

## CHAPTER 2A – PROJECT DEVELOPMENT

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## CHAPTER 2A – PROJECT DEVELOPMENT

### SECTION 2A - 1 - PROJECT INITIATION

#### PRELIMINARY ENGINEERING AUTHORIZATION

This function is now the responsibility of Infrastructure Investment Division.

#### LOCATION CORRIDOR STUDY

Location Studies are now the responsibility of Environmental Division.

#### URBAN PROJECTS

Projects within **towns and cities** with populations of 3,500 or more (and other selected urban areas under 3,500) are initiated by municipal resolution to the **District** Urban Program Manager stating their desire for VDOT to consider the implementation of a project. Upon receipt of a request the **District** Urban Program Manager/Project Sponsor will work with the District Project Management Office to enter the appropriate information in the “Project Pool” to establish a “New” project, obtain a Temporary UPC number and a Partial state base number. The Project Manager or Project Coordinator will initiate a request for the project to be a “Candidate” in the “Project Pool”, obtain a permanent UPC number and a complete state base number. Once the project is included in a “Live” Six Year Improvement Program (SYIP) a Form PD4 will be submitted by the Federal Programs Management Division to Fiscal Division to authorize preliminary engineering. On Federally Funded Projects the Federal Authorization must be in place to open the project to charges.

## **INTERSTATE AND PRIMARY PROJECTS**

Requests for initiation of projects on the Interstate and Primary Systems originate within VDOT as recommended by the Commonwealth Transportation Board (CTB) and District Engineer/Administrator in accordance with established schedules, for future planning purposes and in some instances at the request of local governments. The Project Sponsor will work with the District Project Management Office to enter the appropriate information in the "Project Pool" to establish a "New" project, obtain a Temporary UPC number and a Partial state base number. The Project Manager or Project Coordinator will initiate a request for the project to be a "Candidate" in the "Project Pool", obtain a permanent UPC number and a complete state base number. Once the project is included in a "Live" Six Year Improvement Program (SYIP) a Form PD4\* will be submitted by the Federal Programs Management Division to Fiscal Division to authorize preliminary engineering. On Federally Funded Projects the Federal Authorization must be in place to open the project to charges.

## **CERTIFICATION ACCEPTANCE**

Certification Acceptance (CA) is documentation required by FHWA (on all Federal - Aid projects except Interstate) showing that all Federal Requirements have been met in accordance with the Certification Acceptance Plan that the department is operating under, See [Section 2D-15 PROJECT APPROVAL](#) and [Section 2G-7 PRE-ADVERTISEEMENT CONFERENCE](#). The "Project Pool", "Integrated Project Manager" (iPM), PCES, RUMS, CEDAR and the project schedule should be used to monitor the various stages of project development as well as documenting completion of various stages.

In carrying out operations under certification acceptance (CA), it is imperative that all steps in the project implementation stage be strictly followed. This is particularly the case in transmitting a project at the P.S. & E. stage to the Federal Highway Administration, which cannot be submitted until the environmental document has been cleared. The approval is obtained by the Environmental Division. Environmental documents must receive approval by the FHWA before the work can be authorized. Projects in this category are to be held in Location & Design Division until notification from the Environmental Division has been received that the document has been approved by the FHWA.

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\* Rev. 1/19

**SECTION 2A - 2 - ADMINISTRATIVE APPROVAL**

See [Project Management Online Guide](#)\*

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\* Rev.7/08

## **SECTION 2A - 3 - REVIEWING WORK LOAD AND ASSEMBLING DATA**

### **SCHEDULING PROJECT WITH WORK LOAD**

The Section Manager will assign the project to one of his/her groups. Care must be taken to review existing and possible future construction schedules to assure that the section being assigned the project has sufficient time and manpower.

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\* Rev. 7/10

## **SECTION 2A - 4 - REQUESTING AND ASSEMBLING ADDITIONAL DATA**

### **PRELIMINARY PLAN DEVELOPMENT**

Preliminary Plan Development is intended to provide the basis for scoping, and the guiding document for the development of Field Inspection plans. It is essential that various alternatives be assessed in sufficient detail in order to preclude major modifications during the latter stages of project development.

The following outline is a guide in the development process to assure that adequate control is applied in the early stage of projects:

1. As early as possible, at the inception of a project, photographic coverage is essential. The location of the project determines the coverage required. Rural projects with sparse development and without extremes in topography and development can generally be addressed at a scale of 1" = 200'. A scale of 1" = 100' is preferable, but may limit the band width when relocations or various new alignments are being considered.

Other projects in congested areas may require photography at a scale of 1"= 50'. It is the designer's responsibility to obtain photography at an appropriate scale.

2. If traffic data has not been secured, a request should be submitted at this time on Form [LD-104](#), including the date the information is needed.
3. From the photo coverage in step No. 1, a temporary plan base, either in the form of sheets or mosaics, is to be secured. The request should note that the material is to be used as temporary plan base, and photographic screening and/or dodging will be employed to produce a base on which line work will easily be visible.

Studies have shown that these plan bases provide a clearer drawing when the final version is completed. Other annotations can be made more legible by removing the image to provide a "clean" space for descriptions, etc.

4. Depending upon the complexity of the project, the use of title sheets, typical section sheets and other drawings may be used for quantities and details of traffic, intersections, etc. The base photo coverage can be placed on a sheet outline and a set of plans produced.

## ASSEMBLING ADDITIONAL AVAILABLE DATA

Quite often there is available data within the Department and other state agencies which proves valuable in determining the location and design of the project. Land use maps, tax maps, soil studies, etc., are available in many instances and should be included in the route file for future use. Transportation studies are available for cities and towns [over 3,500 population](#), as well as for several other urban areas [under 3,500](#), and should be used as a guide.

## REQUEST FOR TRAFFIC DATA

Design Year Traffic data is requested on Form [LD-104](#), except for low volume Local Roads and Rural Collectors with a Current ADT (Current ADT being defined as latest available traffic counts) less than 400 VPD. Design Year Traffic Data is required on Local Roads and Rural Collectors requiring a detailed traffic analysis, such as roads experiencing a higher than normal growth rate of for other reasons that would require some type of traffic forecast.

The designer is to check the appropriate blocks to obtain traffic data required for a particular situation. The design year and speed is to be indicated on the form when submitted by the designer. The design year traffic data being requested is to be based on the criteria shown on Form [LD-104](#). The design year (Ad date plus\* 11 years or 22 years) is dependant upon the functional classification of the roadway and the extent of the roadway improvement.

New construction, major improvements or expansion of the facility includes, but is not limited to the following:

- Construction of additional through lanes
- Addition of free-flow ramps to an existing at-grade intersection
- Conversion of an at-grade intersection to a grade separation
- Construction on new location
- Modification of an existing facility that results in some or all of the facility on new location

Reconstruction in kind or minor improvements includes, but is not limited to the following:

- Addition of turn lanes to an existing facility
- Shoulder modifications
- Restoration/maintenance of a roadway that results in a new facility that duplicates the original roadway on the same location
- Minor widening of an existing lane to achieve a standard lane width

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\* Rev. 7/10

Also see the AASHTO “Green Book”, Chapter 6 and AASHTO’s “A Guide for Achieving Flexibility in highway Design”, Chapter 1.

Careful consideration must be given to environmentally sensitive locations which would require possible air or noise studies. Where schools, churches, historical structures, playgrounds, etc., are in close proximity to the proposed project, the District Environmentalist should be contacted to determine the extent of traffic analysis required.

### **REQUESTING PHOTOGRAPHIC COVERAGE/TOPOGRAPHIC MAPPING**

See Survey Manual, Chapter 5 Photogrammetric Surveys for more information.\*

### **ASSEMBLING PHOTOGRAPHS AND MAPPING**

See Survey Manual, Chapter 5 Photogrammetric Surveys for more information.

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\* Rev. 1/19



**SECTION 2A - 5 - FIELD REVIEW**

See [Project Management Online Guide](#)<sup>\*</sup>.

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<sup>\*</sup> Rev.7/08

## **SECTION 2A - 6 - STUDY OF ALTERNATES**

### **PROJECTING HORIZONTAL ALIGNMENT**

In projecting horizontal alignment at this stage of development, all practical considerations should be tested, subject to information obtained from the initial field reconnaissance. The alignment should be governed by the Geometric Design Standards in [Appendix A, Section A-1](#), based on the design speed for the Functional Classification of the highway system that is being considered. In corridor selection, any deviation from these standards is to be noted for consideration. Additional information may also be obtained from AASHTO's *A Policy on Geometric Design of Highways and Streets* and other related publications. As corridors are studied, it is suggested that one baseline be projected for each alternate.

The use of spiral transitions for compound and reverse curves on urban roadways should be avoided. However, the Engineer does have latitude in the use of spiral transitions if the geometrics are warranted. Should spiral transitions be utilized see Road and Bridge Standards, pages 802.01, 802.13 and 802.14 for details.

### **PROJECTING VERTICAL ALIGNMENT**

When all horizontal alignments have been selected and shown on the prints, a tentative grade is necessary in order to properly evaluate these alternates. Care must be taken to conform to applicable standards in regard to gradient and to passing and stopping sight distances on both crest and sag vertical curves. Crest vertical curves shall meet or exceed AASHTO design criteria for Stopping Sight Distance, not the "k" Values. Sag vertical curves shall meet or exceed the AASHTO minimum "K" Values. The "K" values for sag vertical curves take into account the headlight sight distance. Therefore, when the "K" Value for a sag vertical curve does not meet the VDOT Road Design Manual minimum, same as the AASHTO minimum and lighting is not provided,\* it shall be submitted as a design waiver and shown as "Other" on the LD-448 Waiver Form. Grades should present a smooth appearance and eliminate the "roller coaster" concept whenever possible.

### **EVALUATING ALTERNATIVES**

In evaluating alternates at this stage of the project development, it should be kept in mind that this is the initial attempt to define a corridor location and the alignment and grades projected are subject to refinement as shown in [Section 2B-3-DETERMINATION OF ROADWAY DESIGN](#). The basic objective at this time is to eliminate the corridors or alignments which are inferior to others considered within the project area. Ideally, one alignment and grade should appear superior to others considered within a given corridor. The aforementioned items used in considering horizontal and vertical alignment offer the best means of evaluating alternates in addition to any information which was obtained from other sources.

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\* Rev. 1/18

## **PREPARATION OF REPORT**

After alternates have been reviewed and evaluated, a written report to the District Location and Design Engineer is to be prepared stating the conclusions reached reasons for retaining or eliminating some corridors or alternates and a recommended procedure to follow as the study progresses. Copies are to be sent to the District **Engineer/Administrator** or District Preliminary Engineering Manager and any division, which is affected by the project. In this manner all involved parties will be kept abreast of the progress of the project and the files will contain sufficient documentation.

## **PUBLIC INVOLVEMENT PROGRAM**

Informing the public about studies in their area in the earliest stages can be very helpful in the later stages of project development. See Flow Charts in the [Public Involvement Manual](#) for guidance on the Departments Public Involvement Program for both Tier 1 and Tier 2 projects.

## **CONTACTING LOCAL GOVERNMENT AND/OR AGENCIES**

Cooperation and information are two key words in working with local officials. At this stage of development, contact with the local governing bodies, planning commissions and other elected and/or appointed officials is both proper and desirable. Being in contact daily with their local situation gives these local officials an insight to the area's problems and/or changing conditions. In addition to exchange of ideas and information, contact at this time will give them an opportunity to make a contribution to the overall project development. Contact and arrangements for meeting with local officials in urban areas are to be made by the Local Assistance Division. In other areas, these arrangements are to be made by the District **Engineer/Administrator** or his/her designated representative. Meetings of this type also afford the opportunity to bring District personnel up to date on progress of the project.

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\* Rev. 7/15

**SECTION 2A - 7 - PROJECT SCOPING**

See [Project Management Online Guide](#).

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\* Rev. 7/12