/Highways/Roadway\\_Engineering/Roadway\\_Predesign/index.asp](http://www.azdot.gov/Highways/Roadway_Engineering/Roadway_Predesign/index.asp)

**Feasibility Report (FR)** – The Feasibility Report format could include: Introduction, location, project purpose, agency and public scoping, existing and future conditions, traffic data, environmental overview, alternatives development and evaluation and recommendations.

**Corridor Location Report (CLR)** - Corridor Location Report format will be similar to the Feasibility Report format and could include: Introduction, location, project purpose, agency and public scoping, existing and future conditions, traffic data and analysis, environmental overview, corridor development and evaluation and recommendations.

**Alternatives Selection Report (ASR)** – The report for the screening of alternatives for an existing facility will likely differ from a report evaluating new alignments. Alternatives Selection Report information could include: Introduction, location, project purpose, agency and public scoping, existing and future conditions, traffic data, environmental overview, alternatives development and evaluation and recommendations.

#### **Supplemental Scoping Documents Outline:**

- Executive Summary
- 1.0 Introduction
- 2.0 Previous Planning Studies
- 3.0 Programming

- 4.0 Project Scoping
- 5.0 Alternatives Screening
- 6.0 Recommendations

**1.0 Introduction**

- 1.1 Foreward (description, location, involved agencies, etc.)
- 1.2 Purpose and Need for the Project
- 1.3 Characteristics of the Corridor/Study Area
- 1.4 Existing Roadway System
- 1.5 Existing and Future Land Uses
  - 1.5.1 Drainage
  - 1.5.2 Utilities
  - 1.5.3 Right of Way
  - 1.5.4 Topography
  - 1.5.5 (Others)

**2.0 Traffic and Crash Data**

- 2.1 Existing Traffic Data
- 2.2 Origin-Destination Analysis
- 2.3 Crash Data Summary
- 2.4 Traffic Demand Forecast
- 2.5 Existing Traffic Conditions
- 2.6 Future Traffic Conditions

**3.0 Location Analysis**

- 3.1 Introduction
- 3.2 Scoping Process
  
- 3.3 Alternatives Development
- 3.4 Evaluation of Alternatives
- 3.5 Evaluation Criteria
- 3.6 Evaluation Results
- 3.7 Public/Agency Input
- 3.8 Conclusions and Recommendations

**4.0 Major Design Features**

- 4.1 Design Controls
- 4.2 Access Control
- 4.3 Right-of-Way
- 4.5 Earthwork
- 4.6 Intersections/Interchanges
- 4.7 Utilities

**5.0 Environmental Overview**

See Appendix C

**6.0 Cost Estimate**

**7.0 Implementation Plan (if applicable)**

**Appendix**

Agency and Public Scoping Material  
 Relevant project correspondence

APPENDIX A  
ENVIRONMENTAL OVERVIEW

## ENVIRONMENTAL OVERVIEW

### Environmental Overview

An Overview is utilized for Feasibility, Alternative Selection or Corridor Location Reports. The environmental overview is not a stand-alone document, but is a component of the Feasibility, Alternatives Selection, or Corridor Location Report.

### Objective of Environmental Overview

To: describe the social, economic, and environmental character of the study area;  
identify potential “fatal flaws,” obstacles, issues associated with the study area; and  
evaluate the study area alternatives.

The components of description, identification, and evaluation should be incorporated in the following or similar format:

#### I. INTRODUCTION

Purpose of Overview

#### II. AFFECTED ENVIRONMENT

##### A. Physical and Natural Environment

1. Topography/physiology (land form, drainages)
2. Vegetation (type, general species listing)
3. Biology (expected general species)
  - a. Threatened, endangered & sensitive species
  - b. Wildlife movement corridors
4. Hydrology (floodplains, water quality)
5. Noise (receptors)
6. Air Quality (attainment/non-attainment)
7. Hazardous Materials (PISA)
8. 4(f) (cultural resources, parks, recreation, refuges)

Note: 4(f) applies to federal funds only

##### B. Socioeconomic Environment

1. Land Use (land ownership, residential , commercial, neighborhoods, undeveloped, grazing, etc.)
2. Socioeconomics (employment, etc.)
3. Title VI/Environmental Justice
4. Right-of-Way (existing)
5. Utilities

##### C. Cultural Resources

Historic/Prehistoric (records, literature review)

### III. ENVIRONMENTAL CONCERNS

#### A. Physical and Natural Environment

1. Land Form (visual, forested, mountainous, flat, drainages, etc.)
2. Sensitive Species/Habitat (vegetation, wildlife, T&E, riparian etc.)
3. Water Quality (wetlands, 404, 401, 402)
4. Hazardous Materials (PISA recommendations)
5. 4(f) (cultural resources, parks, recreation, refuges)

#### B. Socioeconomic

1. Relocations (residential/commercial)
2. Land-Use Change/Employment Impacts/Access
3. Title VI/Environmental Justice
4. R/W Acquisitions (comparative acreage)
5. Neighborhood/Community

#### C. Cultural Resources

Historic/Prehistoric (recommendations for Class II representative sample survey or Class III-intensive field survey)

### IV. CONCLUSION

Objective conclusion regarding appropriateness of the study area alternatives and future project programming.

May provide an evaluation for the corridor or alignment that results in a preferred or recommended project.

Note: When the project is programmed, or forecasted to be programmed within a reasonable timeframe, the NEPA process will be required for environmental clearance

Recommendations for further investigations may also be made.

### V. CONSULTATION/COORDINATION

A. Coordination (letters, agency meetings, etc.)

B. Public Involvement (public meetings, newsletter, survey).

No public hearing(s) would occur, as the hearing activity is a component of the NEPA process and the Environmental Overview is not a NEPA document.

Level of effort for (II) Affected Environment:

Define/describe existing conditions through:

- 1) agency coordination letters, meetings;
- 2) map review;
- 3) literature review;
- 4) windshield survey;
- 5) public information meetings.

No field survey for cultural resources should occur.

A site visit may be required to assess potential habitat for TES species.

Corps of Engineers jurisdictional determination survey may be requested and included.

Technical noise analysis or air quality analysis would not occur.

Noise analysis should be limited to noting numbers, type, and general location of receptors.

Air quality analysis should note whether a project is in an attainment/non-attainment area and any special federal, state, or local regulations that would apply to the study area.

Level of effort for (III) Environmental Concerns and IV Conclusion:

Identify issues, potential impacts or “fatal flaws,”  
no subjective analysis, only objective documentation, and  
the document may utilize a matrix to compare/contrast alternatives and summarize information.

As the environmental overview is not a NEPA document or environmental approval document, and no actual project is programmed, the analysis should avoid using terms such as significant, substantial, major, minor, etc.

No formal Section 106 consultation would occur.

Determination of effort or eligibility for cultural resource sites would not occur, unless the information was existing (i.e., known National Register eligible site).

Section 7 Consultation (T&E species) would not occur, as Section 7 is project or action specific.

Section 404, 401, or 402 permits would not be obtained, but identified as to potential type(s) of permit that may be required.

Section 4(f) determination would not occur, but identified as to potential.