



# **VDOT Land Development Toolbox Improving Services to Our Customers**

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# VDOT Land Development Improving Services to Our Customers

## Origin & Progress of Project

### 2014 – VDOT Business Plan Land Development Item

- Devote organizational resources to increase land development plan & plat review services to **stimulate economic opportunity**
- **Reduce review & cycle times** for construction and site plan reviews completed by VDOT staff

### 2014 & 2015 – Land Development Working Group Formed

- Recommendations created from development phase through construction plan approval

### 2016 – Land Development Inspection Group Created

- Recommendations made & related forms created through the street acceptance process

### 2017 – **Continue the Improvement**

# VDOT Land Development Improving Services to Our Customers

## Goals of Project

- **Clarify** VDOT requirements
- **Create** predictable VDOT processes of plan review and construction inspection
- **Help** customers improve the quality of plans submitted to VDOT
- **Improve** communications
- **Provide** more easily accessible information
- **Enhance** VDOT's online services

# Tools to Assist Engineers and VDOT

1. Submittal Checklist – Used to determine if plans have complete information for a plan review
2. Plan Checklist – Used by both designers developing plans & VDOT staff to determine if correct information & details are in plan
3. Hydraulic Calculations Checklist – Includes drainage & hydraulic information required in plans

## Tools to Assist Developers, Contractors & VDOT

4. Preconstruction Checklist – Can be used during preconstruction meetings with developer, contractors and VDOT to ensure all parties understand responsibilities & requirements
5. Development As-Built Checklist – Lists details and geotech certifications that the Developer's Engineer must submit following construction
6. Final Inspection Checklist – Will be used by VDOT Permit Specialist during final inspection; can assist contractors to prepare for inspection

## Additional Actions to Assist Developers, Engineers, Contractors, Localities and VDOT

1. Promote VDOT involvement at local re-zoning stage to address compliance with VDOT standards **TIA; Access management; ROW**
2. Encourage VDOT attendance at pre-application meetings with the applicant and the locality  
**Entrance location, entrance design, turn lane warrants, ROW crossings, maintenance schedules**

# Additional Actions to Assist Developers, Engineers, Contractors, Localities and VDOT

3. Convince VDOT staff to communicate with engineers and developers by phone

Emails tend to over communicate, confuse with poor subject lines, deliver unclear messages, carry a rude or angry tone, contain poor grammar, sentence structure, or abbreviations.

# Additional Actions to Assist Developers, Engineers, Contractors, Localities and VDOT

4. Require VDOT to write plan comments to facilitate & promote solutions

**Per regulations, provide minimum cover over all culverts.**

Please revise the #3 culvert design to provide a minimum of 1ft of cover under the upstream pavement taper.

**Per regulations, show correct limits of disturbance**

Please move the "LOD" on sheet C-102 outside the proposed 484 contour upstream of the culvert.

**Provide an entrance throat per regulations**

Please add concrete curb from the east edge of the eastern commercial entrance to the first parking space of building 'B' to prohibit any parking within the limits of the commercial entrance.

## Additional Actions to Assist Developers, Engineers, Contractors, Localities and VDOT

5. Offer and encourage applicants to meet with VDOT staff and the locality at every stage for better understanding of review comments

*Save time/money by spending a couple hours meeting instead of many hours on un-necessary re-submittals*

6. Require VDOT hold periodic District meetings with the engineering consultants, development community and localities to discuss VDOT services and customer needs

*Regular communication about changing regulations, innovations, and customer needs will improve the performance of all stakeholders involved in the process/market*

## VDOT Improvements to Street/Permit Inspections & Street Acceptance Process

- Require preconstruction meetings with contractors, localities and VDOT staff to discuss developer & contractor responsibilities, expectations and areas of concern
- Require training for contractors and third party inspectors consistent with the “*VDOT Land Development Inspection Manual*”
- Develop clear “Street Assembly package” instructions for localities and VDOT staff usage
- Create dedicated VDOT external website for the land development community – include current VDOT documents, announcements, guidance updates, checklists and links to pertinent sites

## Dedicated VDOT Website: Land Developers Information Center

- Site: <http://www.virginiadot.org/landdevelopers>
- To be used by companies, localities and organizations proposing to develop land, construct new roads and gain access to VDOT roads
- This most often involves subdivisions, commercial, industrial and mixed-use developments and activities
- Page will announce all VDOT policy and process changes related to Land Use
- Page organized to follow general development process:
  - VDOT Land Use regulations
  - Plan review
  - Preconstruction, construction and inspections
  - Street acceptance and project close out
  - VDOT Instructional and Informational Memorandums

# Dedicated VDOT Website: Land Developers Information Center

## VDOT Land Use Regulations

- **Traffic Impact Analysis (TIA)**

The purpose of TIA is to assess the impact of proposed changes in land use associated with a development on the surrounding/adjacent transportation network in Virginia.

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[http://www.virginiadot.org/info/traffic\\_impact\\_analysis\\_regulations.asp](http://www.virginiadot.org/info/traffic_impact_analysis_regulations.asp)

- **Access Management**

With the goal of reducing traffic congestion and enhancing public safety by reducing crash rates, access management regulations contain the standards for the design of intersections, turning lanes, entrances, and for the spacing of entrances, intersections, traffic signals, median crossovers that apply to all state highways.

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[http://www.virginiadot.org/info/access\\_management\\_regulations\\_and\\_standards.asp](http://www.virginiadot.org/info/access_management_regulations_and_standards.asp)

### **Secondary Street Acceptance Requirements (SSAR) – Effective July 1, 2009**

The SSAR requirements apply to all constructed streets intended to be maintained by VDOT as part of the secondary system of state highways.

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[http://www.virginiadot.org/info/secondary\\_street\\_acceptance\\_requirements.asp](http://www.virginiadot.org/info/secondary_street_acceptance_requirements.asp)

- **Subdivision Street Requirements (SSR) – Developments approved prior to July 2009**

This document is intended for users of VDOT's Subdivision Street Requirements for the development of new subdivision streets to be maintained by VDOT.

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<http://www.virginiadot.org/projects/ssr-rev.asp>

- **Land Use Permits**

Land use permit regulations set forth the rules that individuals, localities, and other entities must follow in order to conduct activities other than travel on the commonwealth's highway systems that are under VDOT jurisdiction. These include activities such as installation of utilities, construction of private and commercial entrances, landscaping, the temporary use of the right of way, as well as numerous other types of activities.

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<http://www.virginiadot.org/business/bu-landUsePermits.asp>

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## Plan Review

- **Plan Submittal Checklist**

List of necessary details and documents to identify if plans have correct information prior to plan review

<http://www.virginiadot.org/info/resources/landdev/Land Use Plan Submittal Checklist June 2016.pdf>

- **Development Plan Checklist**

To be used by both persons developing plans and VDOT staff to identify if correct information and details are contained within plan

<http://www.virginiadot.org/info/resources/landdev/Land Use Development Plan Checklist June 2016.pdf>

- **VDOT Hydraulic Calculations Plan Checklist**

Comprehensive list of drainage design data required for plan analysis

<http://www.virginiadot.org/info/resources/landdev/Land Use VDOT Hydraulic Calculations Plan Checklist June 2016.pdf>

- **Ditches and Channels**

Form LD-268 found in the VDOT Drainage Manual. The Roadside and Median Ditch Design Form is used for computing depth, velocity, and channel lining.

<http://www.virginiadot.org/business/resources/LocDes/DrainageManual/drain-manual-chapter-07.pdf>

- **Department of Rail and Public Transportation Multimodal System Design Guidelines**

A resource for local planners, engineers, designers, policy and decision makers and anyone else engaged in multimodal planning throughout Virginia.

<http://www.drpt.virginia.gov/media/1056/guide-for-preparing-a-multimodal-system-plan.pdf>

- **Manual on Uniform Traffic Control Devices (MUTCD) and Virginia Supplement to the MUTCD**

The MUTCD is a document issued by the FHWA of the USDOT to specify the standards for traffic signs, road surface markings, and signals are designed, installed and used.

[http://www.virginiadot.org/business/virginia\\_mutcd\\_supplement.asp](http://www.virginiadot.org/business/virginia_mutcd_supplement.asp)

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## Plan Review con't

- **Virginia Work Area Protection Manual**

The Virginia Work Area Protection Manual provides the most current standards, guidance, options, and support for the design, application, and implementation of temporary traffic control devices on roadways in Virginia. It will govern traffic control during construction, maintenance, utility, permit, and emergency operations on all state maintained roadways. The Virginia Work Area Protection Manual is based on the Manual for Uniform Traffic Control Devices for Streets and Highways.

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[http://www.virginiadot.org/Business/resources/Wrk\\_zone/2011\\_WAPM\\_Rev\\_1.pdf](http://www.virginiadot.org/Business/resources/Wrk_zone/2011_WAPM_Rev_1.pdf)

- **Pavement Design Guide for Subdivision and Secondary Roads in Virginia**

This guide presents structural design methods for both flexible and rigid pavements intended for new subdivision streets and secondary roads.

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[http://www.virginiadot.org/VDOT/Business/asset\\_upload\\_file388\\_3638.pdf](http://www.virginiadot.org/VDOT/Business/asset_upload_file388_3638.pdf)

- **Interstate and Primary Guide for Design of Pavement Structures**

American Association of State Highway and Transportation Officials (AASHTO) design guide for interstate, primary roads, and other roadways in excess of 10,000 projected annual average daily traffic (AADT) to be used in conjunction with VDOT's Materials Division Manual of Instruction Chapter VI.

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<http://www.virginiadot.org/business/resources/bu-mat-pde-AASHTOForConsultants0503.pdf>

- **Road Design Manual**

This manual is the principle document for use in the geometric design of primary and secondary roadways in Virginia. The Road Design Manual was created to promote uniform design procedures for all designers and technicians involved in the development of plans for Virginia highways. It includes a broad range of guidance from preliminary scoping considerations to in-depth plan assembly instructions.

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<http://www.virginiadot.org/business/locdes/rdmanual-index.asp>

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## Road Design Manual – Appendices

- **Appendix A – Design Guidelines**
  - Appendix A contains geometric standards for roadway design. VDOT design standards are based on AASHTO A Policy on Geometric Design of Highways and Streets (otherwise known as the “Green Book”). While the state of Virginia has officially adopted the 2011 AASHTO Green Book as the minimum design standard, Appendix A provides the minimum design standards for use in the development of state highways.

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[http://www.extranet.vdot.state.va.us/locdes/Electronic\\_Pubs/2005%20RDM/appenda.pdf](http://www.extranet.vdot.state.va.us/locdes/Electronic_Pubs/2005%20RDM/appenda.pdf)
- **Appendix B – Subdivision Street Design Guide (SSR) – After July 1, 2009 used only for grandfathered developments:**
  - This section of the Road Design Manual is intended to be used in conjunction with the VDOT Subdivision Street Requirements for the development of subdivision streets that will be accepted in the secondary roadway system. Appendix B was replaced by the Secondary Street Acceptance Requirements on March 9, 2009.

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[http://www.extranet.vdot.state.va.us/locdes/Electronic\\_Pubs/2005%20RDM/appendb.pdf](http://www.extranet.vdot.state.va.us/locdes/Electronic_Pubs/2005%20RDM/appendb.pdf)
- **Appendix B(1) – Subdivision Street Design Guide (SSAR) – Effective July 1, 2009:**

This appendix is intended to be used with the Secondary Street Acceptance Requirements (SSAR) for the development of new residential and mixed-use streets functionally classified as “local” streets that will be accepted in the secondary roadway system. SSAR became effective on March 9, 2009.

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[http://www.extranet.vdot.state.va.us/locdes/Electronic\\_Pubs/2005%20RDM/AppendB\(1\).pdf](http://www.extranet.vdot.state.va.us/locdes/Electronic_Pubs/2005%20RDM/AppendB(1).pdf)
- **Appendix B(2) – Multimodal Design Standards for Mixed-Use Urban Centers**

Appendix B(2) serves to provide interested localities an optional mechanism to implement the Department of Rail and Public Transportation’s (DPRT) Multimodal System Design Guidelines and to establish multimodal design standards for mixed-use urban centers.

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[http://www.extranet.vdot.state.va.us/locdes/Electronic\\_Pubs/2005%20RDM/AppendB\(2\).pdf](http://www.extranet.vdot.state.va.us/locdes/Electronic_Pubs/2005%20RDM/AppendB(2).pdf)
- **Appendix F – Access Management Design Standards for Entrances and Intersections:**

This section of the Road Design Manual provides geometric design and spacing standards for entrances and intersections on state maintained roadways. The goal of Access Management is to balance access to land adjacent to the roadway while simultaneously preserving the flow of traffic on the surrounding roadway system.

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[http://www.extranet.vdot.state.va.us/locdes/Electronic\\_Pubs/2005%20RDM/AppendF.pdf](http://www.extranet.vdot.state.va.us/locdes/Electronic_Pubs/2005%20RDM/AppendF.pdf)

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## Design References

- **Traffic Volume Data**

VDOT conducts a yearly traffic volume count on primary roadways in Virginia. Traffic volume counts are obtained on 20 percent of secondary roadways annually, which roughly equates to secondary roadways being counted every five years. This traffic data is provided to the general public and can be found on the VDOT Traffic Engineering Division web pages.

<http://www.virginiadot.org/info/ct-trafficcounts.asp>

- **Crash Data for Virginia IT Infrastructure Partnership**

Crash data is critical for the evaluation of the roadway system and to determine where public safety projects should be considered. VDOT has access to the state and local law enforcement accident reports that pertain to the highway system. It is the goal of VDOT to make general crash data available to the public.

<http://www.virginiaroads.org/>

- **VDOT Drainage Manual**

The VDOT Drainage Manual is intended as an operational handbook for use in hydrologic and hydraulic analysis. This manual includes design concepts, policies, procedures and examples for designers in plan development of VDOT highways.

<http://www.virginiadot.org/business/locdes/hydra-drainage-manual.asp>

- **VDOT Road and Bridge Specifications**

The Road and Bridge Specifications are intended to be the standard for contracts awarded by the Commonwealth Transportation Board or the commissioner of highways. However, this document is very helpful in providing guidance on the materials and procedures for placement of items in the right of way. The Road and Bridge Specifications include detailed information regarding the receiving of materials on site, handling and placement in accordance to the applicable standards.

<http://www.virginiadot.org/business/const/spec-default.asp>

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## Design References

- **VDOT Road and Bridge Standards:**

The Road and Bridge Standards are a collection of technical drawings that promote uniformity and consistency in highway facilities. These standards include precise design criteria for roadway items to ensure a high quality and long lasting roadway network.

[http://www.virginiadot.org/business/locdes/2016\\_road\\_and\\_bridge\\_standards.asp](http://www.virginiadot.org/business/locdes/2016_road_and_bridge_standards.asp)

- **Roundabout Guidelines**

It is VDOT policy that a roundabout be considered when a project includes the reconstruction or construction of new intersection(s), signalized or not. Guidelines for roundabouts are found Appendix F of the Road Design Manual and in NCHRP Report 672 Roundabouts: An Informational Guide.

<http://www.virginiadot.org/info/faq-roundabouts.asp>

- **Home Page for ALL VDOT Design Manuals**

<http://www.virginiadot.org/business/manuals-default.asp>

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## Pre-construction, Construction and Inspections

- **Pre-construction Checklist**

To be used during pre-construction meetings with developer, contractors and VDOT to ensure all parties understand responsibilities and requirements.

<http://www.virginiadot.org/info/resources/landdev/Land Use Preconstruction Checklist June 2016.pdf>

- **Land Development Inspection Flowchart**

Flowchart showing steps from plan review through street acceptance.

<http://www.virginiadot.org/info/resources/landdev/Land Use Street Acceptance Inspection Flowchart June 2016.pdf>

- **Land Development Inspection Manual**

Manual is designed to be used for secondary street construction and VDOT permit work. It offers a concise guide for user with easy to locate requirements based upon the inspection option selected and the specific stages of construction.

[http://www.virginiadot.org/info/land\\_development\\_inspection\\_documentation\\_best\\_practices\\_manual.asp](http://www.virginiadot.org/info/land_development_inspection_documentation_best_practices_manual.asp)

- **Virginia Testing Methods**

<http://www.virginiadot.org/business/resources/Materials/bu-mat-VTMs.pdf>

## VDOT Land Development Inspection & Documentation Manual

- In 2012, a VDOT team created the first agency *Land Development Inspection and Documentation Manual*
- Its purpose was to establish guidelines and best practices for the construction, inspection and testing documentation for the building and acceptance of secondary streets and VDOT Land Use Permit work
- Usage of this Manual will increase the statewide consistency for inspection, testing and documentation of this work
- A new VDOT team has updated this Manual – it can be found at the Inspection Manual's external VDOT website:

[http://www.virginiadot.org/info/land\\_development\\_inspection\\_documentation\\_best\\_practices\\_manual.asp](http://www.virginiadot.org/info/land_development_inspection_documentation_best_practices_manual.asp)

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## Instructional and Informational Memoranda

VDOT Location and Design instructional and informational memoranda home: <http://www.virginiadot.org/business/locdes/rd-ii-memoranda-index.asp>

VDOT Traffic Engineering instructional and informational memoranda home:  
[http://www.virginiadot.org/business/traffic\\_engineering\\_memoranda.asp](http://www.virginiadot.org/business/traffic_engineering_memoranda.asp)

IIM-LD-55: Curb Ramps and Sidewalks [http://www.extranet.vdot.state.va.us/locdes/electronic\\_pubs/iim/IIM55.pdf](http://www.extranet.vdot.state.va.us/locdes/electronic_pubs/iim/IIM55.pdf)

IIM LD-158 Pavement Designs [http://www.extranet.vdot.state.va.us/locdes/electronic\\_pubs/iim/IIM158.pdf](http://www.extranet.vdot.state.va.us/locdes/electronic_pubs/iim/IIM158.pdf)

IIM-LD-189: Proffer Notification Process [http://www.extranet.vdot.state.va.us/locdes/electronic\\_pubs/iim/IIM189.pdf](http://www.extranet.vdot.state.va.us/locdes/electronic_pubs/iim/IIM189.pdf)

IIM-LD-218: Paver Units (Sidewalks and Crosswalks) [http://www.extranet.vdot.state.va.us/locdes/electronic\\_pubs/iim/IIM218.pdf](http://www.extranet.vdot.state.va.us/locdes/electronic_pubs/iim/IIM218.pdf)

IIM-LD-227: Design Exceptions/Design Waivers [http://www.extranet.vdot.state.va.us/locdes/electronic\\_pubs/iim/IIM227.pdf](http://www.extranet.vdot.state.va.us/locdes/electronic_pubs/iim/IIM227.pdf)

IIM-LD-243: Sealing and Signing of Plans and Documents [http://www.extranet.vdot.state.va.us/locdes/electronic\\_pubs/iim/IIM243.pdf](http://www.extranet.vdot.state.va.us/locdes/electronic_pubs/iim/IIM243.pdf)

IIM-LD-254: Selection of Pipe Type [http://www.extranet.vdot.state.va.us/locdes/electronic\\_pubs/iim/IIM254.pdf](http://www.extranet.vdot.state.va.us/locdes/electronic_pubs/iim/IIM254.pdf)

TE-351 (IIM-LD-241): Transportation Management Plan Requirements  
[http://www.virginiadot.org/business/resources/traffic\\_engineering/memos2/TED-351.3 Transportation management plan requirements.pdf](http://www.virginiadot.org/business/resources/traffic_engineering/memos2/TED-351.3_Transportation_management_plan_requirements.pdf)

# VDOT Land Development Improving Services to Our Customers

## Questions & Comments

