VIRGINIA ITS ARCHITECTURE NAMING CONVENTION GUIDELINES

Version 1.0

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1 Introduction

Establishing naming conventions for projects, stakeholders and architecture elements is one of the crucial steps in beginning the development of an ITS architecture, particularly for large inventories. ITS architectures with multiple types of centers, vehicles, equipment, and other resources require a consistent naming pattern to accurately identify, associate and track information. By defining methods for consistent naming patterns, naming conventions make information easier to read, locate and manage, and leads to a better understanding of the architecture documentation. The purpose of this guide is to define architecture naming conventions guidelines that can be effectively used when updating existing or creating new ITS architectures at statewide, regional or project levels affecting the Virginia Statewide and Regional ITS Architectures.

To develop ITS Architecture naming conventions for Virginia, it is necessary to understand the characteristics of the architecture development tool. As the primary tool, Turbo Architecture is an interactive software application that assists transportation professionals in the development of regional and project architectures using the National ITS Architecture as a foundation. The current version of Turbo Architecture is 4.1, which supports the latest National ITS Architecture version 6.1. Thus, naming and data entry characteristics in Turbo Architecture 4.1 were reviewed when developing guidelines.

The primary purpose of the following guidelines is to explain, simplify and reduce confusion associated with applying the naming conventions to create or update ITS Architectures. The guidelines recommend the maximum number of characters that can be used for naming stakeholders, elements and projects based on the characteristics of the Turbo Architecture tool. Basic naming formats and rules are also established for naming stakeholders, elements and projects. The guidelines illustrate how to structure a stakeholder, element or project with identifiers that facilitate quicker reference and provide helpful information at a glance. Also provided is the information on acceptable abbreviations that should be used when applying the naming conventions.

The guidelines are not an attempt to document every potential scenario that may be encountered when developing and updating ITS Architectures, but rather is a reference to assist in the process. An effort should be made to update the guideline periodically to address any issues that may develop as architecture work continues.

2 Naming Characteristics of the Turbo Architecture Tool

2.1 Turbo Architecture Tool

Turbo Architecture is the primary tool for documenting ITS Architectures. Turbo Architecture is a high-level tool designed to assist transportation professionals develop small and large scale architectures based on the National ITS Architecture. It is an interactive software tool that stores and builds the information needed to produce regional and project ITS architecture diagrams and

reports. By using Turbo Architecture, an individual or a group can customize an ITS Architecture through tabular forms that relate your specific ITS elements (e.g., VDOT Richmond TOC) to the entities of the National ITS Architecture (e.g., Traffic Management Subsystem) and allows you to tailor information flows to match stakeholder needs and vision.

As a Microsoft Access database application, Turbo Architecture stores all the information of an ITS architecture entered by a user. Over time, information that resides in Turbo Architecture will be used and modified by the same user or other individuals. The characteristics on how information is "typed", "viewed", and "printed" within Turbo Architecture need to be understood in order to streamline an individual's efforts to use or modify the architecture. If an individual understands Turbo Architecture's characteristics and follows the naming convention guidelines established, there is less potential for confusion, duplicate entries, or difficulties in utilizing the architecture data.

2.2 Number of Characters

Table 1 shows the maximum numbers of characters allowed in Turbo Architecture for the three actions, including "typed", "viewed" and "printed".

Table 1. Turbo Architecture Limits on Number of Characters

Action	Project Name	Stakeholder Name	Element Name	User Defined Entity	User Defined Flow
Typed into identified Turbo text fields	100	200	200	100	100
Viewed on the application screen(1)	~118(2)	~60(2)	~61(2)	~61(2)	~66(2)
Printed in interconnect and flow diagrams(3)	N/A	21-36(2)	21-36(2)	N/A	28-42(2)

Notes: (1) – If a name is longer than the respective maximum number of characters, information on the end is not displayed on the screen and the user has to use arrow keys to scroll the information. It is also dependent on the screen resolution and size; these numbers are for 1680x1050 pixels on a 15" widescreen monitor.
(2) – The boxes or names spaces on the screen or the diagrams have a fixed size so it depends on the size of the characters (i.e., all "m"s result in the lower bound of 21 characters for printed stakeholder names on diagrams). The user defined flow names will go to 100 characters but the diagrams will be more confusing.
(3) – If a name is longer than the respective maximum number of characters, the name is truncated to the maximum number of characters with "…" added to the end.

Based on the above information, it is recommended that the maximum number of characters for naming project, stakeholder and elements are:

- Project Name: 60 characters
- Stakeholder Name: 30 characters
- Element Name: 30 characters
- User Defined Entity: 61 characters
- User Defined Flow: 35 characters

2.3 Characters Not-Allowed

The following three characters should not be used in naming projects, stakeholders and elements: Apostrophe (‘), quote (“), and ampersand (&). Turbo Architecture does not allow these three characters to be input for names. In addition, web site generation will disallow the character “/” in the naming of projects, stakeholders and elements.

3 Naming Format

As the Turbo Architecture naming limitations have been identified, the following guidelines define the naming formats for stakeholders, elements and projects. The guidelines detail how to form names and highlight the information used to create the “names”. Also shown are examples of how the formats can be applied to actual architecture components.

Considering the character number limits as discussed previously, abbreviations for commonly used terms should be used when naming stakeholders, elements and projects. Acceptable abbreviations are covered in Section 4 of the guidelines.

3.1 Stakeholder Naming Format

Stakeholder names primarily identify public or private agencies/organizations that have a responsibility for one or more architecture elements. The naming convention for stakeholders focuses on identifying where they are located and a description of the agency/organization. The naming format for stakeholders consists of one or more identifiers. Each identifier describes part of the respective agency information. Four types of agencies are used to illustrate the naming formats and rules.

- **Federal and Multi-State Level:** stakeholders that provide services across state jurisdictional boundary and do not belong to any state agencies or its subsidiaries, such as Federal Motor Carrier Safety Administration.
- **State Level:** state agencies and organizations such as Department of Transportation (DOT) and Department of Revenue (DOR).
- **Regional Level:** agencies and stakeholders within a multi-district region, such as DOT Areas and Metropolitan Planning Organizations (MPO)

- **District Level:** agencies and stakeholders within a multi-county region, such as, DOT Maintenance and Construction Districts and Coordinated Transit Districts.
- **County/City/Municipal Level**, including public and private agencies within a county/city/municipal boundary.

The following provides the format, rules and examples for naming stakeholders.

Stakeholder Naming Format:

(Stakeholder Name)

Stakeholder Naming Rules:

- ***Stakeholder Name*** – the *Stakeholder Name* identifier describes who a stakeholder is. The identifier depends on the details needed to describe the stakeholder.

  - Federal and Multi-state level stakeholder:
    - *The Stakeholder Name* identifier is the name of the stakeholder. For example, FMCSA (Federal Motor Carrier Safety Administration).

  - State level stakeholder:
    - If the stakeholder is a state agency, the *Stakeholder Name* identifier is the name of the agency. For example, VDOT and Virginia DMV (Virginia Department of Motor Vehicles).
    - If the stakeholder is a division, bureau or office of an organization, the *Stakeholder Name* identifier is the upper level agency/organization names followed by the division/bureau/office name. The division/bureau/office name shall follow the format in "…Division, … Bureau, … Office, etc." For example, VDOT Central Office.

  - Regional level stakeholder:
    - If the stakeholder is a regional area of a state level agency, the *Stakeholder Name* identifier is the upper level state agency name followed by the area name. The upper level state agency names shall follow the state level agency rules described above. For example, VDOT Eastern Region Operations would be VDOT ERO.
    - If the stakeholder is a regional organization such as Metropolitan Planning Organizations, the *Stakeholder Name* identifier is the name of the agency/organization. Example: Northern Virginia Transportation Commission (NVTC).

  - District level stakeholder:
    - If the stakeholder is a district of a state level agency, the *Stakeholder Name* identifier is the upper level state agency name followed by the area name. The upper level state agency names shall follow the state level agency rules described above. For example, VDOT Salem Highway District.

- If the stakeholder is a a Coordinated Transit District, the *Stakeholder Name* identifier is the name of the agency/organization. Example: Hampton Roads Transit (HRT).
- Optional – If desirable, the following guideline may be followed in creating regional or project level architectures that include detailed stakeholder information: If the stakeholder is an office, a division, or a department of a regional agency/stakeholder, the *Stakeholder Name* identifier is the upper level agency names followed by the office/department name. Words such as "Department", "Office", "Division", "Department of", "Office of", "Bureau of" etc., shall not be included in order to simplify the identifier.

➢ County/City/Municipal level stakeholder:
- For an architecture that covers an area of 10 or more counties, generic stakeholder names may be used to represent groups of stakeholders or organizations that perform similar functions and services. The introduction of generic stakeholder names will ensure the architecture is kept at a manageable level. An example of such an architecture is the statewide ITS architecture. Examples of generic stakeholder names are: Counties (for all counties), Cities and Municipalities (for all cities and municipalities), County Sheriffs (for all county sheriff's offices), City Public Works (for all city public works departments), and City Police (for all city police departments).
- For a regional or project ITS architecture that covers an area of less than 10 counties, use of generic names to represent stakeholders at county and city levels can be avoided. It is ultimately up to the stakeholder community to decide this. The rationale for depicting each is due to the fact that county and city level stakeholders typically have important roles in implementing and operating regional ITS systems and the necessary level of detail may be sacrificed if generic names are used. For such architectures, the following guidelines should be followed.
  - The *Stakeholder Name* identifier is the agency name. The agency name should indicate the jurisdiction of the agency (in terms of county or city/municipality). The county/city/municipality name shall follow the format in "… County, City of …, Village of …, Town of …, etc." For example, Culpeper County and City of Newport News.
  - If the stakeholder is an office, a division, or a department, the *Stakeholder Name* identifier is the upper level agency names followed by the office, division, or department name. Words such as "Department", "Office", "Division", "Department of", "Office of", etc., shall not be included in order to simplify the identifier. For example, Loudoun County Sheriff and City of Richmond Public Works.

- ***Stakeholder Group Names*** – the *Stakeholder Group Name* identifier describes the group or collection of individually named stakeholders. Use a stakeholder group name when there are two or more system or asset owning stakeholders. For example, the NR Local Transit Centers has seven primary stakeholders, ART and STAR, CUE, DASH, Fairfax Connector Transit, GEORGE, Loudoun County Transportation Association (LCTA), Potomac and

Rappahnnock Commission (PRTC) and Virginia Regional Transit so a Stakeholder Group should be created with all seven stakeholders as members of the "NR Local Transit Agencies" group.

Table 2 provides further examples to show how to apply the defined naming format and rules. Abbreviations are used in the examples. Well known acronyms should be used where possible. It is important to spell out all acronyms in the stakeholder description field.

Table 2. Stakeholder Naming Examples

	Agency/Stakeholder	Architecture Stakeholder Name
Multi-State Level	Federal Highway Administration	FHWA
	National Weather Service	National Weather Service
State Level	Virginia Department of Transportation	VDOT
	Virginia Department of Motor Vehicles	Virginia DMV
	Virginia Railway Express	VRE
	Virginia Department of Rail and Transportation	Virginia DRPT
	Virginia State Police	VSP
	Maryland State Highway Administration	MDSHA
	North Carolina Department of Transportation	NCDOT
	Kentucky Department of Transportation	KDOT
	West Virginia Department of Transportation	WVDOT
	Tennessee Department of Transportation	TDOT
	District of Columbia Department of Transportation	DDOT
Regional Level	Washington Metropolitan Area Transit Authority	WMATA
	Metropolitan Washington Council of Governments	MWCOG
	Hampton Roads Planning District Commission	HRPDC
	Metropolitan Area Transportation Operations Coordination	MATOC
	Virginia Port Authority	VPA
	Metropolitan Washington Airport Authority	MWAA
	Northern Virginia Transportation Commission	NVTC
District Level	Virginia Department of Transportation Lynchburg District Office	VDOT Lynchburg District Office
	Hampton Roads Transit	HRT
County/City/ Municipal	Alexandria Transit Company	Alexandria Transit Company
	Williamsburg Area Transit	WAT

	Agency/Stakeholder	Architecture Stakeholder Name
Level	City Departments of Public Works (for statewide and regions with 10 or more counties)	City of Richmond Department of Public Works
	City Police Departments (for statewide and regions with 10 or more counties)	NR Local Public Safety Agencies

3.2 Architecture Element Naming Format

Element names identify systems, centers, vehicles, equipments and other resources owned and shared between various agencies within an architecture. Establishing a format for elements requires a method for describing the resource and determining the resource owner (i.e. stakeholder). The following provides the format, rules and examples for naming architecture elements.

Element Naming Format:

(Stakeholder Name) (Element Name)

Element Naming Rules:

- ***Stakeholder Name*** – same as the Stakeholder Naming Format described previously.
- ***Element Name*** – the *Element Name* identifier describes the information of systems, devices, equipment, vehicles or other resources that a stakeholder owns or operates. It is recommended that the *Element Name* identifiers follow the names commonly used by agencies, such as 911 centers, communications centers, CCTV, DMS, loop detectors, etc.

Table 3 provides examples explaining how to apply the defined naming format and rules. Abbreviations are used in the examples.

Table 3. Architecture Element Naming Examples

	ITS Element	Architecture Element Name
Multi-State	Private Trucking Companies	Private Commercial Carriers
State Level	Virginia Department of Transportation Transportation Emergency Operations Center	VDOT TEOC
	Virginia Department of Transportation Statewide 511 Center	Virginia Statewide 511
Regional Level	Virginia Department of Transportation Hampton Roads Transportation Operations Center	VDOT Hampton RoadsTOC

	ITS Element	Architecture Element Name
	VDOT Hampton Roads Safety Service Patrol Vehicles	VDOT Hampton Roads SSP Vehicles
	Virginia Department of Transportation Northern Virginia District Maintenance Vehicles	VDOT NOVA District Maintenance Vehicles
County/City/ Municipal Level	Alexandria Transit Company DASH Transit Vehicles	NR Local Transit Vehicles
	Petersburg Area Transit Vehicles	CR Local Transit Vehicles
	Loudoun County Department of Fire, Rescue and Emergency Management Emergency Communications Center (ECC)	NR Local Public Safety Centers
	Multiple County 911 Centers (for statewide and regions with 10 or more counties)	NR Local Public Safety Centers

3.3 Parent-Child Element Name linkages

New with version 4.0 of the Turbo Architecture software is the capability to create element instances. Element instances allow a parent-child relationship between elements. This is especially useful in multi-tiered architectures like those in Virginia. In particular, this capability allows the regional ITS architecture to have a generic element (i.e., NR Local Transit Centers) that can relate to a specific project with a specific transit property (i.e., FRED Transit Center) using the element *instance* feature.

3.4 Linkages to Other Architectures

Also new with version 4.0 of the Turbo Architecture software is the capability to link elements to other architectures not fully defined in the Turbo Architecture file. An example of this would be defining an element like CHART in the Virginia NRO ITS Architecture as a *shared* element with the Maryland Statewide ITS Architecture.

3.5 Communication Elements

New with version 4.1 of the Turbo Architecture software is the capability to add communication elements that can be optionally displayed on the diagrams.

3.6 Project Naming Format

Project names identify planned ITS deployments in a region. The naming convention for projects identifies the region where it is to be deployed and the project name. The following provides the format, rules and examples for naming projects.

Project Naming Format:

(Project Name)

Project Naming Rules:

Project Name – the *Project Name* identifier is the project title.

Project Naming Examples:

3.5.1 VDOT I-95 (Fourth Lane) Widening - Cameras
3.5.2 Capital Beltway I-495 HOT Lanes Project
3.5.3 VDOT NR MPSTOC DMS Upgrade and Expansion Program

4 Boundary ITS Architectures

4.1 Metropolitan Washington Council of Governments (MWCOG) Regional ITS Architecture

MWCOG Architecture's scope is to capture regionally significant ITS elements and services for the Washington DC metropolitan region. Further information is at http://www.mwcog.org/transportation/committee/committee/documents.asp?COMMITTEE_ID=178 . The MWCOG Architecture is currently being updated and a new version should be available by Summer 2009. The current MWCOG Architecture can be found at http://www.mwcog.org/ITSArch/ .

4.2 Maryland Statewide ITS Architecture

Maryland Statewide Architecture information is at http://www.itsmd.org/index.php?page_id=996

4.3 District of Columbia Regional ITS Architecture

The DC Regional ITS Architecture is in currently in rough draft form and is an internal document.

4.4 North Carolina Statewide ITS Architecture

There is no information on the North Carolina Statewide ITS Architecture.

4.5 West Virginia Statewide ITS Architecture

The West Virginia Statewide ITS Architecture Version 1.0 was last updated in November 2006.

4.6 Tennessee ITS Architectures

Tennessee does not currently have a Statewide ITS Architecture, the Johnson City Regional ITS Architecture is adjacent to VA. The Johnson City Regional ITS Architecture can be found at http://www.jcmpo.org/jcits.htm . Similarly the Bristol Regional ITS Architecture covers the Bristol MPO area including parts of Virginia and Tennessee. The Bristol Regional ITS Architecture can be found at http://www.kimley-horn.com/projects/tennesseeitsarchitecture/bristol.html .

4.7 Kentucky Statewide ITS Architecture

There is no information on the Kentucky Statewide ITS Architecture.

5 Abbreviations

Acceptable abbreviations for agency names and common ITS terms are listed in this section. Such abbreviations should be used in order to achieve architecture naming consistency throughout the region and state as well as fit names within the limitations of character lengths in Turbo Architecture. The abbreviation lists shall be updated periodically to include new ones as appropriate.

Abbreviations for common and non-Virginia agency and ITS element names that are not region specific.

ADA	Americans with Disabilities Act
ADMS	Archived Data Management System
AHQ	Area Headquarters
AID	Automated Incident Detection
AMTRAK	National Passenger Rail
ANSI	American National Standards Institute
APID	All Purpose Incident Detection Algorithm
APTA	American Public Transportation Association
ASSIST	Advanced Support System for Integrated Surface Transportation
ASTM	American Society of Testing and Materials
ATIS	Advanced Traveler Information System
ATMS	Advanced Traffic (or Transportation) Management Systems
ATR	Automatic Traffic Recorders
ATRWS	Automatic Truck Rollover Warning System
AVI	Automatic Vehicle Identification
AVL	Automatic Vehicle Location
C2C	Center to Center
C2F	Center to Field
CAD	Computer-Aided Dispatch
CAP	Common Alerting Protocol
CapCOM	Capital Region Communications and Coordination
CapWIN	Capital Wireless Integrated Network
CATT	Center for Advanced Transportation Technology
CCTV	Closed-circuit Television
CHART	Coordinated Highway Action Response Team

CMAQ	Congestion Mitigation and Air Quality
CMS	Condition Monitoring System
COG	Council of Governments
COO	Concept of Operations
COTS	Commercial Off-the-Shelf
CSC	Customer Service Center
CVISN	Commercial Vehicle Information System Network
CVO	Commercial Vehicle Operations
DC	District of Columbia
DDOT	District Department of Transportation
DEMA	District of Columbia Emergency Management Agency
DMS	Dynamic Message Sign
DMV	Department of Motor Vehicles
DOJ	Department of Justice
DOT	Department of Transportation
DPW	Department of Public Works
DSRC	Dedicated Short Range Communications
EMC	Emergency Management Center
EMS	Emergency Medical Services
ENPS	Emergency Notification and Personal Security
EOC	Emergency Operations Center
EPA	Environmental Protection Agency
EPSI	Electronic Payment Service Integration
ETC	Electronic Toll Collection
EVP	Emergency Vehicle Preemption
E-ZPass	Electronic toll collection system used by a consortium of toll authorities in the northeast United States
FBI	Federal Bureau of Investigation
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FMS	Freeway Management System
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
FTP	File Transfer Protocol
FY	Fiscal Year
GCS	Gate Control System
GIS	Geographical Information System
GPS	Global Positioning System
GUI	Graphical User Interface
GW	George Washington
HAR	Highway Advisory Radio
HAZMAT	Hazardous Materials
HOT	High Occupancy Toll
HOV	High Occupancy Vehicle
HRI	Highway Rail Intersection

HTML	Hypertext Markup Language
HTRIS	Highway Traffic Roadway Information System
ICAS	Inventory Condition Assessment System
IDS	Incident Detection System
IEEE	Institute of Electrical and Electronic Engineers
IEN	Information Exchange Network
IFTA	International Fuel Tax Agreement
IIMS	Integrated Incident Management System
IMC	Inspection, Maintenance and Construction
IMMS	Integrated Maintenance Management System
IMS	Incident Management System
IP	Internet Protocol
IRP	International Registration Plan
IRRIS	Intelligent Road/Rail Information Server
ISP	Information Service Provider
IT	Information Technology
ITE	Institute of Transportation Engineers
ITMS	Integrated Transportation Management System
ITS	Intelligent Transportation System
ITSPPA	Intelligent Transportation System Planning and Programming Administration
IVR	Integrated Voice Response
LCS	Lane Control System
LED	Light Emitting Diode
M&O/ITS	Management and Operations/ ITS
MCO	Maintenance and Construction Operations
MCO Vehicle	Maintenance and Construction Vehicle
MDOT	Maryland Department of Transportation
MDSHA	Maryland State Highway Administration
MMTIS	Multi-Modal Traveler Information System
MMS	Multimedia Messaging System
MNCPPC	Maryland National Capital Park and Planning Commission
MPO	Metropolitan Planning Organization
MS-ETMCC	Message Set for External Traffic Management Center Communications
MTA	Maryland Mass Transit Administration
MUTCD	Manual of Uniform Traffic Control Devices
MWAA	Metropolitan Washington Airport Authority
MWCOG	Metropolitan Washington Council of Governments
NAWAS	National Warning System
NCRIP	National Capital Region Interoperability Program
NCRTPB	National Capital Region Transportation Planning Board
NEMA	National Electrical Manufacturers Association
NHS	National Highway System
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
NTCIP	National Transportation Communications for ITS Protocol

NTOC	National Transportation Operations Coalition
NWS	National Weather Service
OER	Octet Encoding Rules
PPTA	Public Private Partnership Act of 1995 (also refers to agreements)
PSAP	Public Safety Answering Point
PSOC	Public Safety Operations Center
PSTOC	Public Safety and Transportation Operations Center
RECPSM	Regional Emergency Coordination Plan
RICCS	Regional Incident Communication and Coordination System
RITIS	Regional Integrated Transportation Information System
RMS	Ramp Metering System
ROC	Roadside Operations Computer
RPA	Roadside Pollution Assessment
RSS	Really Simple Syndication
RITIS	Regional Integrated Transportation Information System
RITA	Research and Innovative Technology Administration
RWIS	Road Weather Information System
SAE	Society of Automotive Engineers
SDO	Standards Develop Organization
SOAP	Simple Object Access Protocol
SOC	State-wide Operations Center
SOP	Standard Operating Procedure
SSP	Safety Service Patrol
STL	Smart Travel Lab
STMC	State Traffic Management Center
STMF	Simple Transportation Management Framework
STP	Surface Transportation Program
STSS	Smart Traffic Signal System
SWAN	Statewide Alert Network
TCIP	Transit Communications Interface Profiles
TDM	Transportation Demand Management
TEOC	Transportation Emergency Operations Center
THP	Tennessee Highway Patrol
TIP	Transportation Improvement Program
TMC	Transportation/Traffic Management Center
TMDD	Traffic Management Data Dictionary
TMS	Traffic Management System
TOC	Traffic Operations Center
TPB	Transportation Planning Board
TSMC	Traffic System Management Center
UMD	University of Maryland
USDOT	United States Department of Transportation
USPP	United States Park Police
UVA	University of Virginia

VCS	Vehicle Classification System
VDEM	Virginia Department of Emergency Management
VDOT	Virginia Department of Transportation
VDRPT	Virginia Department of Rail and Public Transportation
VII	Vehicle Infrastructure Integration
VITA	Virginia Information Technology Agency
VMS	Variable Message Sign
VRE	Virginia Railway Express
VRRP	Virtual Router Redundancy Protocol
VRTA	Virginia Regional Transit
VSP	Virginia State Police
VTIP	Virginia Transportation Information Portal
VTTI	Virginia Tech Transportation Institute
WebEOC	Web-based Emergency Operations Center
WIM	Weigh In Motion
WMATA	Washington Metropolitan Area Transit Authority
WVDOT	West Virginia Department of Transportation
XML	eXtensible Markup Language

Abbreviations for CRO agency and ITS element names

CR	Central Region
CRO	Central Region Operations
FRED	Fredericksburg Regional Transit
GRTC	Greater Richmond Transit Company
PAT	Petersburg Area Transit
RMA	Richmond Metropolitan Authority

Abbreviations for ERO agency and ITS element names

CBBT	Chesapeake Bay Bridge Tunnel
ER	Eastern Region
ERO	Eastern Region Operations
HRBT	Hampton Roads Bridge Tunnel
HRT	Hampton Roads Transit
MMBT	Monitor-Merrimac Memorial Bridge Tunnel
NNS	Norfolk Naval Station
NNWIA	Newport News/Williamsburg International Airport
RTIMIS	Regional Traffic Incident Management Information System
VPA	Virginia Port Authority
WAT	Williamsburg Area Transit

Abbreviations for NRO agency and ITS element names

ART	Arlington Transit
CC	Culpeper Connector
CUE	Fairfax City Bus System

DTR	Dulles Toll Road
FAMPO	Fredericksburg Area Metropolitan Planning Organization
FC	Fairfax Connector
FRED	Fredericksburg Regional Transit
GEORGE	Falls Church Transit System
GMU	George Mason University
GWRC	George Washington Regional Commission
GWRideConnect	Rideshare service for Fredericksburg, Stafford, Spotsylvania, Caroline and King George Counties
LCRP	Loudoun County Rideshare Program
LCTA	Loudoun County Transportation Association, Inc.
MATOC	Metropolitan Area Transportation Operations Coordination
MPSTOC	McConnell Public Safety and Transportation Operations Center
NOVA	Virginia Department of Transportation Northern District
NR	Northern Region
NRO	Northern Region Operations
NVRPA	Northern Virginia Regional Park Authority
NVSTC	Northern Virginia Smart Traffic Center
NVTC	Northern Virginia Transportation Commission
OMNILINK	Demand Responsive Transit system serving Manassas, Dale City, Triangle, Dumfries and Lake Ridge areas.
OMNIRIDE	Commuter Transit system serving Manassas, Dale City, Triangle, Dumfries and Lake Ridge areas.
PRTC	Potomac and Rappahannock Transportation Commission
RIBS	Reston Internal Bus Service
RRRC	Rappahannock-Rapidan Regional Commission
STAR	Specialized Transit for Arlington Residents
TAGS	Transportation Association of Greater Springfield
TOOT	Town of Orange Transit

Abbreviations for NWRO agency and ITS element names

DOH	Department of Highways
NWR	Northwest Region
NWRO	Northwest Region Operations
VPA	Virginia Port Authority

Abbreviations for SWRO agency and ITS element names

LRA	Lynchburg Regional Airport
MTPO	Metropolitan Transportation Planning Organization
RRA	Roanoke Regional Airport
SWR	Southwest Region
SWRO	Southwest Region Operations
VDS	Visibility Detection System