# SECTION C-7- SITE PLAN REVIEW

## I. CHECKLISTS FOR SITE PLAN COMPLETENESS

### A. How to Use the Checklists

A Preliminary Site Plan/Rezoning Application Checklist and a Site Plan Checklist are provided.

The site plan should be checked for completeness by the appropriate county staff, then by the VDOT residency staff (except in Northern Virginia where the district staff should check it). To be most effective, complete site plans based on the checklist should be mandated by a county site plan ordinance. The checker should review the site plan to determine if every applicable item on the checklist is contained in the plan.

After the check for completeness, the checker will determine whether or not all the information necessary for a site plan review is available in the plan. If complete, the site plan is ready for review. If incomplete, the site plan should be returned for resubmittal.

B. Checklist for Preliminary Site Plan/Rezoning Application Completeness

Check each item that is included in the site plan.

I. PROJECT IDENTIFICATION

a. _____ Date.
b. _____ Project name.
c. _____ Name/address of applicant and land owner.
d. _____ Magisterial district, county, state.
e. _____ Map and parcel number.
f. _____ Type of use.
g. _____ Total hectares (acreage).
h. _____ Current zoning.
i. _____ Name of engineer/surveyor.

II. GENERAL SITE INFORMATION

b. _____ Site plan ( 1 : 500 or larger).
c. _____ North point on maps.
d. _____ One reproducible plus ____ copies of plan.
e. _____ Adjacent property identification
_____ Name of owner _____ Current zoning
_____ Location _____ Current use
f. _____ Location and total hectares (acreage) of land uses.
g. _____ Topographic map (2 m (5-ft.) interval or less).
h. _____ Boundary survey with source and title.
i. _____ Locations, names, and dimensions of proposed streets, entrances to existing highways, alleyways, building lines, easements, rights-of-way, interior travel ways, parking lots, and pedestrian system.
j. _____ Flood plain limits, if applicable.
k. _____ Locations, names, and dimensions of existing roads ____, easements ____, utility lines ____, rights-of-way ____, streams ____, and drainage ways ____.
l. _____ Preliminary sketch plans indicating provision for all utilities including but not limited to
_____ Drainage (including stormwater management)
_____ Water supply _____ Sewage disposal
m. _____ Typical street sections.

III. STATEMENTS

n. _____ Proposed development conforms to the provisions of all applicable ordinances, regulations, and adopted standards (or note specific waivers sought).

o. _____ Public improvements both on- and off-site that are proposed for dedication and/or construction and an estimate of timing of providing such improvement.
p. _____ Proposed development schedule.

. Checklist for Site Completeness

Circle the number or letter of items included.

I. GENERAL INFORMATION (Identification)

A. Title of project and name of applicant.
B. Names of engineer, architect, landscape architect, and/or surveyor and plan certification.
C. Vicinity map with scale (no less than 1 : 25 000).
D. Direction of north.
E. Plan scale.
F. Type and size of development.
G. Right Of Way line, centerline, departing lot lines, lot numbers, subdivision limits, and limits of construction.

II. GEOMETRICS

A. General

1. Typical section designation. Where special typical section is approved, provide detail on plan.
2. The edge of proposed street surface or the face of curb (as the case may be) and the full length of all streets.
3. The width of right of way, width of surface, or distance between curb faces and relation to center line.
4. All temporary turnaround construction, with easement as indicated on the preliminary plat.
5. Centerline curve data, including delta, radius, arc, chord, tangent, and profile data.
6. Radius of all curb returns to face of curb and on streets where curb and gutter are not required; radius to edge of bituminous treatment.
7. Stations at every 100 meters (feet) at even stations on centerline; stations at points of curve and tangent at the beginning and end of all returns, at centerline intersection, and at subdivision or section limits, and turnaround radius.
8. State route number and or city or town street name on all existing streets to which connection is to be made. Indicate proposed street name where appropriate.
9. Any notes necessary to explain the intent and purpose of plans or profile.

B. Roads

1. Existing entrances, entrances of planned developments that are committed, street connections, crossovers, etc. that are located along existing roadway that may be affected by the proposed development.
2. Where proposed streets or entrances connect with existing roads or streets, indicate both edges of existing pavement, surface, or curb and gutter for a minimum of 30 m (100 ft.) or the length of connection, whichever is the greater distance.
3. Symmetrical transition of pavement at intersection with existing street.
4. Lengths of acceleration lanes and left and right turn lanes and tapers.
5. Crossover spacing and sight distance.
6. Sight distance profiles at all proposed street intersections and entrances, and landscaping, sign placement, and all obstructions that may obstruct or affect sight distance. Dedication of easements for improving sight distance.
7. Functional classification and design speeds for proposed public roadway improvements.
8. Existing roadway geometrics and pavement markings.

C. Other

1. Guard rail where required.
2. Location of curb ramps where appropriate.
3. Dedication of easements for future improvements in the comprehensive plan, state projects, or road bond programs.
4. Sidewalks and trails.

III. DRAINAGE

A. Systems

1. Contour map showing complete coverage of the total contributing drainage area.
2. Locations and dimensions of all existing or proposed drainage easements.
3. Direction of drainage flow for all proposed streets, storm sewers, valley gutters, subdrains, and the like, and all existing streams.
4. All storm sewers and appurtenances. Identify storm sewer appurtenances by type and a number. Station on plan must conform to stations shown on profile. Indicate the top and invert elevation of each structure. Tabulation in the plan view may be permitted.
5. Complete drainage calculations for all proposed facilities and all affected existing facilities, as required in VDOT's Drainage Manual.
6. Profiles on outfall ditches, pipe, etc.; indicate natural drainage and label if applicable.
7. Protection for erosion control.

8. A design for adequate storm water management with calculations and appropriate data where necessary.
9. Any notes necessary to explain the intent and purpose of the proposed drainage plan.

B. Drainage Structures

1. The size of all driveway entrance culvert, i.e.,380 mm (15") or 450 mm (18"), according to computed size, for each lot.
2. The contributing area in hectares (acres) at all culvert pipe, curb inlets, and other entrances, exclusive of driveway pipes.
3. Type or class of pipe to be installed both in right of way and outside right of way.

C. Ditches

1. Proposed drainage ditches for full length in all easements. Furnish detailed typical section and type of stabilization to be provided.
2. Paved ditches and easements at toe of fills.
3. Paved roadside ditches.

D. Streams

1. The location of all streams or drainageways related to the street construction.
2. Proposed stream relocations. Show existing and proposed locations. Furnish detailed typical section and type of stabilization.

IV. UTILITIES

A. General

1. All proposed water mains, their sizes, valves, and fire hydrants.
2. All proposed sewer lines.
3. All existing utilities; if within limits of proposed right of way, provide details as to location and typical sections.
4. Where security lighting is proposed, indicate the following:
   a. Distance of pole from edge of pavement.
   b. Distance of pole from proposed right of way.
   c. Distance from pole to center of luminaire.
   d. Height of luminaire above centerline of roadway.
   e. Level of illumination.
5. Any notes necessary to explain the intent and purpose of proposed utilities or adjustment of existing utilities.

V. TRAFFIC ANALYSIS

Developer will be responsible for supplying sufficient information for VDOT to determine entrance and road design features to serve the existing roadway and the proposed development adequately. The information may include:

1. Traffic analysis for site development on existing and proposed facility used to determine design of entrances, including trip generation and traffic assignment.
2. On-site circulation patterns for potential impact on existing roadway.
3. Intersection analysis including need for signalization, channelization, turn lanes, and modification of existing signals.
4. Existing and proposed traffic control devices such as signs and pavement markings.
5. Recommendations for roadway improvements to accommodate traffic generated by proposed development, including proposed signal phasing plans.
6. Any notes necessary to explain the intent and purpose of the proposed traffic analysis.

VI. COMMENTS

A. Design

1. Site plans and subdivision plans shall be designed in accordance with the appropriate manuals of the Virginia Department of Transportation:
   a. Minimum Standards of Entrances to State Highways, Traffic
   b. Subdivision Street Requirements, Secondary Roads Division.
   c. Road and Bridge Standards, Location and Design Division.
   d. Drainage Manual, Location and Design Division.
   e. Land Use Permit Manual, Maintenance Division.
   f. Guidelines for Lighting by Permit on State Right of Way, Maintenance Division.

   These design standards are considered minimal. In keeping with its mission to provide a safe, efficient, and effective ground transportation system, VDOT is obligated to make recommendations that exceed these standards where it is deemed necessary and in VDOT's best interest.

2. Where a county has adopted standards higher than VDOT standards, the higher standards of the county should prevail.

B. Resubmittal

A written description of all plan revisions must accompany all revised plans submitted for reevaluation and approval. The description should state each problem and its resolution. If the resolution does not concur with state and county recommendations, an explanation must be given. The changes should be clearly illustrated on the plans.

## II. SITE PLAN REVIEW CHECKLIST

VDOT reviews site plans for a wide range of types and sizes of land development. There are specific elements that are a part of all reviews. However, each review should be tailored to meet the site-specific conditions for the area and the proposed project. To the extent practical, short-, medium-, and long-range implications should be considered. A substantial amount of engineering judgment may be used.

Circle the number or letter of items that are acceptable.

I. ACCURACY AND COMPATIBILITY

A. Verify the location and dimensions of existing roadway elements of the plan.

B. Examine the compatibility of the site plan with the six-year road improvement plan, the county master plan, and VDOT's statewide highway plan. Examine all available sources to eliminate discrepancies.

II. INTERNAL CIRCULATION PATTERN

A. Review proposed internal circulation patterns to determine if their traffic flow patterns allow for vehicular circulation to take place on-site and not on the street system.

B. Review driveway location(s) relative to intersections and other driveways and adjacent property lines.
   1. Check spacing from other drives for potential interference.
   2. Check spacing from signalized drives or intersections to determine if traffic queue will block proposed drive.
   3. Check access spacing to determine if the spacing from other signals will be conducive to a signal system if the proposed driveway(s) are signalized.
   4. Check projected queues for interference with traffic operations.

III. INTERSECTION GEOMETRICS (Proposed Entrances and Affected Intersections)

Verify that geometrics satisfy the appropriate design standards. Check the entrance of intersection designs, especially the radii and angle of intersection with the existing roadway.

IV. INTERSECTION SIGHT DISTANCES

A. Check for intersection sight distances and compliance with the design requirements.

B. Check for consideration of the numbers of buses and type and frequency of trucks entering and exiting the facility in determining sight distance needs.

V. AUXILIARY LANES

A. Left-turn Lanes
   1. Check the need for and dimensions of a left-turn lane based on volume and traffic operations.
   2. Note that left-turn lanes are generally provided at median openings.
   3. Consider severe horizontal and/or vertical geometry, driver expectancy, accident experience, the effect of turning vehicles on through traffic, and observations.

B. Right-turn Lanes
   1. Check the need for and dimensions of a right-turn lane.
   2. Consider severe horizontal and/or vertical geometry, driver expectancy, accident experience, the effect of turning vehicles on through traffic, and observations.

C. Additional through lanes: Check the need for and dimensions of additional through lanes.

IV PEDESTRIANS

A. Estimate the volume of pedestrians and their needs.

B. Review existing and proposed sidewalks and paths in the area and the need for sidewalks.

VII. SIGNALIZATION

A. Verify that signalized intersections are studied as shown in the current Highway Capacity Manual.

B. Determine if signals are required as warranted by the MUTCD.

C. Review signal phasing and the need for certain phases such as protected and/or permissive phasing.

D. Review adjacent signals and determine if signal coordination is needed.

E. Consider preferred locations of signals for efficient signal systems.

VIII. SIGNING AND PAVEMENT MARKINGS

A. Verify that signing and pavements markings are compatible with proposed traffic operations.

B. Verify that signs and pavement markings located in both the driveway and internal areas are installed and maintained by the developer.

C. Review existing and proposed signing and pavement marking.

D. Verify that all signing is in accordance with the MUTCD and the Virginia Supplement to the MUTCD.

IX. FENCING

Check VDOT policy (when property abuts a limited access roadway). Consider fencing when an unusual need is present, e.g., railroad line.

X. ROADSIDE OBSTACLES

Review proposal to determine if traffic is being moved closer to fixed objects or roadside hazards and what, if anything, should be considered in accordance with VDOT's Road and Bridge Standards.

XI. ROADWAY LIGHTING

Review roadway lighting to be installed by the developer pursuant to Guidelines for Lighting by Permit on State Right of Way, Maintenance Division.

XII. RIGHT OF WAY

Determine if right of way denotation or easements are needed.

XIII. DRAINAGE

A. Perform a spot check of drainage calculations for:
   1. Proper/applicable design methods and procedures.
   2. Completeness and accuracy.
   3. Change in flow patterns and diversions.

B. Review drainage that would have a direct effect on the roadway.
   1. Check for adequate pavement drainage and proper placement of drainage structures.
   2. Check the location and method by which pavement drainage is conveyed away from the travelway.

C. Review drainage structures.
   1. Check existing structures (storm sewers, ditches, etc.) for adequacy to convey the runoff that will come to them in conformance with applicable criteria/requirements.

2. Check hydraulic design of proposed drainage facilities for conformance with applicable criteria/requirements.
3. Check for proper treatment at ends of drainage facilities (riprap, paved ditches, etc.).
4. Check detention facilities for required hydraulic performance, proper outfall, and adequate roadway protection.

D. Review erosion control.
1. Check for current and potential erosion and siltation problems.
2. Check for impact of the development.
3. Check for the adequate placement of erosion control devices.

E. Check involvements with regulatory flood plains and/or the 100-year flood zone.

F. Check to ensure that all necessary drainage easements have been designated.

XIV. REVIEW COMMENTS

A. Prepare written review comments. The comments should be well organized, clear, direct, and specific. Problems should be clearly defined and, when desired, actions to be taken to resolve each problem should be stated.

B. Recommendations and requirements.
1. For compliance when minimum standards are involved, state that the design feature is required. Design features that exceed minimum standards but are required to resolve capacity or safety problems should be stated as required with an explanation.
2. For design features that exceed the minimum standards state that the design is recommended or, if appropriate, highly recommended.

# III. GUIDELINES FOR A TRAFFIC IMPACT STUDY

## A. Purpose

A traffic impact study assesses the impact of a proposed development, zoning change, or special use approval on the transportation system. Its purposes are (1) to ensure that proposed developments or zoning changes do not adversely affect the transportation network, (2) to identify any traffic problems associated with access from the site to the existing transportation network, (3) to delineate solutions to potential problems, and (4) to present improvements to be incorporated into the proposed development.

The traffic impact study guidelines contained herein are subject to modification by VDOT and the county as necessary. They will be reviewed periodically and updated with state-of-the-art technical information. These guidelines have been developed in order to provide for consistent preparation of traffic impact studies. The guidelines will greatly enhance the efficiency of staff review and, at the same time, will provide the applicant with "accepted" technical procedures and methodologies. VDOT and the county will review each development application on a case-by-case basis and may make recommendations that differ from the guidelines.

## B. Responsibilities for Traffic Impact Studies

The primary responsibility for assessing the traffic impacts associated with a proposed development rests with the applicant, with the county and VDOT serving in a review capacity. This is consistent with the approach followed for other civil engineering aspects of zoning and subdivision applications. The county and VDOT should specify whether a traffic impact study is required, the extent of the study area, and any specific issues that should be addressed (i.e., safety, accidents, truck traffic). This determination should be made in the rezoning application or preliminary site plan stage.

If a traffic impact study is required, the applicant will be responsible for submitting a formal traffic impact report. The applicant will also be responsible for all date collection efforts required in preparing a traffic impact study, including current peak period turning movement counts. Current peak period turning movement counts is defined as those counts that have been collected within one year of the zoning or subdivision application.

The county or VDOT, at its discretion, may request the applicant to adjust the peak hour turning movement counts in order to account for seasonal variations in traffic or other localized factors. In addition, the applicant will be responsible for ensuring that any submitted site plans meet the minimum state and local standards for geometric design. The study should be conducted only by an individual or firm that could be qualified as an expert in traffic engineering.

Upon submission of a draft traffic impact analysis report, the county and VDOT will review the study data sources, methods, and findings and provide comments. The applicant will then have the opportunity to incorporate necessary revisions prior to submitting a final report to public officials. Accompanying the applicant's submission will be written comments of local and state staff. This information will then be used to reach a decision regarding the proposed development.

## C. Determining the Need for a Traffic Impact Study

The reviewing agencies should have the discretion to determine when a traffic impact study is needed. The need for a traffic impact study should be evaluated based on conditions surrounding the individual development. The site specific conditions that should be considered include:

1. The potential impact upon the local and regional read networks.
2. The capacity and level of service of the existing roadways to be entered.
3. Roadway geometrics.
4. The type and size of the proposed development.
5. Traffic operations of one or more intersections.
6. Issues of safety and/or traffic operation within the public right of way.

VDOT and the county should consider requesting that a group of developers jointly sponsor a traffic impact study on a section of highway where many independent developments are planned.

## D. Traffic Impact Study Contents and Specifications

The contents were primarily adopted from VDOT "Guidelines for Traffic Impact Study--Final Report," prepared by Simpson and Curtin, April 1979, and "Guidelines for Traffic Impact Studies in James City County."

### 1. Format

A traffic impact study prepared for a specific site proposal should follow the chapter format shown in Table C-7-1. Wherever additions or modifications are appropriate for a specific site, they should be made.

### 2. Capacity and Level of Service Analyses

a. Use of the Highway Capacity Manual

All capacity analyses shall be conducted utilizing the procedures in the current Highway Capacity Manual (Special Report 209), Transportation Research Board.

1. INTRODUCTION

   A. Site and Study Area Boundaries
   B. Existing and Proposed Site Uses
   C. Existing and Proposed Nearby Uses
   D. Existing and Proposed Roadways and Intersections

2. ANALYSIS OF EXISTING CONDITIONS

   A. Daily and Peak Hour(s) Traffic Volumes
   B. Capacity Analyses at Critical Points
   C. Levels of Service at Critical Points

3. ANALYSIS OF FUTURE CONDITIONS WITHOUT DEVELOPMENT

   A. Daily and Peak Hour(s) Traffic Volumes
   B. Capacity Analyses at Critical Points
   C. Levels of Service at Critical Points

4. TRIP GENERATION

5. TRIP DISTRIBUTION

6. TRAFFIC ASSIGNMENT

7. ANALYSIS OF FUTURE CONDITIONS WITH DEVELOPMENT

   A. Future Daily and Peak Hour(s) Traffic Volumes
   B. Capacity Analyses at Critical Points
   C. Levels of Service at Critical Points

8. RECOMMENDED IMPROVEMENTS

   A. Proposed Recommended Improvements
   B. Capacity Analyses at Critical Points
   C. Levels of Service at Critical Points

9. CONCLUSION

TABLE C-7-1
TRAFFIC IMPACT STUDY CONTENTS

For capacity analysis and level of service determinations, the most recent Federal Highway Administration software package should be used for the different types of analysis required (e.g., signalized intersections, freeways, ramps). CAPCALC 85 may also be used for analyzing intersections. Regardless of which software package is used, the results should be reviewed for reasonableness. Other software, if approved by the county and VDOT in advance, may be used.

Consultants may use any of a number of software packages available for capacity analysis. They should provide the input data as well as the results of the capacity analysis so that VDOT may check the results with its own analysis. Where a great number of intersections or road sections are analyzed, a sample of those should be checked by performing the analysis and comparing results. Where differences occur, the consultant should be required to explain the differences, and all road sections and intersections should be reviewed closely.

b. Level of Service

Level of Service C will be the design objective, and under no circumstances will less than Level of Service D for all approaches of an intersection be accepted for on-site and off-site traffic. This criterion, however, may be modified by the county and VDOT on a case-by-case basis, depending on traffic conditions in the proposed site vicinity.

c. Use of Results of Level of Service Studies

1. The primary function of a level of service study is the determination of the geometrics required to provide a desired level of service in a design year.

2. The number of lanes required on either a through road or at an intersection can be determined, and the need for auxiliary lanes, as well as their length, can be established.

3. The need for signalization can be determined from the projected traffic volumes and the signal warrants in the Manual on Uniform Traffic Control Devices for Street and Highways (MUTCD).

4. The level of service study can indicate where on-street parking will have to be eliminated or restricted in order to achieve a desired level of service.

5. When a development in a given area is projected to be phased over a long period of time, stage construction should be considered and a level of service study used to determine when the various stages must be completed.

3. Narrative

A brief narrative for each chapter of the traffic impact study follows.

## Chapter 1. Introduction

A. Site and Study Area Boundaries

Include a brief description of and a map displaying the size of the land parcel, the general terrain features, and the location within the jurisdiction and region. In addition, identify the roadways that afford access to the site and are included in the study area. The exact limits of the study area should be based on engineering judgment and an understanding of the existing traffic conditions in the site vicinity. In all instances, however, the study area limits will be discussed with the applicant and his traffic engineer and will be determined by the county and VDOT staff. The definition of the study area should result, subsequent to the initial staff review of a developer's rezoning application or preliminary site plan, at which time a traffic impact study will be required. If the project is being completed in phases, describe the total project and the phases. The study should address the appropriate phase.

B. Existing and Proposed Site Uses

Identify the existing and proposed uses of the site in terms of the various zoning categories. In addition, identify the number and the type of residential units, and type and amount of commercial, industrial, or office uses in accordance with ITE trip generation categories.

C. Existing and Proposed Nearby Uses

Include a complete description of the existing land uses in the vicinity of the site, as well as their current zoning. Also state the proposed developments of adjacent land using the county's comprehensive land use plan. This is especially important where large tracts of underdeveloped land are in the vicinity of the site and are within a prescribed study area.

D. Existing and Proposed Roadways and Intersections

Describe and provide diagrams of the existing roadways and intersections (including road geometrics, lane usage, traffic control, and intersection condition diagrams) within the study area as well as improvements contemplated by the county and state. This includes the nature of the improvement project, its extent, the implementation schedule, and the agency or funding source responsible.

## Chapter 2. Analysis of Existing Conditions

A. Daily and Peak Hour(s) Traffic Volumes
Present diagrams depicting daily and peak hour traffic volumes for roadways within the study area. Present turning movement and mainline volumes for the three peak hour conditions (a.m., p.m., and site-generated). Present only mainline volumes to reflect daily traffic volumes. Also present the source and/or the method of computation for all traffic volumes.

B. Capacity Analyses at Critical Points
Utilizing techniques as described in the current Highway Capacity Manual, assess the relative balance between roadway volumes and capacity. Analyze existing conditions (roadway geometrics and traffic signal control) for all peak hours.

C. Level of Service at Critical Points
Based on the results obtained in the previous section, determine and present levels of service (A through F). Include a description of typical operating conditions at each level of service.

## Chapter 3. Analysis of Future Conditions Without Development

Describe the anticipated traffic volumes in the future and the ability of the roadway network to accommodate this traffic without the proposed zoning or subdivision request. The future year(s) for which projections are made will be specified by the county or VDOT staff and will depend on the timing of the proposed development.

A. Future Daily and Peak Hour(s) Traffic Volumes
Indicate clearly the method and assumptions used to forecast future traffic volumes so that the county and VDOT staff can replicate these calculations.

B. Capacity Analyses at Critical Locations
Describe the ability of the existing roadway system to accommodate future traffic (without site development) for all peak hours using the current Highway Capacity Manual. If roadway improvements or modifications are committed for implementation, present the capacity analysis for these conditions.

C. Levels of Service at Critical Points
Based on the results obtained in the previous section, determine the levels of service (A through F).

## Chapter 4. Trip Generation

Present and diagram the amount of traffic generated by the site for daily and three peak hour conditions. Trip generation rates to be used should be those presented in Trip Generation, 4th ed, Institute of Transportation Engineers. Deviation from these rates must be justified and documented to the satisfaction of the county and VDOT.

## Chapter 5. Trip Distribution

Present and diagram the direction of approach for site-generated traffic for the appropriate time periods. The basic method and assumptions used must be clearly stated so that the county and VDOT can replicate these results.

## Chapter 6. Traffic Assignment

Describe the utilization of study area roadways by site-generated traffic. Combine the proposed traffic volumes with the anticipated traffic volumes from Chapter 3 to describe and diagram mainline and turning movement volumes for future conditions with the site developed as proposed. Clearly state the basic method and assumptions used.

## Chapter 7. Analysis of Future Conditions With Development

A. Future Daily and Peak Hour(s) Traffic Volumes
   Present and diagram mainline and turning movement volumes for the highway network in the study area, as well as driveways and internal circulation roadways for all time periods.

B. Capacity Analysis at Critical Points
   Perform a capacity analysis for all peak hours for future conditions with the site developed as proposed using the current Highway Capacity Manual.

C. Levels of Service at Critical Points
   As a result of the capacity analysis, compute and describe the level of service on the study area roadway system.

## Chapter 8. Recommended Improvement

In the event the analysis indicates that unsatisfactory levels of service will occur on study area roadways, describe the improvement proposed to remedy deficiencies. The proposals would identify committed projects by the county and state that were described in Chapter 1 and reflected in the analysis contained in Chapters 2 and 3.

A. Proposed Recommended Improvements
Clearly describe and diagram the location, nature, and extent of proposed improvements to ensure sufficient roadway capacity. Accompanying this list of improvements should be preliminary cost estimates, source of funding, timing, and likelihood of implementation.

B. Capacity Analysis at Critical Points
Describe the anticipated results of making these improvements.

C. Levels of Service at Critical Points
As a Result of the revised capacity analyses presented in the previous section, present the levels of service for the roadway system with improvements.

## Chapter 9. Conclusion

The last chapter of the report should be a clear, concise description of the study findings. This concluding chapter should serve as an executive summary.

# IV. Roles of VDOT Offices in Site Plan Review

## A. Residency Offices

(This description is not applicable for residencies in Northern Virginia where the district office is the primary entry point for site plans.)

1. Log in all preliminary site plans and rezoning applications and site plans from the county. In counties without an engineering or planning staff, the residency may receive plans from the developer or his representative. The residency office is a clearinghouse for site plans and traffic impact studies. Any site plans sent directly to the district or central office should be returned to the appropriate residency.

2. Check the site plan for completeness using the appropriate checklist, either the checklist for the preliminary site plan or for site plan completeness.

3. Return incomplete site plans to or contact the sender noting the deficiencies to be corrected.

4. For completed site plans, determine if the plan should be forwarded to the appropriate district office section for either drainage or traffic review or both. The factors considered in this determination include:

    a. The capabilities of the residency staff.
    b. The size of the development.
    c. The level of service on the existing highways that will provide access.
    d. The complexity of the drainage system design.
    e. The residency staff has questions on the site plan.

5. Perform the site plan review using the site plan review checklist and prepare written review comments, or forward the site plan to the appropriate district office section(s) for review with issues of particular concern noted. If both areas are reviewed, jointly address both review persons in the cover letter. Wait to receive their comments.

6. Forward all traffic impact studies to the district traffic engineering section.

7. Forward the review comments to the county staff or developer or his representative.

8. Coordinate site plan review activities with the county and, if appropriate, with the district.

## B. District Offices

1. Log in the rezoning applications and site plans received from the residency.

2. If appropriate, coordinate activities between the district sections reviewing the plan, primarily the hydraulics and traffic engineering section.

3. Determine if the application or site plan should be forwarded to the central office for a partial or complete review, or not at all. The factors considered in this determination include:

   a. The size of the development.
   b. The level of service on the existing highways that will provide access.
   c. Impact on an interstate road.
   d. The complexity of the road and drainage designs.
   e. The development impacts on roads with major improvements planned.
   f. A policy change is needed.
   g. The district staff has questions on the plan.

4. For plans to be reviewed in the central office:

   a. For a complete review, forward the plan to the head of the Location and Design Division, indicate the divisions that should review the plan, and flag issues of special concern.
   b. For a partial review, forward the plan to the head of the division that should review the plan and flag issues of particular concern. Send a copy of the letter to the head of the Location and Design Division. Wait to receive their comments.

5. Perform the site plan review using the Site Plan Review Checklist and prepare written review comments.

6. For a traffic impact study:

   a. Check for adherence to the guidelines for a traffic impact study.

   b. If the study does not satisfy the guidelines, return it to the initial sender, either the county or the preparer of the study.

   c. If the study is acceptable, determine if the study should be reviewed by the Transportation Planning Division. The factors to be considered are outlined in item 3 above for the district office.

   d. Perform the review and prepare written comments or forward the review to the Transportation Planning Division, flagging issues of concern, and wait for their comments.

7. When comments on a plan or traffic impact study are received, review the comments, then forward the review comments to the residency, including any comments from the district and a note stating which office should review the revised site plan when it is submitted.

## C. Central Office

1. Log in rezoning applications and site plans from the district offices.

2. For complete plan reviews by the central office, the Location and Design Division will coordinate the review with the related divisions as requested by the district office. The Location and Design Division is responsible for forwarding the plans to the appropriate divisions, compiling the review comments from the divisions, and forwarding the comments to the district offices.

3. For partial reviews by the central office, the reviewing division receives the plan from the district office and reviews the plan using the Site Plan Review Checklist, and other references deemed appropriate by the division, and prepares a written response that is forwarded to the district. The areas of site plan review responsibility for the divisions are:

   Location and Design: (a) reviews road geometrics and entrance designs, (b) reviews drainage designs, and (c) examines how the proposed site may impact planned road projects.

   Transportation Planning Division: (a) reviews plans for traffic impact on existing roads and planned road improvements, especially the capacity analysis, and (b) reviews traffic impact studies.

   Traffic Engineering Division: evaluates unusual proposals or extenuating circumstances for compliance with the subdivision street requirements.

Secondary Roads: evaluates unusual proposals or extenuating circumstances for compliance with the subdivision street requirements.

Maintenance Division: serves as a clearinghouse for complaints of betterment when a developer who views VDOT's requirements as excessive submits a request to the Commission to review his complaint.

Materials Division: (a) occasionally reviews pavement structures, and (b) reviews the geotechnical plans of roadway dams.

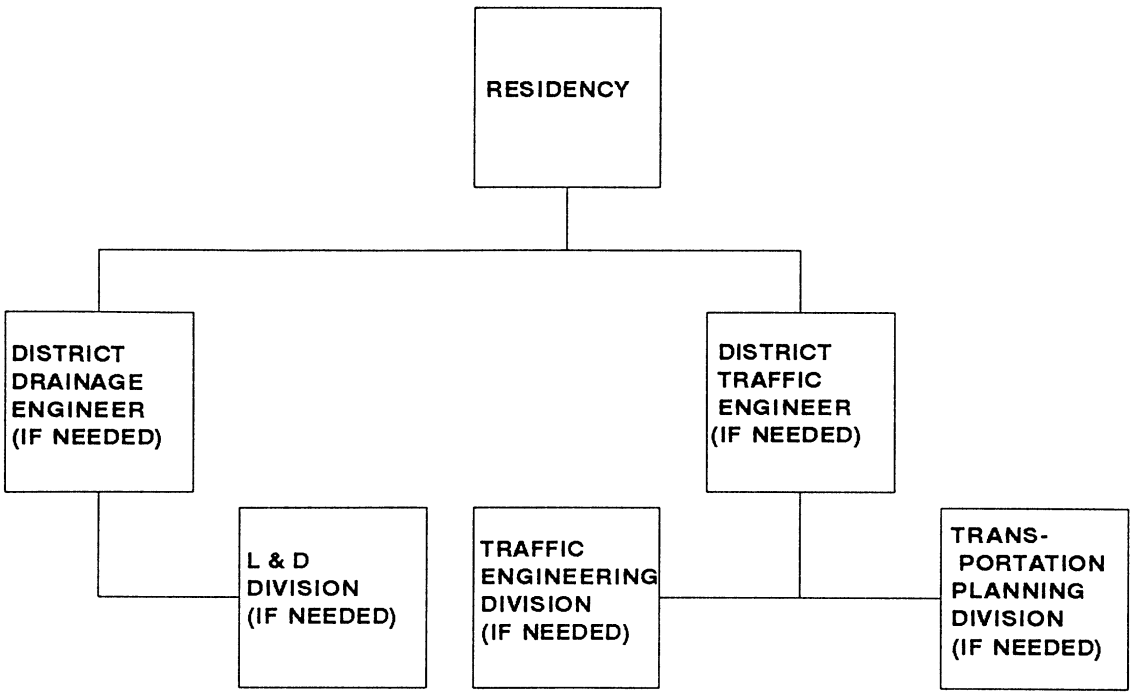
On rare occasions, other divisions may be requested to review a particular aspect of the site plan that involves their areas of responsibility.

## D. Site Plan Review Process Through VDOT

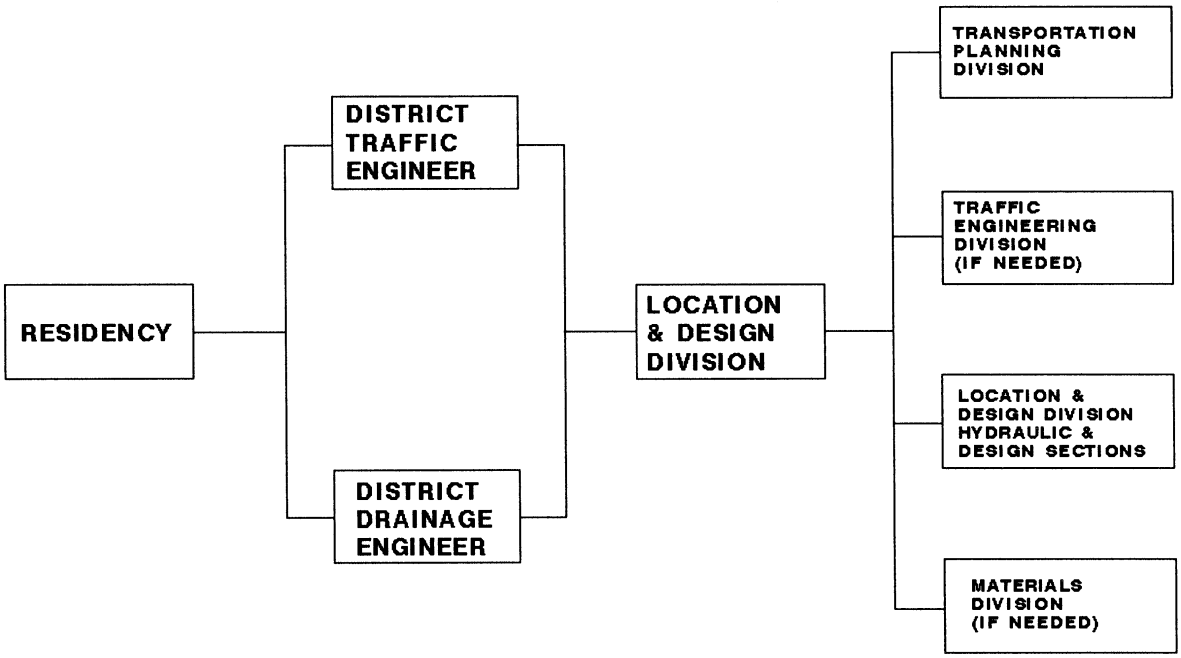
Figures C-7-1 and C-7-2 illustrate the flow of site development plans and subdivision plans, respectively, through the VDOT. In both cases, all plans should be submitted to the residency to initiate VDOT review (except for Northern Virginia where the district is the entry point).

Figure C-7-1 shows the plan flow through VDOT for partial site plan reviews. Figure C-7-2 shows the flow for complete reviews by the next level.

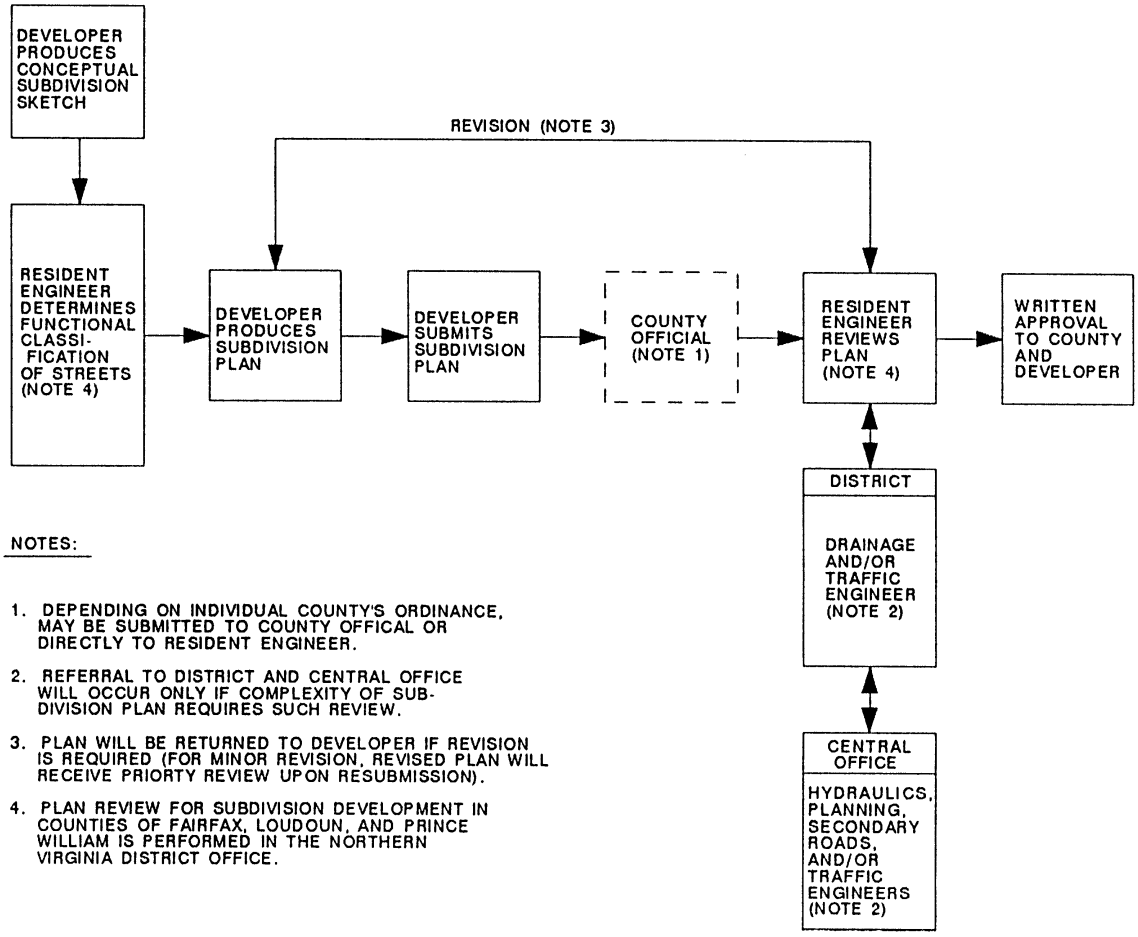
Figure C-7-3 is from the draft of "Subdivision Street Requirements."




PARTIAL SITE PLAN PREVIEW PROCESS
FIGURE C-7-1




COMPLETE SITE PLAN REVIEW PROCESS
FIGURE C-7-2




NOTES:

1. DEPENDING ON INDIVIDUAL COUNTY'S ORDINANCE, MAY BE SUBMITTED TO COUNTY OFFICAL OR DIRECTLY TO RESIDENT ENGINEER.
2. REFERRAL TO DISTRICT AND CENTRAL OFFICE WILL OCCUR ONLY IF COMPLEXITY OF SUB-DIVISION PLAN REQUIRES SUCH REVIEW.
3. PLAN WILL BE RETURNED TO DEVELOPER IF REVISION IS REQUIRED (FOR MINOR REVISION, REVISED PLAN WILL RECEIVE PRIORTY REVIEW UPON RESUBMISSION).
4. PLAN REVIEW FOR SUBDIVISION DEVELOPMENT IN COUNTIES OF FAIRFAX, LOUDOUN, AND PRINCE WILLIAM IS PERFORMED IN THE NORTHERN VIRGINIA DISTRICT OFFICE.

SUBDIVISION STREET PLAN REVIEW PROCEDURE
FIGURE C-7-3

## V. COORDINATION WITH COUNTY GOVERNMENTS IN SITE PLAN REVIEW

The previous sections of the guide emphasized site plan review activities within VDOT. Coordination and communication with the county governments are strongly encouraged and should be responsive to the needs of the county and the respective residency and/or district offices. Communication between VDOT and the counties is important in facilitating site plan review activities and in resolving problems and misunderstandings. Agreement on county and VDOT interaction with the developer should be obtained. With the exception of Northern Virginia, a VDOT residency staff person should be designated to serve as a liaison with the county.

The field offices and counties are strongly encouraged to document their site plan review process. In this way, the process will be clearly outlined on paper to facilitate mutual understanding and expectations of the site plan review process. The process of developing the document will provide opportunities to resolve problems and misunderstandings. Updates or revisions of the process should be made as needed.

The field offices and counties should each have updated copies of all of the other's documents pertinent to site plan review.