





# Introduction

Welcome to the Roadway Inventory Management System (RIMS) Tutorial. This guide is a companion to the *RIMS Business Guide* and the *RIMS User Guide*. This tutorial contains specific use cases and detailed examples that will introduce you to the tasks, screens, and data inputs necessary to successfully use RIMS.

This guide contains four sections. These are:

1. Introduction...
2. Types of Road Changes...
3. Examples...
4. Appendix...

## The Road Inventory

**What is the Road Inventory?** The road inventory contains important information about the public roads in the state of Virginia. It includes data such as the road name, route number, length, and location. It also includes physical characteristics such as the number of lanes and pavement type. Road ownership and maintenance responsibility are also stored in the inventory.

**What is the Road Inventory used for?** The road inventory is crucial for project development, maintenance, and operations tasks. Some important tasks that might require the road inventory include highway safety analysis, traffic monitoring, and pavement management. External reporting requirements, such as reporting to FHWA and the HPMS, also require the road inventory data. Fulfilling the road inventory requirements are crucial to securing Federal funding for VDOT.

**What data are stored in the Road Inventory?** The amount of data stored in the inventory is dependent on the agency that maintains the road. Only public roads that are maintained by VDOT are required to have detailed inventory data. The data include mapping data, physical characteristics, and administrative characteristics, such as ownership.

The road inventory also contains a mapping component, which links the inventory data to location data in the VDOT GIS map. The geospatial road inventory incorporates some road centerlines provided by the Virginia Geographic Information Network (VGIN). The map data are provided to GIS Integrator 2.0 to link relate the road inventory data to a geographic location and route number.

**How does RIMS relate to the Road Inventory?** In order to ensure the accuracy of the road network, VDOT continues to update the road inventory when new roads are constructed, changes are made to current roads, and roads are removed. These functions require the use of RIMS.

For a complete list of data included in the road inventory, refer to **Appendix A**.

## Database for Administering Changes to the Highway System (DACHS)

**What is DACHS?** The Database for Administering Changes to the Highway System (DACHS) is used to manage the legal roadway acceptance process.

**What projects are initiated in DACHS?** DACHS is used to input new roadways that require official acceptance or approval. Approval can be required by any one of three entities:

- Local Governing Bodies (LGBs);
- the Commonwealth Transportation Board (CTB);
- and/or the VODT Commissioner (or his designee).

The primary function of DACHS is to assist staff with completing the necessary steps and forms to legally accept a road. The projects that are typically entered through DACHS include:

- Additions;
- Abandonments;
- Discontinuances;
- Transfers;
- Route renumbering, and;
- Annexation and de-annexation

**What information does DACHS require?** DACHS requires the user to enter basic inventory data on the roadway, such as the project name, location, project type, street name and description, mileage, number of through lanes, and median type.

**What is the final output from DACHS?** When the required information has been entered, and the project has been reviewed and authorized, DACHS creates an Inventory Change Request (ICR). The ICR is then sent to the Roadway Inventory Management System (RIMS).

For more information on the road changes that are required to be initiated in DACHS, including information on the route designation and the necessary source of approval, refer to **Appendix B**.

For a complete list of the required data and valid inputs, refer to **Section 2.1** or **Appendix A**.



## Roadway Inventory Management System (RIMS)

**What is RIMS?** RIMS is used to manage road inventory data and to store the Official Roadway Data Inventory for Virginia. RIMS assists with managing the road inventory data, by making changes and adding data to the existing road network.

The major functions of RIMS are to:

- Maintain information in the **Road Inventory** including physical, administrative, and operational characteristics;
- Maintain the **Route Inventory** required for linear referencing;
- Assist in the process for **Inventory Changes**;
- **Integrate** with GIS Integrator 2.0 to maintain map data;
- and create **Reports**.

**How do you open a project in RIMS?** Projects are opened in RIMS using the Inventory Change Request (ICR). Note: the ICR is typically initiated in DACHS. Projects that do not require approval and are not initiated in DACHS can be created directly in RIMS with a “miscellaneous ICR”.

**What data does RIMS require?** In addition to the basic inventory data provided in the ICR, RIMS requires detailed roadway data. This includes \_\_\_\_\_.

In addition to location data, RIMS also requires a visual representation of the new roadway, sometimes called the “sketch”. If no sketch is available, the user can create one using

the Redline tool. This information provides the basis for the road centerline.

**What happens when an ICR is submitted for CET/LRS processing?** When the appropriate data have been input in RIMS (complete with a drawing, road location, and route number) the data is sent to the Centerline Editors and RIMU Staff. The centerline editors add and/or modify route centerlines using the Centerline Editing Toolset (CET). When the road has been successfully added to the RCL with accurate mileage and location, the RIMU editors review the map. These steps ensure that the roadway has been accurately located on the map, as the route centerline will be linked to the corresponding inventory data.

**What other tasks can RIMS perform?** In addition to editing the road inventory, RIMS can be used to reserve route numbers. This function is particularly important for developers creating subdivisions and other large projects that will generate a number of new roadways. In this case, multiple route numbers can be reserved at one time to ensure continuity. RIMS can also be used to query the road inventory.

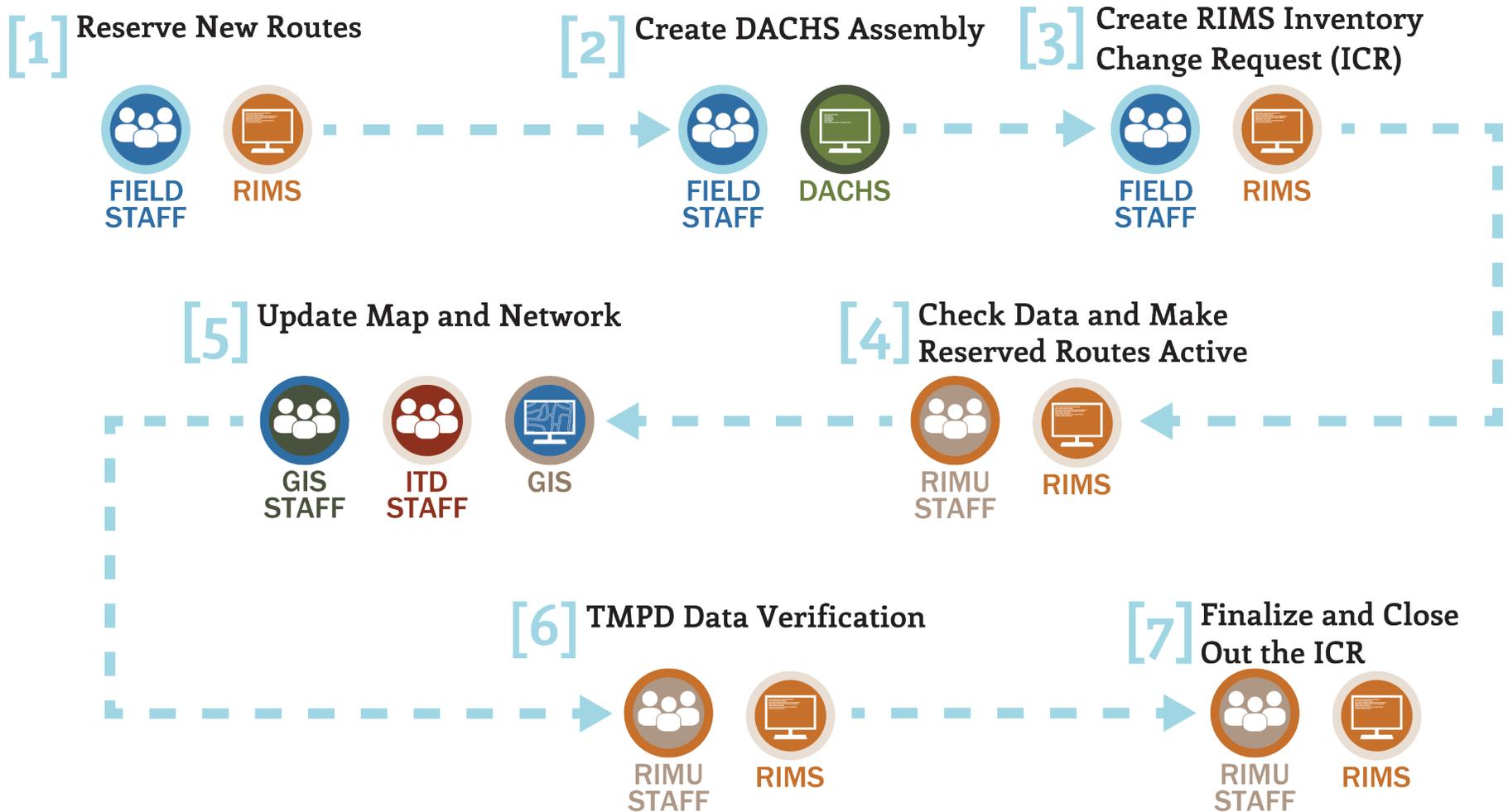
*Create a map output...*

For more information on:

- The Redline tool, refer to Section 2.4.
- Submitting a project to TMPD, refer to Section 4.1.
- Reviewing and completing a project in RIMS, refer to Section 4.2.
- Reserving route numbers in RIMS, refer to Section 2.3.
- Querying data in RIMS, refer to Section 3.5.

## DACHS and RIMS in Action

To update the inventory using RIMS and DACHS, the following workflow shows the basic steps that should be taken, the staff responsible for completing each tasks, and the software that will be utilized. **Section 2** will elaborate on this workflow and specify the different processes for each type of edit to the road inventory.



## Section II: Types of Road Changes

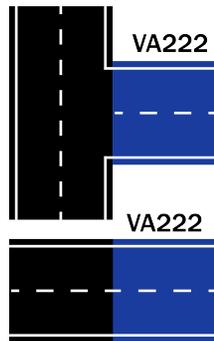
This section provides basic example steps for each type of adjustment that can be made in RIMS. Each description provides additional resources for a more detailed understanding of the process.

The two companion guides referenced in this section are the *RIMS Business Guide* and the *RIMS User Manual*. The *Business Guide* provides an overview and processes for inventory updating, and general step-by-step instructions for performing basic tasks. The *User Manual* provides more detailed instructions for using each screen of the RIMS application.





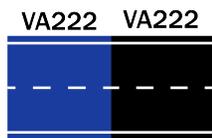
The following shows each of the road change types that can be completed in RIMS. This diagram will be grouped by type (i.e. the categories used in the draft outline).



**Addition (ADTN)**

Labeled as “Addition” in DACHS.

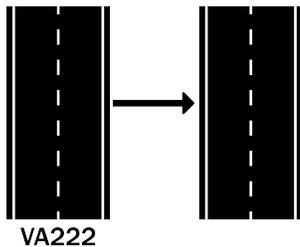
An Addition (ADTN) is used for a new route (using a new route number) or an extension to the end of a route (continuing the same route number).



**Realignment:  
Add (RALN)**

Labeled as an “Addition” in DACHS.

A Realignment: Add (RALN) is used for an extension to the beginning or middle of an existing route. A realignment uses the same route number but changes the length and/or the starting point of the route.

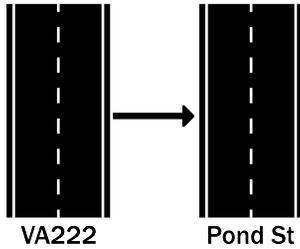


**Abandonment  
(ABAN)**

Labeled as an “Abandonment” in DACHS.

An Abandonment (ABAN) is used if the roadway is:

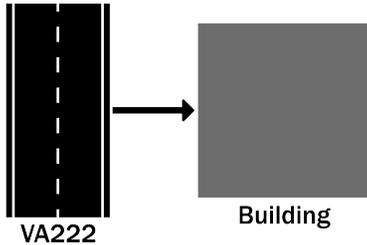
- Not being used and/or maintained,
- The abandoned section is not being replaced by a new road (called an isolated abandonment), and
- The road being abandoned still exists.



Discontinuance (DICO)

Labeled as a “Discontinuance” in DACHS.

A Discontinuance (DICO) is used for an isolated discontinuance (the abandoned section is not being replaced by a new road). This means that the route number will be removed. This typically occurs when VDOT stops maintaining a roadway.

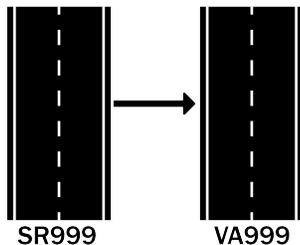


Delete (DELE)

Labeled as an “Abandon” in DACHS.

A Delete (DELE) is used if the roadway is:

- Not being used and/or maintained,
- The abandoned section is not being replaced by a new road (called an isolated abandonment), and
- The road has been physically removed (for example, replaced by buildings).

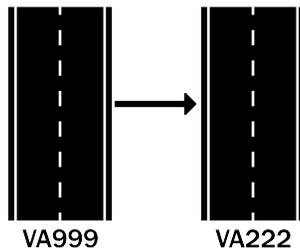


Renumber (RENU)

Labeled as a “Transfer” in DACHS.

A Renumber (RENU) is used for when a route is given a new route number. This can occur when a road changes classification or is transferred across highways systems.

Note: When a renumber occurs, the existing route is always removed from the centerline.

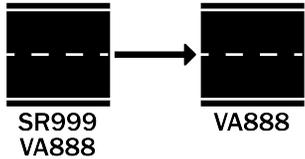


Renumber (RENU)

Labeled as a “Renumber” in DACHS.

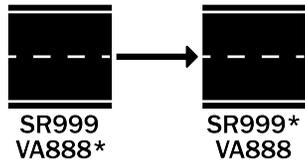
A Renumber (RENU) is used for when a route is given a new route number. This can occur when a road changes classification or is transferred across highways systems.

Note: When a renumber occurs, the existing route is always removed from the centerline.



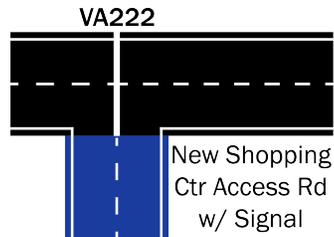
Remove (REMV)

A Remove (REMV) is used if overlapping routes exist on a centerline and one must be removed.



Promote to Master (PROM)

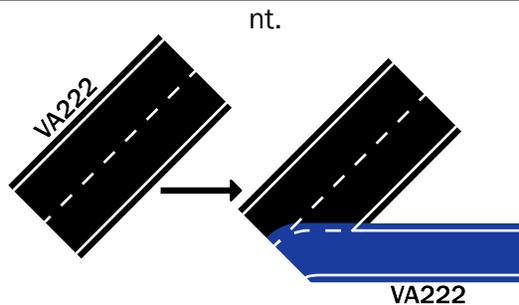
A Promote to Master (PROM) is used to make an overlapping route the master route on a road centerline. It can also be used to place a new route on an existing centerline and at the same time, make the new route the master route.



Split (SPLT)

Labeled as a "Data Correction" in DACHS.

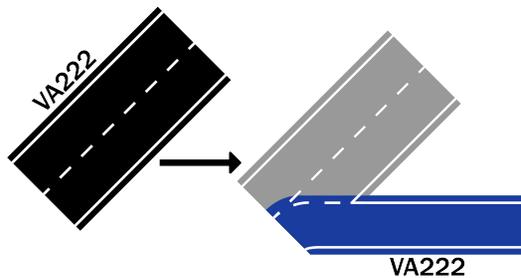
A Split (SPLT) is used if a new intersection is added to an existing road section.



Realignment: Add (RLAN)

Labeled as an "Addition" in DACHS.

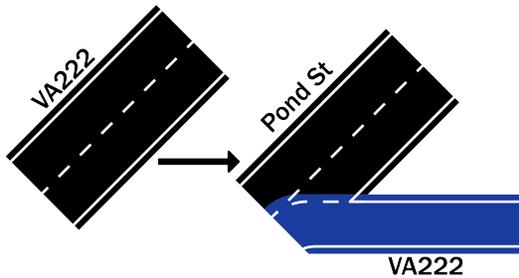
A Realignment: Add (RLAN) is used for an extension to the beginning or middle of an existing route on a new alignment.



Realignment:  
Abandonment  
(RABA)

Labeled as an "Abandon" in DACHS.

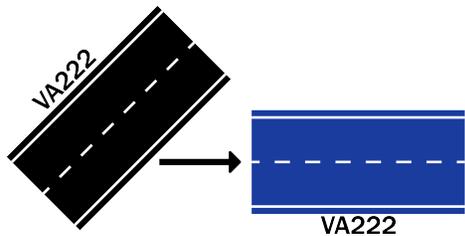
A Realignment: Abandonment (RABA) is used when an abandonment is happening at the same time as a realignment and the road being abandoned is still physically intact. This means that a route is being re-routed, although the initial route still exists.



Realignment:  
Discontinuance  
(RDIC)

Labeled as a "Discontinuance" in DACHS.

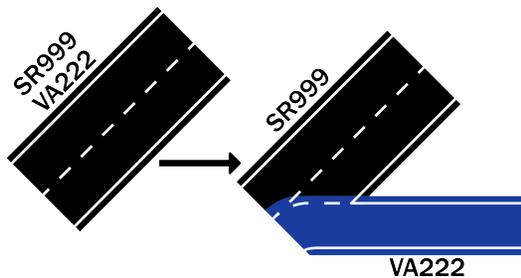
A Realignment: Discontinuance (RDIC) is used when a realignment is taking place at the same time as a discontinuance.



Realignment:  
Delete (RDEL)

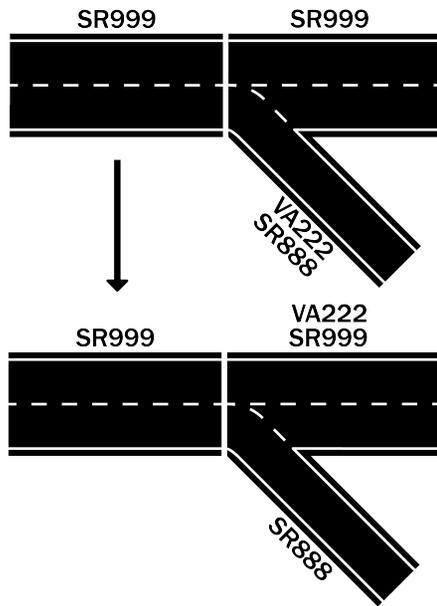
Labeled as an "Abandon" in DACHS.

A Realignment: Delete (RDEL) is used when a abandonment is happening at the same time as a realignment and the road has been physically removed. This means that the route is being re-routed and the initial route has been removed.



Realignment:  
Remove (RREM)

A Realignment: Remove (RREM) is used to remove an existing overlapping route from a centerline as part of a realignment.



### Assign Route (ASSN)

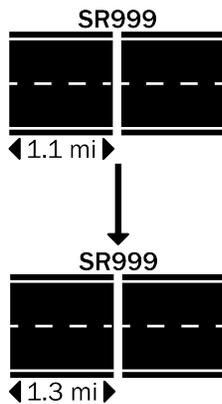
An Assign Route (ASSN) is used to assign a new overlap route to an existing centerline.

(used to describe the new location for the route)

### Realignment: Remove (RREM)

A Realignment: Remove (RREM) is used to remove an existing overlapping route from a centerline as part of a realignment.

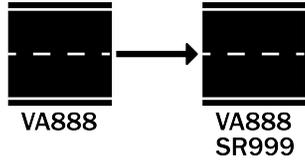
(used to describe the old location for the route)



### Length Correction (LENC)

A Length Correction (LENC) is used if the only change being reported is a correction to the mileage of an existing road section.

(DACHS: Data Correction)



**Assign Route  
(ASSN)**

An Assign Route (ASSN) is used to assign a new overlap route to an existing centerline.



# Section III: Examples

## Addition

### Defining an Addition

Additions to the road network are created as a result of new construction. Additions can be new roadways that will be assigned a new route number, or extensions to the **end** of existing routes. **It is important to note that extending either the beginning or the middle of an existing route is not considered an addition.**

The following are some examples of an addition to the road network:

- A town recently acquired land to create a public park. In order to encourage visitors and provide parking, a new road is built, perpendicular to an existing roadway, to provide access to the new parking lot built on the site.
- With the increasing demand for housing, a developer decides to extend an existing dead-end street in order to build more houses along the route.

### The Scenario

For these instructions, we will establish a scenario to guide one through the process of creating an addition.

Assume that a developer is creating a new subdivision called Springvale Estates. The project will be completed in three phases and new housing will be added during each phase. In addition to the new homes, the developer will also be building roads to improve access to the neighborhood. During the first phase of construction, the developer will be adding a road called Springvale Meadow Lane. When the road is completed, the responsibility for the road segment will be transferred to the county. In order to ingrate the road with the road inventory, the county will have to assign a new route number to Springvale Meadow Lane. The county will then be responsible for any future maintenance.

**What makes this scenario unique?** Every addition is slightly different depending on the scenario. The following factors are important elements of this scenario, but might not apply to all additions:

- Because the project will take place in three phases, and new roadways will be added during each phase, the locality should request reserved route numbers ahead of time to ensure that all of the new routes in Springvale Estates will be assigned route numbers that are sequential and contiguous (i.e. VA 889, VA890, VA891). This will make these roads easier to maintain in the future.
- Because the development is adding secondary roads to the road network, approval from the local Board of Supervisors will be required. The ICR will be initiated in DACHS.

When beginning a project it is important to consider all of the factors that make the project unique. **Appendix A** and **Appendix B** contain more information on all of the possible options for initiating a ICR, choosing the *PI* type, and the order in which tasks should be performed.

The following pages include documents that were submitted on behalf of Springvale Meadow Lane. These documents will provide the basis for the addition in DACHS and RIMS.

Form AM-4.0  
(Rev 08/08/2008)



Commonwealth of Virginia  
Virginia Department of Transportation

Maintenance Division

2013 APR 25 AM 9 37

MEMORANDUM TO:

Maintenance Division  
Attention: Joseph Williams

April 19, 2013  
029 Springvale Estates  
County of Fairfax

Central Office

Subject: Report of Changes to the VDOT Maintained Systems of State Highways  
029 Springvale Estates LGOV 01/29/2013

The necessary Form(s) reporting changes to highway systems maintained by the Department are attached, including, if applicable, a resolution passed by the governing body of the locality for any addition or abandonment of a roadway of the secondary system of state highways.

A. New Additions		This assembly reports changes due to construction. Fees do not apply	
Cash Bond	Escrow Agreement	Surety Dates	Name and Address of Surety firm:
Letter of Credit	Performance Bond	Issued: 4/19/2013	Not Required
Other, approved by Maintenance		Expired: 4/19/2013	Not Required
Surety does not apply for this request		Recommended Expiration	Not Required
		April 19, 2013	Not Required

Surety, if required, is based on the Total Equivalent 1-Lane Mileage of this assembly: 0.48 assessed on the basis of 5 mileage tenths.

Instrument	Check number and Account Drawn Upon	Amount
Approved Surety	Not Required	
Maintenance Payment/ Inspection Fee	PNC Bank; 054000030; 5302606051; Check # 00399985; Amount \$1,250.00	\$750
Admin. Cost Recovery Fee	Included Above	\$500

**B. Rural Additions**

If Line G is greater than zero, the enclosed documentation includes proposed rural addition improvements.

Amounts on Line D are funds provided from other sources for this application, as more fully detailed in the attached Form LA-5.

If Line H is less than zero for either the funding or the mileage allowance(s), the proposed addition may not be added in the current fiscal year.

(Note: The term "RA Fund," in any form, means the accumulated allocation balance held to improve qualifying roads not previously added to the secondary system of state highways. RA Funding is limited to 5% of the current fiscal year's secondary construction allocation for the locality plus unobligated RA Funding funds, if any, from amounts budgeted for that purpose in the previous 3 consecutive fiscal years. The annual mileage allowance is limited to 1.25% of the total mileage in the locality's secondary system of state highways at the end of the previous calendar year.)

	Funding	Mileage
A. Beginning Balance, Current FY		
B. Carry Over Allowed From Prior Fiscal Years		
C. Beginning FY RA Fund Balance (A+B)		
D. Other Amounts From Non-RA Fund Sources		
E. Total Amounts Approved This Fiscal Year		
F. Balance Available For This Application (C+D-E)		
G. Cost Of Application(s) Enclosed		0.48
H. Balance After This Application (F-G)		

**C. Other Changes** See Form(s) AM4.2 enclosed.

FinInsp/CS Date	LGB Res. Date	Days for Resol.	Days Processing
10/19/2012	1/29/2013	102	-182

*Joseph Wandinger*  
District / Residency Authorized Agent

cc: Fiscal Division Administrator (w. checks) via District Accountant

Form AM-4.1(Rev 11/07/2006)



Commonwealth of Virginia  
Virginia Department of Transportation

Check List of Required Documents for Assemblies Reporting Changes to VDOT Maintained Highway Systems

Date: April 19, 2013  
Project: Springvale Estates  
Locality:  
County: County of Fairfax  
Governing Body Resolution Date: January 29, 2013

Shaded items may not be required for the change described in the column headings.

Mark the appropriate column to show all contents of the assembly. Assembly Document or Item	SYSTEM ADDITIONS			SYSTEM DELETIONS	
	New Sub-Div.	Rural Additions Town Streets School Bus Loops	Discontinuances	Abandonments	
Show "new subdivision streets" in towns as "new subdivision streets."	Streets	Project Adjustments	\$33.1-150	\$33.1-151	\$33.1-155
Resident Engineer's Transmittal Letter (if required to supplement Form LA-4)	-				
Form AM4.0 and AM4.1	-				
Form(s) AM4.2 (1 per change per roadway segment)	✓				
Form(s) AM4.4 (HTRIS inventory input form)	✓				
Resolution of the Local Governing Body	✓				
Sketch depicting north arrow, arrangement of streets, distances between intersecting centerlines, split mileage along existing state roads to nearest intersecting state road or jurisdictional/corporate limit. (11 in x 17 in max)	✓				
Public hearing transcript and recommendation of the Residency Administrator					
Copy of Maintenance Fee (original deposited with District Accountant)	✓				
Quitclaim Deed(s) Attached (ie. Power, Communications, Pipelines, Utilities etc.)	-				
Agreement - Storm Water Management	-				
Agreement - Crossing of Dam	-				
Agreement - County controlled grade separation structure	-				
Agreement - Miscellaneous	-				
Copy of recorded plat showing roadway geometrics	-				
Copy of recorded plat showing drainage and easements	✓				
Confirm Drainage design has been checked by District Drainage	✓				
Confirm Drainage and Streets are built in accordance with approved plans.	✓				
Confirm Street(s) meet VDOT's minimum standards.	✓				
Confirm Streets have been satisfactorily maintained since construction.	✓				
Confirm Bridges/Drainage structures meet Structure and Bridge Div. Stds.	✓				
Confirm As Built plans received for bridges, drainage structures and County controlled grade separation structures.	✓				
Confirm All accounts receivables have been paid (testing, inspections, etc.)	✓				
Confirmed signed permits for utilities (public or private) to occupy or cross the right of way are in hand awaiting notice of final acceptance.	✓				
Project sketch (max 11 x 17) attached, showing street names and distances to all intersections and to existing intersections.					

Note: Some information in unshaded cells may not be required. If not required indicate N/A. If unsure, consult Maintenance Division.

- Assemble assembly documents in the following order:
- AM4.0 Quit Claims
  - AM4.1 Copy Recorded Agreements
  - Surety (if applicable) AM4.4 HTRIS Form and Codes
  - AM4.2s Sketch (11 x 17 max)
  - Resolution Public Hearing Document for non-project Discontinuances
  - AM4.3 (Resolution Attachment) Miscellaneous documents

Complete this form manually

Assembly Prepared by: *Joseph Wandinger*  
Phone Number: 703 234-2382



**Commonwealth of Virginia**  
Virginia Department of Transportation  
Report/Recommendation Regarding  
Change in the Secondary System of State Highways

S

Change Requested:   
Addition, New subdivision street, §33.1-229

County of Fairfax	029
County of Fairfax	29
Date of Resolution	1/29/2013
Index	Route No: Secondary Road - 10461
	Old Rte No:

Project/Subdivision	Springvale Estates														
Alias/Street Name	Springvale Meadow Lane	Length mi.	0.24												
From	CL Springvale Rd (Rte 674) - 1.915' NE Dogwood Farm Ln (Rte 8188)														
To	1.271' E to Beginning of Temp. Turnaround Easement														
Public Service:	8 Houses														
Exist. pavement type	8" 21-A + 3" IM-19.0 + 1.5" SM-9.5														
Pavement Condition	New														
Right of Way: Width (ft)	50 Feet	Land Record:	DB 16610 PG 1015-1078												
Recorded:	10/19/2004														
Remarks															
<b>HIGHWAY INVENTORY DATA</b>															
Travel Surface Width (ft)	Pavement Width (ft)	Surface Type	Base Type	No Lanes	Type of Facility	Shldr Width (ft) (L)	(R)	Curb + Gutter	S walk	Bike/Ped Facility	Shldr Width (ft) (L)	(R)	Width (ft) (min)	(max)	Type
20	20	6	2	2	0	7	7	1	1	0	0	0	0	0	1

Developed by: W.C. & A.N. Miller (Commonwealth Homes, LLC) with engineering services by: VIKI Inc.

Recommendation regarding abandoned RW (for abandoned roadways only):

<b>Rural Addition Project Information</b>		Node
Expected Constr Date:	PPMSCODE:	8188, 0.36 mi.
Description:		(From) Rte. 10461, Springvale Meadow Lane, 0.24 mi. (To)
Description of work and section proposed:		8427, 0.19 mi.
		<b>Split Mileage Diagram for New Entrances to VDOT Roadways</b>
Estimated Cost to Improve		Node
<b>Assured Financing - Sources and Amounts</b>		
VDOT Rural Addition Funds	\$0	Node
County/Landowner Funds	\$0	
Speculative Interest Prorata Share	\$0	
Revenue Sharing - County Contribution	\$0	
Revenue Sharing - CTB Match	\$0	
Other Funds	\$0	
Source of Other Funds		
<b>Residency Administrator's Recommendation</b>		
Recommended as proposed unless written otherwise.		
Residency and ANQ:	Fairfax, 13	4/19/2013
<b>Maintenance Division</b>		
Authorized Staff Signature		
Sign and Date		

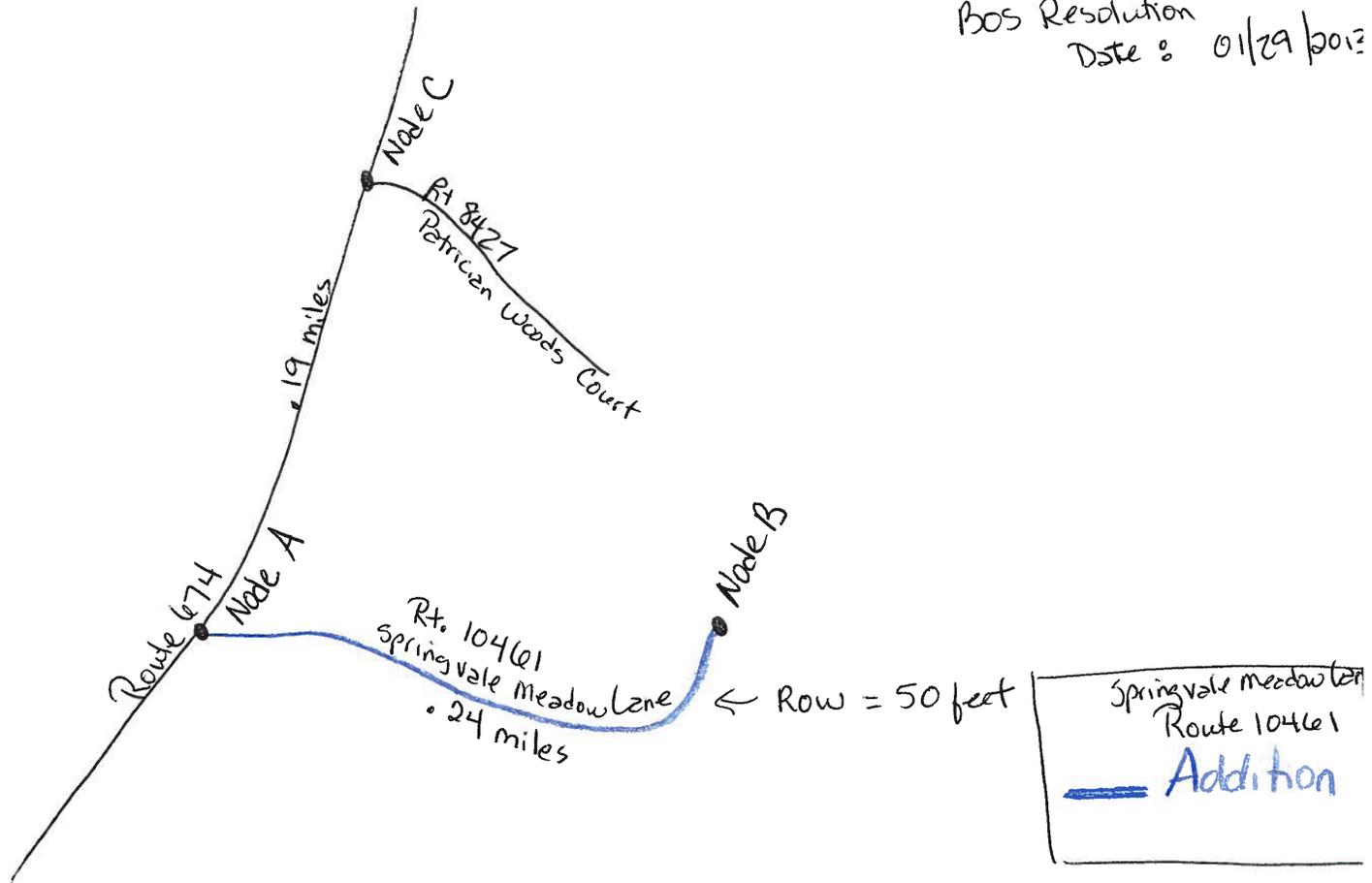
Form: AM-4.4 - HTRIS Data Entry Details  
Subdivision/Project: Springvale Estates

JURISDICTION															
ROUTE NUMBER	S-10461														
TERMINI	Note: From To Terminals are described by location of increasing mile posts.														
LENGTH	FROM	TO	(ft)	(ft)	(miles)	0.24	20	20	20	20	20	20	20	20	20
TRAVEL SURFACE WIDTH	20														
TOTAL PAVEMENT WIDTH	20														
SURFACE TYPE	2														
BASE TYPE	2														
NUMBER OF LANES	2														
TYPE OF FACILITY	2														
SHOULDER WIDTH	7														
MEAN SHOULDER WIDTH	7														
ROAD CURBS AND GUTTER	1														
SIDEWALK CODE	1														
MEDIAN WIDTH	1														
MEDIAN TYPE CODE	1														
ALIAS	1 Springvale Meadow Lane														
OutfitNo:	A														
Bike/Ped:	A														
B.Miles.L	0.36 mi.														
B.Miles.R	0.19 mi.														
A.NodeL	8188														
A.NodeR	8427														
Reason for Change: New subdivision street															
INTERSECTION DIAGRAM DATA (See Report Footer)															

District = NOVA  
Residency = Fairfax  
AHG = 10

Springvale Estates

BoS Resolution  
Date: 01/29/2013





**FIELD  
STAFF**



**RIMS**

## [1] Reserve Route Numbers

Before creating an ICR, even before the road is completed, field staff can reserve route numbers for planned routes. Route numbers are reserved using RIMS. *It is important that the staff have \_\_\_\_ clearance in order to reserve a route number.* It is particularly important to reserve route numbers when a single project will contain multiple routes, as it will help later with inventory and maintenance tasks to have consecutive route numbers. This step is not required of all additions.

In the case of Springvale Estates, it is important to reserve route numbers for the following reasons:

- The project is an addition, which means that the road segment is currently not assigned to a route number.
- The project will include multiple phases, resulting in multiple routes as part of a single project.

### What is the protocol for reserving numbers?

Although any available route number can be reserved, VDOT has established a set of guidelines that determine what numbers can be applied to what road types. These requirements are shown on page 20.

### What are the steps for reserving a route number?

The following shows the steps for reserving a route number using the Springvale Estates scenario.

**Step 1** On the RIMS Menu Bar, select “Manage” and “Route Reservation.”

**Step 2** Select the maintenance jurisdiction using one of two methods: sorting by **Name** or by **Code**. Springvale Estates, which is located in \_\_\_\_\_,

**Step 3** Chose a starting route number based on the VDOT guidance for choosing a route number. To do this, first determine the type of road that is being added using the diagram on page 24. Then determine the lowest number in the range for that road type. In this scenario, the routes begin added are part of a subdivision, therefore the “Starting Route Number” should be 1000.

**Step 4** Chose the number of routes that are needed. It is also possible to specify if the route numbers should be consecutive. In this case, there is only one route being added so it does not matter if the route numbers are consecutive. If, for example, phase two included three new road segments, would be important that the numbers be consecutive, as the routes are all part of the same development.

## Route Reservation

Select one or more criteria below to see the available route numbers.

2 Sort Jurisdiction By:  Name  Code

3 Maintenance Jurisdiction:

3 Starting Route Number:   
*Note: Subdivision streets begin with route 600.*

4 Number of Routes:

4 Consecutive:  Yes  No

5 Subdivision:

6 Search School Roads:  Yes  No  
*Note: School roads are in the 9000 range only.*

7 Reserve Opposite Route:  Yes  No

8  | [Cancel](#)

**Step 5** Define the “Subdivision.” This is a text field that can be specified by the user. This field will be used to ensure that the route numbers selected will be applied to the right project once an ICR has been created.

**Step 6** If the roadway is a school road, the route number must follow certain conventions. Therefore it is important to specify if a segment is part of a school road. In this case, the road is not associated with a school.

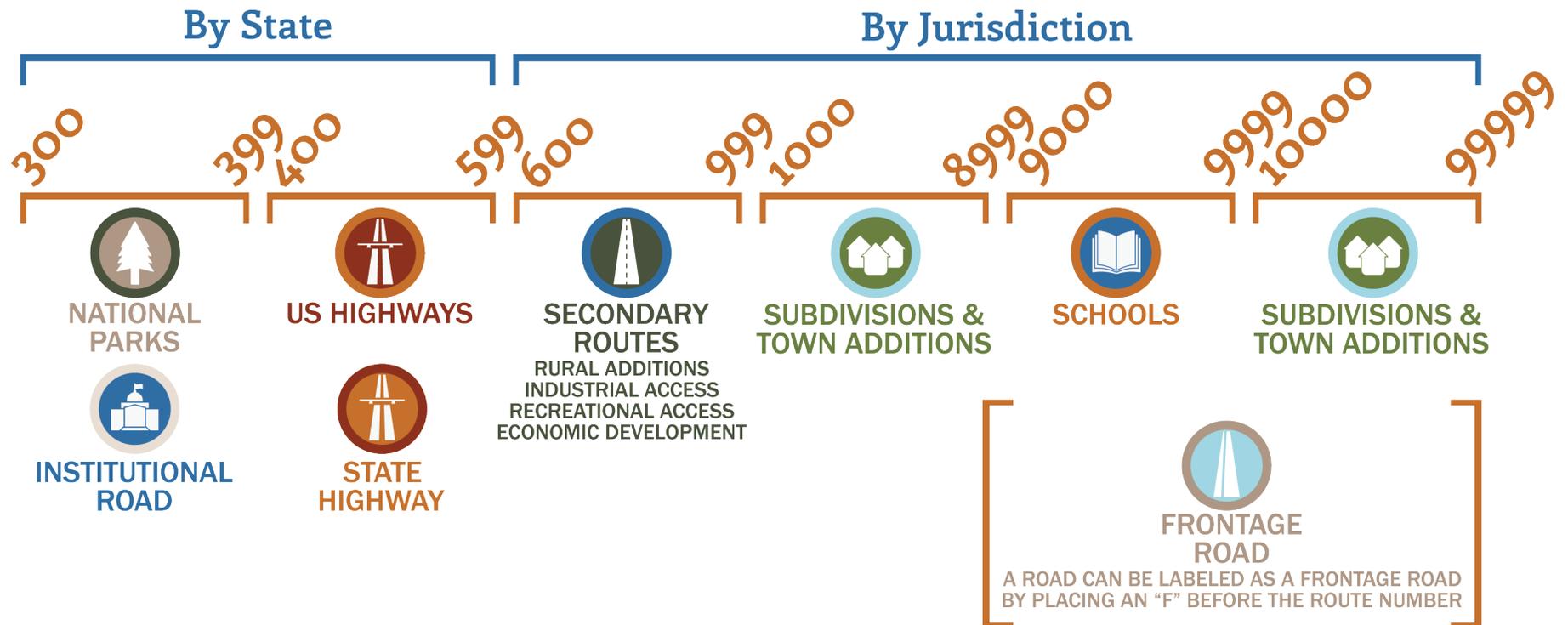
**Step 7** If the roadway is divided or has many lanes, it is possible to reserve two route numbers: one for each direction. In this instance, all of the roadways that are being built within the development are two lanes, one in either direction. Therefore, the roadways will only require one route (which is the equivalent of one centerline in GIS).

**Step 8** When the following steps have been completed, click “Next.”

When all the steps have been completed, RIMS will select a series of available route numbers based on the required number of routes and the “starting Route Number”. The numbers that appear on the screen are reserved.

For more information on reserving route number and a complete list of the characteristics that would require field staff to reserve a route number, refer to **Appendix A**.

Route numbers should be assigned based on the type of road. This figure shows different types of roads and the range the route number must fall between. Certain types of roads, including national parks, institutional roads, and primary roads, are unique by State. This means that the route numbers used to define these road types, the numbers 300 through 599, can only be used once in the Commonwealth of Virginia. Other road types, including secondary routes, school roads, and subdivisions are unique by jurisdictions. This means that the route numbers used to define these roads types, the numbers 600 through 99999, can be used multiple times within the state, but only once per jurisdiction. When route numbers are displayed, either the state or jurisdiction code should be included. Also note that any road can be labeled as a frontage road by adding the letter “F” before the route number.





**FIELD  
STAFF**



**DACHS**

## [2] Enter Initial Inventory Data

To begin making a change in the road inventory network, users should input initial data into the Database for Administering Changes to the Highway System (DACHS). This includes physical characteristics, number of through lanes, and median type in addition to ownership and maintenance responsibility for the new roadway. Primary and secondary additions require approval from either a LGB or the VDOT CTB, therefore DACHS is used to help manage the approval process. DACHS is also used to start an Inventory Change Request (ICR) that can be imported into RIMS.

In the case of Springvale Estates, DACHS should be used to initiate the ICR. This is because Springvale Meadow Lane is part of a subdivision, and therefore requires approval from \_\_\_\_\_. In addition to being used by field staff to coordinate with RIMS, DACHS will also be used by other staff members to expedite the approval process.

For a complete list of the project types that should be initiated in DACHS, refer to the checklist in **Appendix A**.

### What data is required in DACHS?

DACHS requires basic inventory data for each street record. The initial data inputs include:

- Change Type – the type of change that is taking place in the inventory.
- Street – the street name.
- From and To – the streets that will be intersected by the new roadway.
- Length – the length of the new roadway (in feet).
- # Lanes – the total number of lanes that will be included in the roadway.
- Median Type – if the roadway will include a median, the median type should be specified.
- LGB Date - ...

This inventory data will later be used in RIMS to automatically populate some of the inventory fields.

For a complete list of the change types in DACHS, refer to the list on page 10.

### What is the Primary Direction and how does this affect the data entered in DACHS?

In the road inventory, location data is measured either from West to East or North to South. These directions are called the Primary Directions. Having a consistent direction of measurement is important because the LRS is based on how road segments relate to each other. In DACHS, it is not required to enter data in the Primary Direction. In order to enter data in the Primary Direction, select “MP Increase in

from/to direction.” This indicates that the mile points are increasing in the Primary Direction. If the data has not been collected in this manner, the user can also select “MP Decrease in from/to direction,” which indicates that the Primary Direction has not been used, rather the opposite is true (mile points decrease along the Primary Direction). While the data can be entered with or without the Primary Direction, once the data has been transferred to RIMS, all road are shown as they are in the road inventory: oriented in the Primary Direction with mile points increasing from East to West and North to South.

### **How does DACHS relate to RIMS?**

What the data inputs have all been completed, click on **Open RIMS ICR**. This will automatically create an Inventory Change Request (ICR) in RIMS. The ICR will automatically be populated with the data from DACHS.

### **What are the steps for entering Inventory in DACHS?**

The following shows the steps initiating an ICR in DACHS using the Springvale Estates scenario.

**Step 1** First step...

**Step 2** Second step...

**Step 3** Third step...

**Step 4** Fourth step...



**FIELD  
STAFF**



**RIMS**

## [3] Create and Review the ICR

Once an ICR has been created in DACHS, it can be accessed in RIMS by clicking the **Open RIMS ICR** button. When this link has been clicked, a window automatically opens in RIMS displaying the ICR. The ICR will already be populated using the inventory data that has been entered in DACHS.

### What components of the CIR are edited in RIMS?

RIMS is used to enter more detailed inventory data for each ICR. While DACHS includes basic information, RIMS is used to coordinate with other departments, including TMPD and Centerline Editors who will have to review the data and make changes to the roadway inventory and official maps. This means that the data inputs should be as detailed and thorough as possible. In addition to inventory data, RIMS allows users to upload attachments and write comments as part of individual ICRs. These are beneficial for sharing additional information across all of the staff that will be responsible for reviewing the ICR.

### How do you write a successful description for the ICR?

When an ICR is opened in RIMS, it is populated with the data entered in DACHS. In the **ICR Summary** tab, enter a detailed description of the change being made and click **Save** when finished. The ICR description should include information relevant to the RIMU editors might need when processing the ICR. This may include, but is not limited to:

- The timing of acceptance,
- The relationship of the road segments in the ICR to existing or future assemblies, or
- Any additional issues to note.

In the case of Springvale Estates, it would be important to note the project completion date, which is \_\_/\_\_/\_\_. It would also be beneficial to include that Springvale Meadow Lane is part of a larger development that will be completed over three phases. The user should also note the total number of roads that will be constructed as part of the Springvale Estates project.

### What inventory data is required in RIMS?

Additional data should be input in under the **Inventory Sections** tab. The following shows the steps adding or editing inventory data for an ICR in RIMS, using Springvale Estates as an example.

**Step 1** First step...

**Step 2** Second step...

**Step 3** Third step...

**Step 4** Fourth step...

**Step 5** Fifth step...

### How do you upload an attachment?

Attachments are used in RIMS to provide additional information about the road segment that might not be addressed in the **Inventory Sections** tab. This typically includes mapping information that is best shown as a sketch or detailed plan. Additional documents might include information on:

- The project assembly or timeline,
- Construction details, or
- Official documents regarding future road maintenance.

For Springvale Meadow Lane, the ICR will include a sketch that shows where the new road segment will be located compared to existing road segments. The sketch is shown on page 21.

For a list of elements that should be included in a successful sketch diagram, refer to the checklist in **Appendix A**.

The following shows the steps for adding an attachment to an ICR in RIMS using the Springvale Estates scenario.

**Step 1** To add a new attachment, first navigate to the **Attachments** tab and click on **Add an Attachment**.

**Step 2** Second step...

**Step 3** Third step...

**Step 4** Fourth step...

### How do you edit an attachment?

If there are problems with an existing attachment, it is possible to edit the attachments already listed on the ICR. In order to edit an attachment, follow the steps below.



**Step 1** On the Attachments tab, uploaded attachments will be listed. To find a previous attachment, the user can sort the list by Subject, Comment, Posted By, Created On, Last Comment Date, or Number of Comments.

**Step 2** When the attachment to be edited has been located, select the item on the list and click the pencil icon.

**Step 3** Third step...

**Step 4** Fourth step...

### **How do you delete an attachment?**

To delete an attachment, select the attachment and click on the red “x” icon.

### **What if there are no sketches of the project available?**

If there are no drawings or plans of the new roadway, it is possible to add a Redline sketch of the project within RIMS using the Redline tool.

For an example of a project that used the Redline tool to create a sketch, refer to the Discontinuance example on page 52.



RIMU  
STAFF



RIMS

## [4] Check Data and Make Reserved Routes Active

Before an ICR can be activated, the data should be reviewed to ensure that it is accurate. Once this process is completed, it will be possible to make the route active.

### What data must be reviewed before making the route active?

Once the ICR has been located, it is important to review the data. The required fields include:

#### How can I find an old ICR?

To review the route data the user must first identify the proper route in RIMS. This is done using the “ICR Search” function, located in the “ICR” menu. There are two methods for locating an ICR. The first is to use the Pre-set Filters, which allows the user to find ICRs that are:

- Created by Me;
- Assigned to Me; or
- Assigned to My Group.

If it is not possible to find the ICR using the Pre-set Filters, use the Advanced Search option. The screen, displayed below, provides a number of search methods for locating an ICR. Each of the fields used for the Advanced Search is also described below.

#### How is the reserved route made active?

**Step 1** On the Attachments tab, uploaded attachments will be listed. To find a previous attachment, the user can sort the list by Subject, Comment, Posted By, Created On, Last Comment Date, or Number of Comments.

**Step 2** When the attachment to be edited has been located, select the item on the list and click the pencil icon.

**Step 3** Third step...

**Step 4** Fourth step...

When the route is active...



GIS  
STAFF



ITD  
STAFF



GIS

## [5] Update Map and Network

**Note: This step is not completed by Field Staff.**

When an ICR is active, it is submitted to the Centerline Editors. During this phase, the Centerline Editors perform a series of tasks including splitting edges to create new intersections, create centerline geometry, assign measures and routes to edges, and adjust any other data as required by the project. When the LRS has been completed, the RNS team will review the data and the centerline edits. When both the Centerline Editors and RNS team have ensured the accuracy of the data, the ICR status is changed back to “Review.”



RIMU  
STAFF



RIMS

## [6] TMPD Data Verification

**Note: This step is not completed by Field Staff.**

TMPD is the “data owner” for functional class, National Highway System designation, Urban Area, and Bicycle/Shared Access data. Therefore they must review these items before an ICR can be completed. When the data has been checked and verified, the ICR is sent back to RIMU with a comment to note that the review has been completed.



RIMU  
STAFF



RIMS

## [7] Finalize and Close Out the ICR

# Checklist

## Creating a ICR: DACHS versus RIMS

An ICR can be initiated in either DACHS or RIMS. This checklist is meant to help the user determine which program should be used. It is important to find the **one** description that best fits the current project, and use the corresponding software to initiate the ICR. Note that generally, DACHS is used for projects that will require approval before proceeding, and typically deals with additions, abandonments, discontinuances, transfers, route renumbering, and annexation and de-annexation processes. RIMS is primarily used for miscellaneous projects including general construction and urban roads.



RIMS

Some ICRs are not required to go through DACHS. These projects can be created directly in RIMS using a “Miscellaneous ICR”.

Rerouting of primary routes through a city

Definition.

Construction project that does not impact length or location of a road

Definition. Examples include road widening, new intersections with non-VDOT roads, etc.

New urban roads

Definition.



DACHS

Projects that are initiated in DACHS often require approval before they can proceed. DACHS is designed to track approval process.

Transfers from Primary to Secondary System

Definition.

Requires approval from VDOT Commissioner at the request of LGB.

Route Renumbering (Impacting a Single Highway System)

Definition.

Annexations

Definition.

Based on a U-1 form transmitted by the Local Assistance Division.

Deannexations

Definition.

Primary Additions

Definition.

Require approval from the VDOT Commissioner.

Primary Discontinuances

Definition.

Require approval from the VDOT Commissioner with approval of CTB.

Primary Abandonments

Without Replacement

Definition.

Require approval from CTB.

With Replacement

Definition.

Require approval from VDOT Commissioner.

Secondary Additions

Definition.

Require approval from LGB and DOT Commissioner, designated to the Highway System Management Unit.

Secondary Abandonments

Definition.

Require approval from LGB and VDOT Commissioner.

Secondary Discontinuances

VDOT Project-Related

Definition.

Require approval from VDOT Commissioner.

Non-VDOT Project-Related without Replacement

Definition.

Require approval from the CTB.

Non-VDOT Project-Related with Replacement

Definition.

Require approval from the VDOT Commissioner.

# RIMS Inputs

Location Description	Street Name		
	Route Number		
	From		
	To		
	Length		
RNS Location	Route		
	From		
	To		
	Event Length		
	LRM Date		
Road Configuration (Both Directions)	Facility Type		
	Access Control		
	Couplet/One Way Path		
Travel Lanes/Cross Section	# of Total Thru Lanes		
	Thru Travel Surface Width (ft)		
	Total Pavement Width (ft)		
Roadside	Shoulder Type		
	Paved Shoulder Width (ft)		
	Unpaved Shoulder Width (ft)		
	Curb Type		
Median	Median Type		
	Median Width - Minimum (ft)		
	Median Width - Predominant (ft)		

	Median Percent Coverage		
Median Shoulders and Curbs	Median Shoulder Type		
	Median Shoulder-Paved Width (ft)		
	Median Shoulder-Unpaved Width (ft)		
	Median Curb Type		
Pavement (Both Directions)	Surface Type		
	Base Type		
Pavement Materials (Both Directions)	Pavement Material		
	Thickness		
Bicycle/Shared Access (Both Directions)	Bicycle Access Type		
	Paved		
	Bicycle Route		
	Owner		
	Side of Road		
Sidewalks (Both Directions)	Side of Road		
Right of Way	Min Width (ft)		
	Max Width (ft)		
Auxiliary Lane	Type		
	Side of Road		
	Lane Width (ft)		
	Lane Length		
	Lane Length Units		
	Taper Length		

	Taper Length Units		
	Number of Lanes		
Administrative (Both Directions)	Functional Class		
	Maintenance Jurisdiction		
	Physical Jurisdiction		
	Operation Region		
	National Highway System		
Responsibility (Both Directions)	Location Type		
	Ownership Category		
	Public Road		
Urban Areas (Both Directions)	Urban Area Code		

# Appendix A. Road Inventory Data Layers

This section describes all of the data layers that are included in the road inventory. The data layers are broken into multiple groupings that are outlined below. The following pages describe each of the data points in detail, including the possible inputs and definitions.

## Physical Road Characteristics

Travelway	A travelway represents a single roadbed with uniform cross section characteristics. A travelway can be single or bi-directional and may be represented in RNS by one or two centerlines, but its length may not vary by direction. Each road in RNS must have continuous travelway events.	Travelway data layers include: Facility Type Couplet Access Control Number of Lanes Reversible Lanes Thru Travel Surface Width Pavement Width Median Type Median Width Shoulder Type Shoulder Width Curb Type
Pavement Type		Pavement data layers include: Surface Type Base Type
Sidewalk		Sidewalk data layers include: Sidewalk Location
Causeways		Causeway data layers include: Causeway Name
Preferential		Preferential Lane data layers include: HOV Type

Lanes (HOV)	Number of HOV Lanes
Auxiliary Lanes	Auxiliary Lane data layers include: Turn Lane Type Length Taper Length
Right-of-Way	Right-of Way data layers include: Total ROW Width ROW Width from Centerline to Property Line (Right Side)
Bike/Shared Access	Bike/Shared Access data layers include: Bicycle/Pedestrian Access Type Bike Facility Side of Road Bike Path Owner Bike Route Number

## Physical Road Characteristics

Responsibility	Responsibility data layers include: Total ROW Width ROW Width from Centerline to Property Line (Right Side)
Operations Region	Operations Region data layers include: VDOT Operations Region
Maintenance	Maintenance Jurisdiction data layers include:

Jurisdiction	Maintenance Jurisdiction
Physical Jurisdiction	Physical Jurisdiction data layers include: Physical Jurisdiction
Urban Area	Urban Area data layers include: Urban Area Code
Toll Facilities	Toll Facilities data layers include: Federal Toll ID Toll Facility Name Toll Type Collection Direction
MPO/Study Area	MPO/Study Area data layers include: MPO/Study Area Name
UMIS	UMIS data layers include: ROW Width Pavement Width Peak lanes (UMIS-eligible sections)

## Road Designations

Functional Class	Functional Class data layers include: Federal Functional Class
NHS	NHS data layers include:

National Highway System Designation

Highway Names data layers include:

CTB-designated Highway Name

Scenic Byway data layers include:

Byway Designation

CTB Access Designation data layers include:

CTB Limited Access Designation

Special System data layers include:

Special Highway System Designation

Snow Map data layers include:

Snow Map Designation

HMPS data layers include:

Federal Highway performance  
Monitoring System Sample Sections

Highway  
Names

Scenic Byways

CTB Access  
Designation

Special System

Snow Maps

HPMS

# Facility Type

The facility type layer describes the directions that travel along the roadways (one-way, two-way, or reversible) and whether or not the roadway is separated (divided or undivided).

# Important Concepts

In order to better understand each of these programs, it is important to recognize the major components that are created and adjusted. The following section provides an introduction to the vocabulary and components that will be important in the upcoming sections.

## Centerlines

The Road Centerline (RCL) is a line on a map depicting the approximate location of a roadway. The RCL is linked to the roadway inventory data.

The number of lanes along a roadway does not affect the road centerline. However, some divided roads may have two centerlines (one for each direction).

## Road Network Description

Links and notes (HTRIS terminology), anchor sections and anchor points, dummy anchor sections

## Routes and Linear Referencing

## Overlapping Routes and Master Routes

## Road Characteristic Data Layers

## Sides of the Road

# Key Terms

## ICR – Inventory Change Request

An inventory change request initiates the process of amending, adding, or subtracting data from the road inventory. There are four types of ICRs:

- Requests from **DACHS** that are created by Field and RIMU editors. An ICR is created in DACHS if it falls under any of the categories listed in **Appendix B**. ICRs are most often input in DACHS because the changes will require approval before they can proceed.
- **Miscellaneous** requests are created directly in RIMS and can be created by both Field and RIMU editors. These requests are often non-secondary projects that are approved by CTB in the planning state, and therefore do not have to be input in DACHS.
- Requests based on the **Urban Maintenance Inventory System (UMIS)** can only be created by Local Assistance Division (LAD) staff and RIMU editors. These requests pertain to changes in the urban road network.
- **Errors & Omissions (E&O)** requests identify data errors in the road inventory and can be created in RIMS by all VDOT staff.

## PI – Proposed Inventory

A PI is used for each road change (for example, addition, abandonment, etc.) It is located on the RNS network and contains the inventory from the DACHS street record.

## Reserved Route

2 routes reserved for 2-way streets.

## Active Route

The route exists and is ready to be added to the network.

## LRS – Linear Referencing System

## Event

## Prime Direction

The prime directions for roadways are North and East. The prime direction is the direction for which milepoints increase.

## Master Routes

A road can carry many routes but only one master route. The master route carries the business data and is linked to other routes along the same segment. The master route is determined by...

RIMS will allow you to see the data from any overlapping route.

## **Location Referencing**

Methods include:

Route-Milepoint:

Jurisdiction-Route-Milepoint:

Route-Latitude/Longitude:

Route- Intersection/Offset: The RIMS default.

# Acronyms

MD – Maintenance Division

MIRE – Model Inventory of Roadway Elements

MP – Milepoint

MPO – Metropolitan Planning Organization

NHS – National Highway System

PI – Proposed Inventory Segment

PIM – Planning and Investment Management

PPTA – Public Private Transportation Act

RCL – Road Centerline

RIMS – Roadway Inventory Management System

RIMU – Road Network System

ROW – Road Inventory Management Unit

UMIS – Urban Maintenance Inventory System

VGIN – Virginia Geographic Information Network

