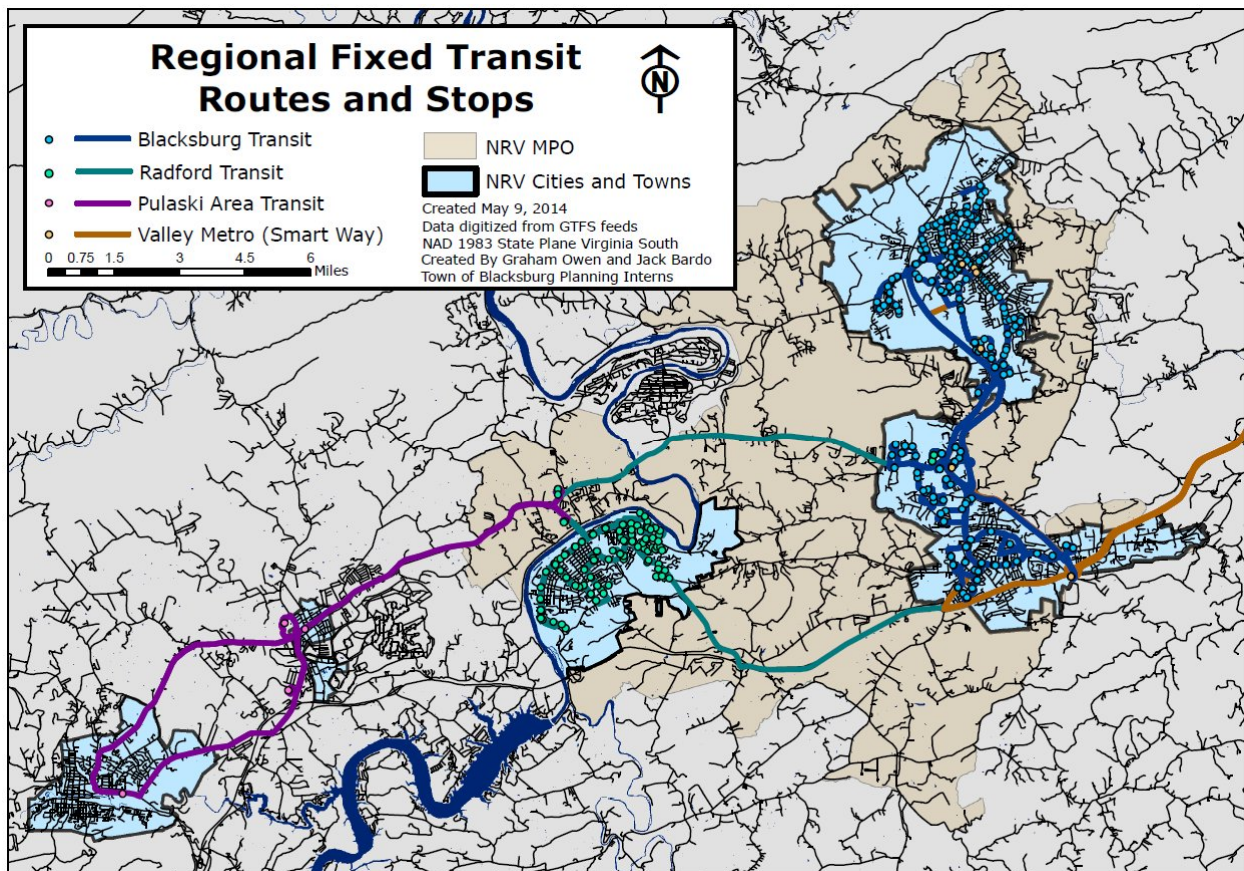


New River Valley Metropolitan Planning Organization Regional Transit GIS Project Report

Phase I
Graham Owen
May 2014



Contents

Introduction	3
The need for regional connectivity	3
Project scope, goals, and objectives	3
<i>Scope</i>	3
<i>Goals</i>	4
<i>Objectives</i>	4
Existing transit providers and connections	4
<i>Fixed Routes</i>	4
<i>Demand Response and Human Service Providers</i>	6
Prior regional transit efforts	6
Stakeholder profiles	6
<i>Project Meetings</i>	6
<i>Town of Blacksburg / Blacksburg Transit</i>	7
<i>NRV Community Services / Radford Transit</i>	7
<i>Pulaski Area Transit</i>	8
<i>New River Valley Agency on Aging</i>	9
<i>New River Valley Planning District Commission / Ride Solutions</i>	9
<i>Montgomery County</i>	10
GIS data descriptions	10
<i>General Transit Feed Specification (GTFS)</i>	10
<i>Geographic Features</i>	11
<i>Bicycle and Pedestrian files</i>	12
Software options	12
Recommendations	14
<i>FTP Site</i>	14
<i>Demo Web Tool</i>	14
Objectives for future intern	14
Appendix A. List of Stakeholder Contacts	16
Appendix B. Regional GIS Index	17

Introduction

This report provides a summary of work performed by Blacksburg Transit (BT) for the New River Valley Metropolitan Planning Organization (MPO) to collect, inventory and analyze regional GIS transportation data. The project was led by Erik Olsen, BT Transportation Planner, and Graham Owen, GIS Intern, and developed in coordination with the four fixed-route transit providers that operate in the MPO. Additional project input and guidance were provided by the planning, GIS and engineering staff at Montgomery and Pulaski Counties, the City of Radford, the Towns of Blacksburg and Christiansburg and the New River Valley Planning District Commission (PDC). This summary describes the purpose and goals of the MPO project, provides an analysis of the existing transit and GIS data capacities in the region and inventories the data collected in support of the project. The report concludes with recommendations for the future GIS intern who will continue the project.

The need for regional connectivity

In January 2014 the MPO began funding a regional GIS project aiming to create a unified transit mapping scheme throughout the region. Transit in the New River Valley developed in a decentralized fashion over the decades responding to local, rather than regional, transit needs. Increased urbanization in the Blacksburg-Christiansburg area over the past three decades made public transportation more of a recognized necessity in the area. Prior to the designation of the New River Valley MPO in 2003 few formal network connections existed between transit providers. Since the establishment of the MPO two new transit providers began operations, Pulaski Area Transit (PAT) in 2005 and Radford Transit (RT) in 2011.

Despite the intra-jurisdiction connections and access that each of these agencies provides there is growing recognition among stakeholders that regional connections could be improved. Current fixed-routes along high passenger volume corridors are often duplicitous, while other areas remain underserved by connections between providers. Despite efforts among stakeholders to improve coordination and inter-network connectivity, funding requirements and other limitations have made pairing service hours between agencies difficult. This GIS project seeks to address connectivity issues by supporting ongoing and future development of regional transit connections between providers, local governments and universities in the New River Valley.

Project scope, goals and objectives

Scope

Initially, this project developed with the intent to only collect transit data from the fixed route providers in the MPO. However, throughout the project it became clear that a more regional scope would be more beneficial. This expansion occurred for two reasons: 1) a number of demand response and human service transportation providers are formally affiliated with the fixed route providers and 2) a regional scope is necessary

in order to fully incorporate the PAT and Valley Metro systems which feature networks connecting to, but mostly outside of the MPO. Given the regional nature of the transit networks in the New River Valley the scope of the project was expanded to include all municipalities in the PDC.

Goals

The first round of stakeholder meetings established a solid foundation for the needs and desires of those involved in the project. A common sentiment that echoed across all stakeholders was a desire to improve connectivity and communication between systems. Another shared desire was to improve transit connectivity with other modes of transportation. Also, some stakeholders expressed a desire for the project to work in coordination with on-going regional planning efforts at the MPO and PDC level. In response to these sentiments, two formal project goals were developed:

1. Improve connections between transit providers and other modes of transportation
2. Assist on-going and future transportation planning efforts at the local and regional level

Objectives

From these two goals stem five formal objectives that seek to put the work summary into a short term context while also laying a foundation for on-going development and collaboration.

1. Coordinate with transit stakeholders
2. Collect, inventory and analyze GIS data
3. Identify existing GIS processes
4. Provide GIS index to stakeholders
5. Build foundation for future web applications

Existing transit providers and connections

Fixed Routes

Blacksburg Transit operates the largest system in the New River Valley with fixed route and demand response networks in Blacksburg and Christiansburg as well as a deviated (1/2 mile radius around designated stops) fixed route network in Christiansburg. A vast majority of BT's ridership is made up of Virginia Tech students and the network in Blacksburg is a hub and spoke system centered around the Virginia Tech campus and downtown Blacksburg, with spokes extending out to several neighborhood "sub-hubs" in the town. The Christiansburg network follows a more circuitous, point-to-point route that more easily allows for deviations. NRV Community Services operates Radford Transit, which provides a deviated-fixed route network in the City of Radford and nearby community of Fairlawn with service to Blacksburg and Christiansburg. The RT system extends throughout the city, serving both Radford University and neighborhoods outside of the university area. NRV Community Services also provides a paratransit and Medicaid trip service branded as Community Transit with service in the City of Radford

and Floyd, Montgomery and Pulaski Counties. Pulaski Area Transit operates a fixed route between the Town of Pulaski and Fairlawn as well as a demand-response system within Pulaski County. The Roanoke transit agency Valley Metro operates the SmartWay bus, a regional connector linking Blacksburg and Christiansburg to destinations in the Roanoke area including the Roanoke-Blacksburg Regional Airport.

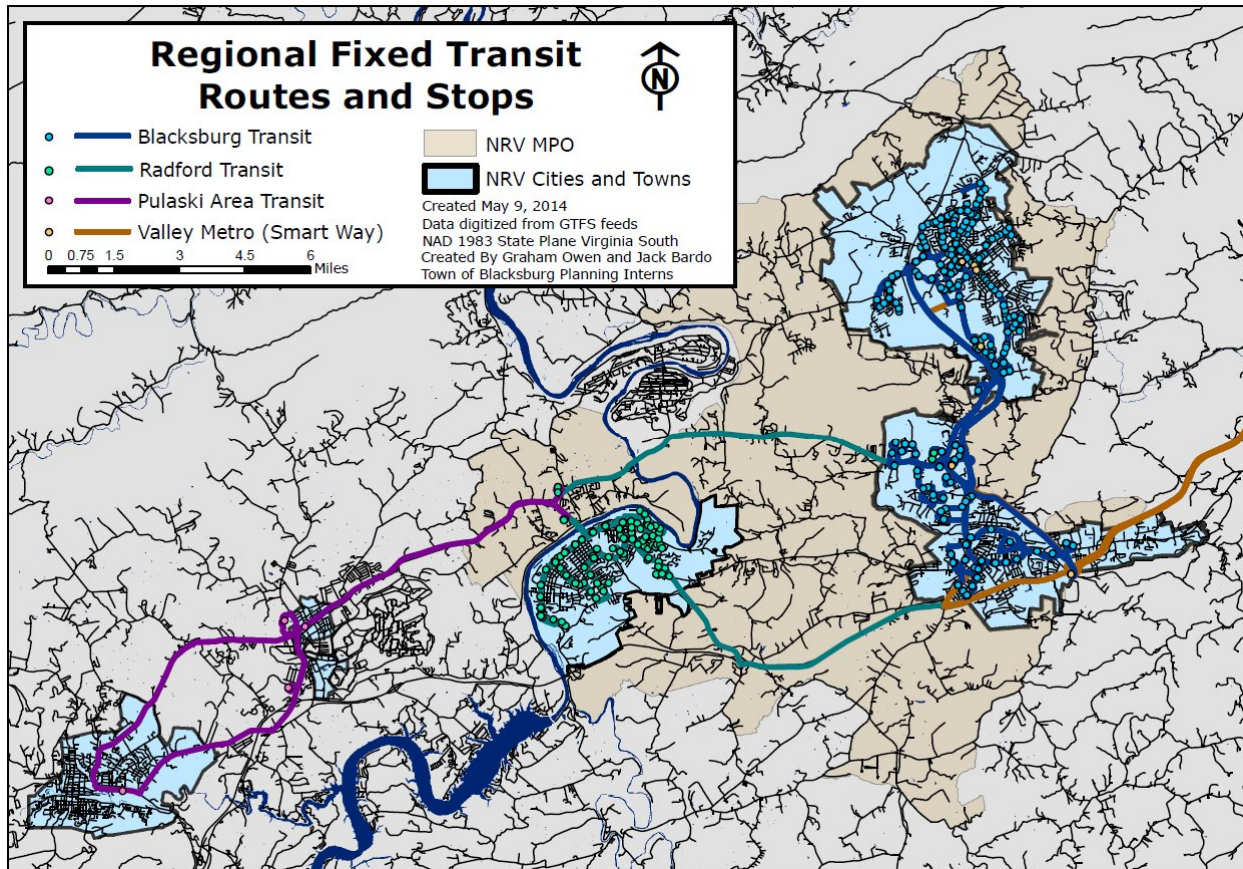


Figure 1. New River Valley Fixed Routes

The SmartWay bus also provides service to the Lynchburg Amtrak Station with connections to Charlottesville, Culpeper and Alexandria to the north and Danville and Greensboro, NC to the south. From the Amtrak Stations in Lynchburg and Charlottesville customers can make rail transfers to Staunton and Thruway Bus transfers to Richmond.

Two private carriers, Homeride and Megabus, also offer inter-regional connections from Blacksburg and Christiansburg to Northern Virginia, Hampton Roads, Richmond, Charlottesville and Harrisonburg, with interstate connections to Knoxville, TN, Atlanta, GA and New York, NY. These carriers stop at Newman Library on the Virginia Tech campus and the Falling Branch Park and Ride, providing a much needed service for Radford University and Virginia Tech students traveling to and from population centers around the Commonwealth.

Demand Response and Human Service Providers

Several organizations provide van and shuttle service for seniors and individuals with disabilities in the region. This is referred to as human service transportation and local providers include Giles Health and Family Center, Goodwill Industries of the Valleys, LogistiCare, NRV Agency on Aging, NRV Senior Services and NRV Community Services. Also Helping Hands Transit, a Floyd-based private operator, provides seniors with transportation and taxi services to locations in the region. A complete description of these agencies and provided services can be found in the New River Valley (PDC 4) Coordinated Human Service Mobility Plan. Several of these organizations have received FTA §5310 (Elderly and Disabled Persons Program) grants in recent years to purchase vehicles and coordinate human services, indicating a growing demand for paratransit paired with increased capacity for service provision.

Prior regional transit efforts

The four fixed route providers in the New River Valley have been involved in previous efforts to develop regional connections including the 2012 Regional Transit Organization Study conducted by the PDC and MPO. The study analyzed several organizational models used to coordinate regional transit with the goal of increasing transportation options between communities in the region. Several key issues that impair the development of a regional transit entity were analyzed including funding and resource allocation and the desire to maintain independent systems. The Regional Transportation Coordinating Council (RTCC) was established based on the recommendations of this study and meets quarterly to discuss these and other regional transportation planning issues. The RTCC is a joint effort between the MPO, PDC and regional transit operators and funding partners in the New River Valley, encouraging collaboration on transportation projects that affect multiple stakeholders.

Stakeholder profiles

Project Meetings

The Transportation Planner and GIS Intern conducted several meetings with transit and GIS stakeholders in support of the regional GIS project:

01/30/2014 – NRV PDC – Eli Sharp, Planning Director; and Jonnell Sanciangco, GIS Analyst

02/06/2014 – Town of Blacksburg – Katherine Smith, GIS Coordinator

02/11/2014 – Radford Transit – Brian Booth, Transportation Manager; and Mishell Evans, Data Analyst

02/11/2014 – Montgomery County – Bob Pearsall, GIS Manager; and Michael Sutherland, GIS Analyst

02/18/2014 – Pulaski Area Transit – Gary Heinline, Transit Manager

05/01/2014 – NRV Agency on Aging – Chris Brown, Mobility Manager

Follow-up meetings were held after relevant GIS data had been collected from stakeholders:

04/10/2014 – Radford Transit and City of Radford– Brian Booth; Mishell Evans; Jim Hurt, City Engineer; and Jay Eanes, Engineering Technician

04/11/2014 – Town of Blacksburg – Katherine Smith and Thomas Shema, GIS Intern

05/08/2014 – Pulaski Area Transit – Gary Heinline, Transit Manager

Town of Blacksburg / Blacksburg Transit

The meeting with Katherine Smith, the Town of Blacksburg’s GIS Coordinator, produced a project goal of establishing a minimum data reporting standard across all regional transit providers. If implemented the General Transit Feed Standard, or GTFS, could serve as the baseline data structure for a transit web tool. The GTFS format exports transit agency data such as routes, stops, trip times and shapes which can then be visualized using GIS software. BT already uses the GTFS format for its real-time web application, BT4U, which is produced through a script originating in the onboard automatic vehicle locating (AVL) system. BT4U predicts bus locations based on recent schedule history, allowing customers to more accurately plan trips. This system was developed “in-house,” and has the capacity to store and display data from other transit agencies if provided in the appropriate format.

NRV Community Services / Radford Transit

Meetings with transit operators provided a window into the current data collection and reporting processes used at each of the agencies. Radford Transit began operations in 2011 and the system has grown rapidly in terms of ridership and the number of routes offered. RT has partnered with Ride Solutions and Trillium Transit to develop GTFS and uses an onboard AVL system which feeds into a NextBus web tool to predict bus locations. The agency’s data is publicly available on a Trillium Transit open access site. However, the “real-time” data derived from the NextBus system is proprietary, which raises issues regarding the development of a region-wide web tool or application. The City of Radford, which coordinates with Radford Transit, was able to provide geographic, building, bicycle and pedestrian infrastructure layers for the project. This data in combination with the transit layers obtained from Trillium allow for an intermodal approach to trip planning. Figure 2 shows the utility of such an approach in the City of Radford by combining all available modes of transportation into one map.

Radford Transit is operated by NRV Community Services and operates a fixed route within the City of Radford with service to Christiansburg and Blacksburg. NRV Community Services also operates Community Transit, a Medicaid trip provider that covers all of the NRV PDC.

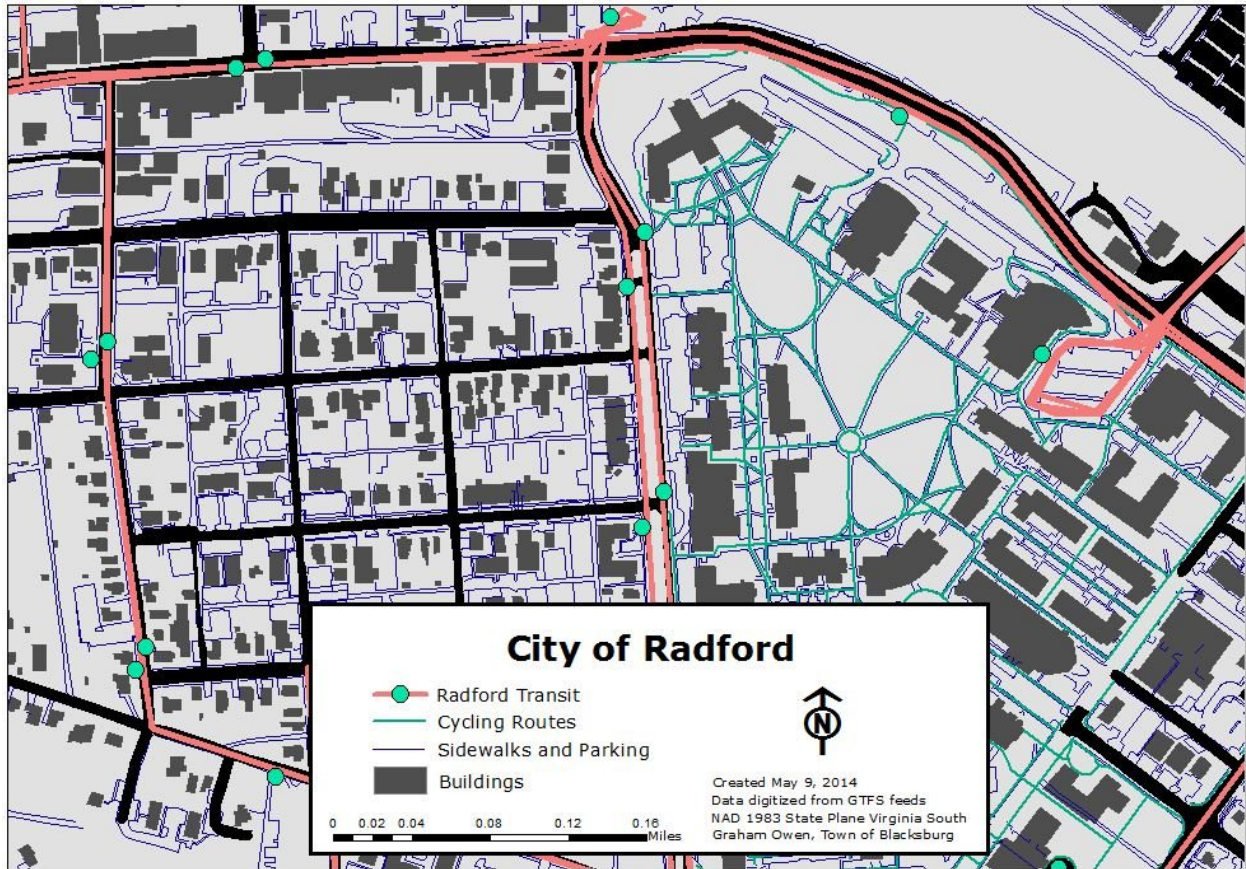


Figure 2. Intermodal Connections in the University area of the City of Radford

Pulaski Area Transit

PAT does not currently host a web tool but has used GTFS through its partnership with Ride Solutions and Trillium Transit to provide route and stop updates for Google Transit. The GTFS feed is updated when PAT submits route or stop changes to Ride Solutions. Each PAT bus is equipped with GPS capability, though the cost of operating a GPS system is expensive and the agency does not currently use the technology. Transit Manager, Gary Heinline, indicated that their GPS system could become operational in the fall pending the status of a Virginia Department of Rail and Public Transportation (DRPT) grant. The firm selected to develop GPS for the PAT buses, Angel Track, also plans to install on-board cameras. However, as with the NextBus system in Radford the GPS-derived Angel Track location data is proprietary which may complicate efforts to incorporate data into a regional web tool.

PAT operates a single deviated fixed route from the Town of Pulaski to Fairlawn in addition to a demand-response system within the Town of Pulaski and one mile outside of town limits. The demand-response system is for the general public, not just for the disabled or elderly. About half of Pulaski Area Transit's funding is derived from \$5311 (Non-Urbanized Area) grants. DRPT and the Town and County of Pulaski contribute the remaining portions.

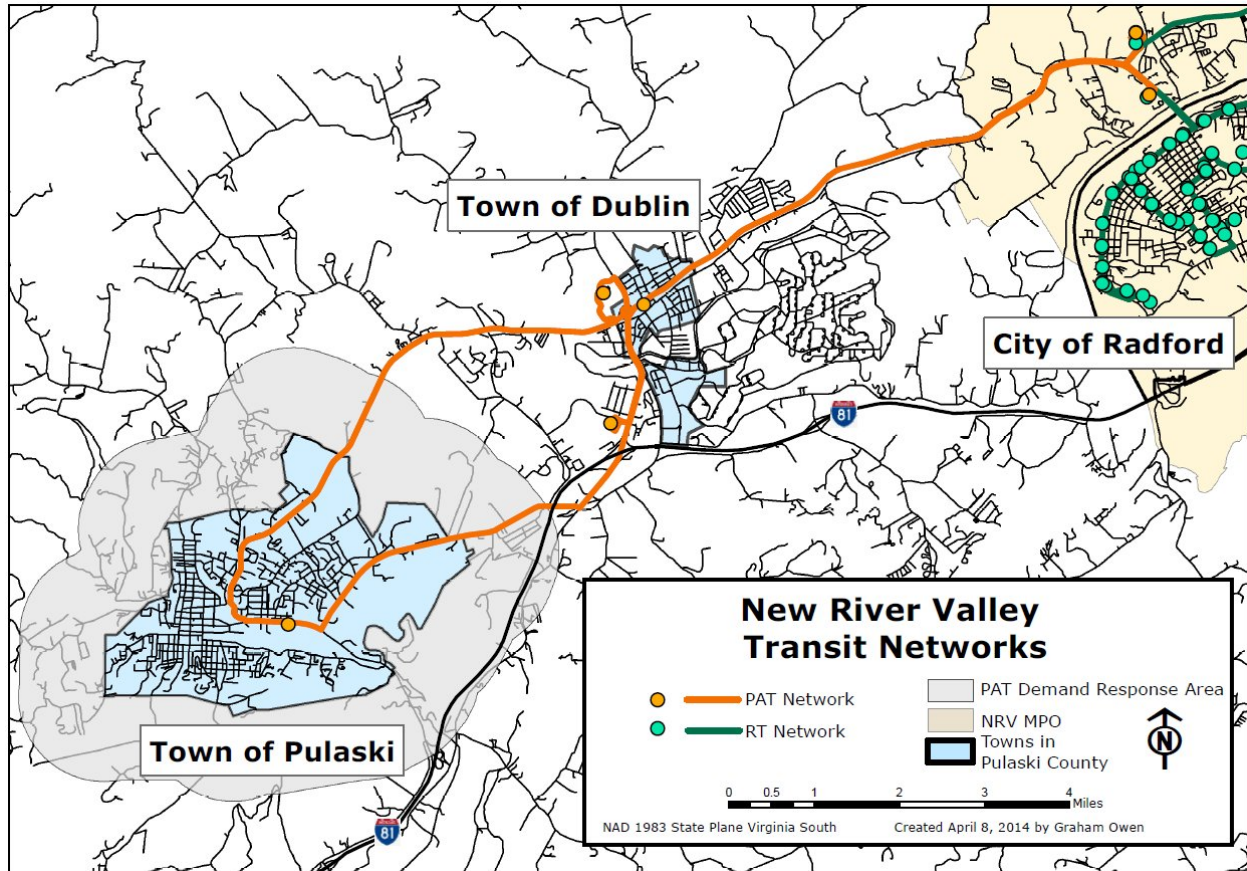


Figure 3. Pulaski Area Transit Deviated Fixed Route and Demand Response Area

New River Valley Agency on Aging

The Agency on Aging (AOA) provides non-emergency medical trips for seniors and those with disabilities, including free services for those below the poverty line. Unlike most of the other providers, AOA is able to provide trips outside of the PDC area and regularly schedules trips to locations such as the University of Virginia Medical Center.

New River Valley Planning District Commission / Ride Solutions

The meeting with the PDC helped identify existing sources of regional GIS information and also provided an overview of other regional GIS projects currently underway. The PDC recently launched a web tool using the ESRI engine with feature class, or layer, export capabilities. These feature classes include municipal boundaries, natural features and transportation data including transit, bicycle and pedestrian routes for Montgomery, Giles, Floyd and Pulaski County and the City of Radford. Ride Solutions, a group that coordinates alternative transportation options for commuters between the New River Valley Planning District Commission (PDC 4), Roanoke Valley-Allegheny Regional Commission (PDC 5) and the Region 2000 Partnership (PDC 11) has worked with Trillium Transit to develop GTFS capabilities in the Roanoke and New River Valley systems since 2012. Aaron Antrim is the current contact at Trillium Transit and his contact information is located on page 16. Jeremy Holmes at Ride Solutions has served as the primary medium between Trillium and the transit providers. Ride Solutions and Trillium have developed GTFS for Valley Metro, Radford Transit and

Pulaski Area Transit and provide updated feeds when the transit providers report changes to their routes, stops or schedules.

Montgomery County

The meeting with Montgomery County GIS Manager Bob Pearsall and GIS Analyst Michael Sutherland showcased the capabilities of the Ovela GIS system, a web-based alternative to ESRI and Google-driven tools. Mr. Pearsall indicated that transit layers could be incorporated into the existing Montgomery County iGIS system which serves as the primary public repository for land records and property information. Mr. Pearsall also indicated that a transit component could be incorporated into the dimensions of other iGIS projects including the development of an iGIS interface for the Montgomery County Department of Economic Development.

GIS data descriptions

Each of the stakeholders detailed above provided GIS data, or allowed other organizations to provide data on their behalf. As a result, over 140 shapefiles were collected, analyzed and indexed. Currently the data is hosted on a Town of Blacksburg network. These shapefiles include foundation data, such as municipal boundaries, water features and road networks as well as transit data, such as routes, stops and park and ride locations. Other transportation data such as bicycle lanes, trail networks and sidewalks were also collected in order to study possibilities for intermodal/multimodal connections.

General Transit Feed Specification (GTFS)

Several types of GIS data were collected in support of the regional GIS project. The most critical part of the inventory, transit route and stop layers, were created using GTFS files obtained from open data exchanges. Each of the four transit providers in the region has developed GTFS. BT, RT, and Valley Metro provide publicly-available GTFS files online, although not on a regular schedule. PAT's feed was originally obtained from Ride Solutions, who partnered with Trillium Transit in 2013 to develop GTFS capabilities for several transit providers in the region. As of 4/25/2014, the most current GTFS feeds can be found on the following open access sites:

Blacksburg Transit: [http://www.gtfs-data-exchange.com/agency/blacksburg-transit/www.bt4u.org/gtfs/google transit.zip](http://www.gtfs-data-exchange.com/agency/blacksburg-transit/www.bt4u.org/gtfs/google%20transit.zip)
Pulaski Area Transit: http://trilliumtransit.com/transit_feeds/pulaski-va-us/
Radford Transit: http://trilliumtransit.com/transit_feeds/radford-va-us/
Valley Metro: http://www.gtfs-data-exchange.com/agency/valley-metro/http://trilliumtransit.com/transit_feeds/roanoke-va-us/

Up-to-date GTFS feeds for Blacksburg Transit and Valley Metro can be found on two websites. The second Blacksburg Transit URL listed is an internal feed that may be more current than the publicly-available feed found on the GTFS Data Exchange site. These GTFS files are a good source of geographic coordinates from which GIS

shapefiles can be created. When regularly updated, GTFS can serve as a base for up-to-date route and stop information that can be visualized using GIS software.

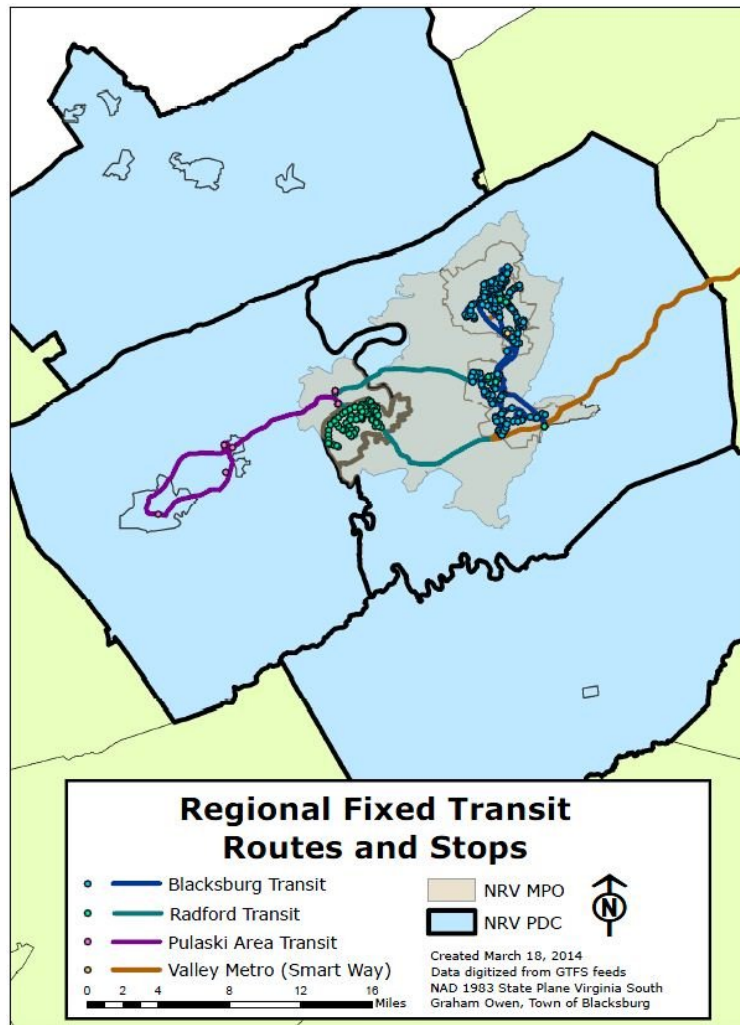


Figure 4. Regional GTFS-Derived Shapefiles

Geographic Features

Several types of geographic data were obtained from a variety of sources. Water shapefiles were downloaded from the U.S. Census Bureau in the form of 2013 TIGER files for each county and city in the New River Valley. While no water transportation exists in the NRV beyond recreational purposes, the water files provide geographic context and serve as an important cartographic element for future map-making.

Municipal and planning district commission boundaries for each of the counties and cities in the New River Valley Planning District Commission and Roanoke Valley-Allegheny Regional Commission were also obtained from the Census Bureau. Census tract layers for each PDC were also obtained in order to serve as the context for regional studies using Census and American Community Survey data. As two of the largest non-municipal entities in the area, Virginia Tech and Radford University GIS layers were also obtained.

Bicycle and Pedestrian files

Bicycle and pedestrian layers were gathered from a variety of sources. The PDC's Multimodal Transportation System Planning Tool contains a GIS file exporter, allowing the user to download bicycle and pedestrian route shapefiles for all PDC counties and the City of Radford. This tool was developed as an element of the MPO Bicycle and Pedestrian Master Plan and shows existing multimodal conditions and infrastructure along with other information such as employment and activity kernel density layers which can be used for transportation planning purposes. Figure 5 on the following page is a screenshot of one of the web tool's settings, in this case depicting a population and employment kernel density layer overlaid with multimodal centers as points.

Software options

The grant for the MPO project included a line-item budget for GIS software development. At the beginning of the project the Transportation Planner and GIS Intern inquired with each transit provider regarding current software needs and desires and through these meetings concluded that each provider has no unmet capacity at this time. Should software purchase be desirable in the future a number of options exist. The following list briefly describes four potential software applications.

ArcGIS Desktop – ESRI's ArcGIS is the industry standard for most GIS applications and can be installed on Windows-based desktop computers. ESRI has a well-established technical support team and is used by a global network of GIS professionals. However, the software is expensive for individual users and requires significant training for use in a government setting. This is a good option for agencies with GIS staff and work that requires high performance and functional software, but it does not provide a publicly-accessible web tool. ArcGIS does offer special pricing programs for small, local governments that serve fewer than 100,000 people.

<http://www.esri.com/software/arcgis>

ArcGIS Online – This web-based ESRI product is based around a subscription service (starting at \$2,500 for 5 users or "seats") and is the engine for the PDC's Bicycle and Pedestrian Master Plan web tool. One of the major benefits of this service is that it can be used on both desktop computers and mobile devices and may serve as a customer-friendly engine for a public transit web tool. However, ArcGIS Online does not allow for a high degree of data manipulation on the public side and the amount of interaction that the public has with the data is restricted by the settings of the tool itself.

<http://www.esri.com/products/technology-topics/web-gis>

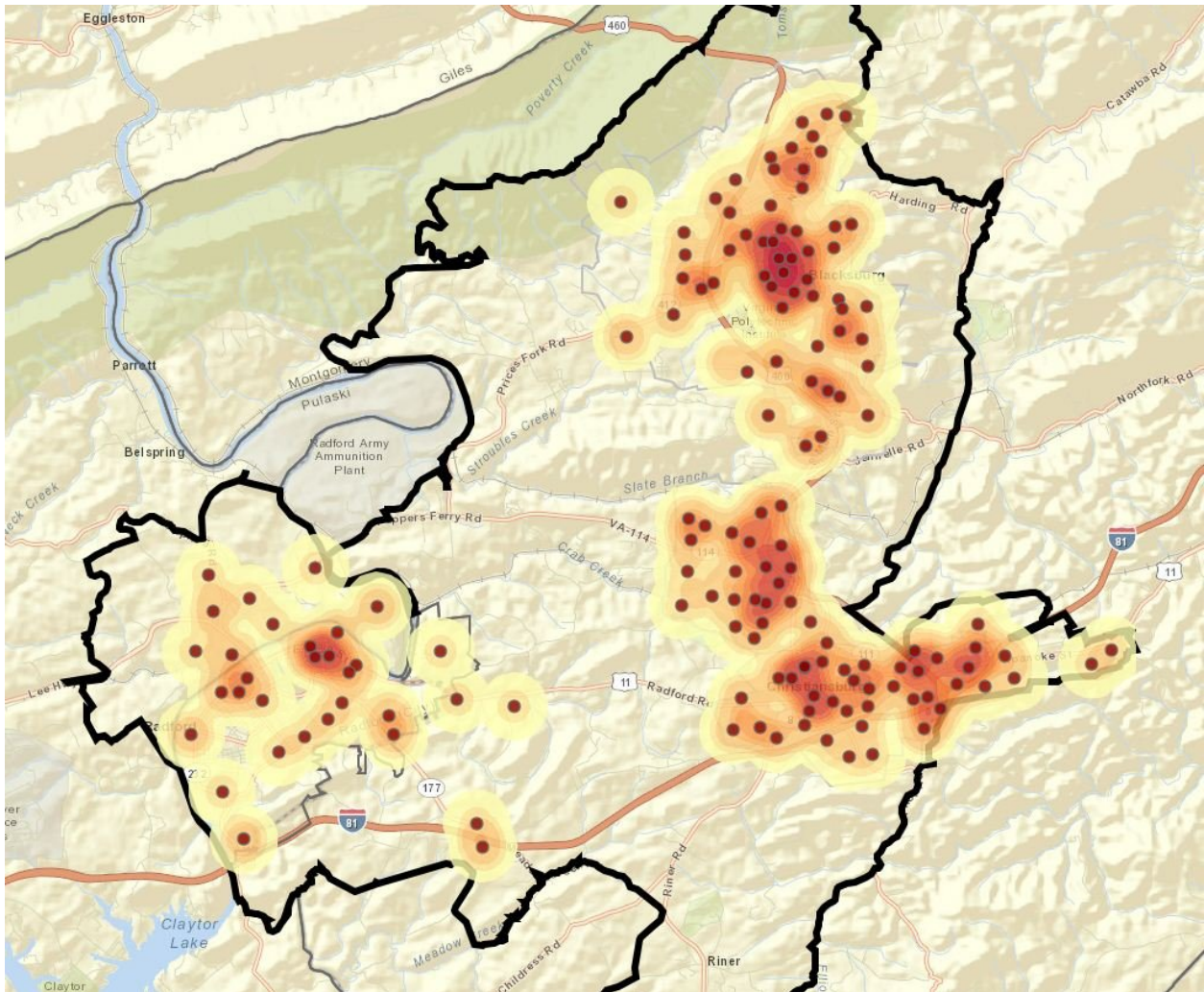


Figure 5. NRV MPO Multimodal Centers and Population/Employment Density

Source: <http://www.nrvpdc.org/nrvmpo/bikepedplan/>

Freeware (Quantum GIS, GRASS) – There are a number of GIS freeware products that could meet basic GIS mapping needs for stakeholders who do not want to spend money on ArcGIS Desktop. Quantum (Q-GIS) and GRASS are free and open source options that provide similar functionality to the ESRI suite for the most basic operations. Q-GIS can be run on Windows and Linux operating systems.

<http://grass.osgeo.org/>
<http://www.qgis.org/en/site/>

Google Earth Pro – This version of Google Earth is oriented towards business users, and includes map-making and spatial analysis tools, high-resolution printing capabilities and movie-making functions for presentations. The license starts at approximately \$399 per year.

<http://www.google.com/enterprise/mapsearch/products/earthpro.html>

Recommendations

FTP Site

The regional GIS index includes information that would be useful for many stakeholders including municipalities, universities and citizens. The index could be provided on a public FTP site operated by a number of project stakeholders. The MPO or PDC may be ideal hosts for an FTP site given the regional nature of the information and the PDC has given an initial indication that they would be able to host such a site. Given the temporal nature of much of the GIS data, especially with regards to transit networks, the organization hosting the FTP site would need to coordinate regular data “push-outs” or requests to stakeholders for the most up-to-date GTFS and GIS data.

Demo Web Tool

The Town of Blacksburg has the capacity to test a regional web tool on the BT4U system for planning and demonstration purposes using the GTFS feeds for each of the four fixed-route transit providers. Also, Blacksburg Transit’s ITS Department is already planning to incorporate Valley Metro’s Zonar fleet management system for demonstrative purposes by the beginning of the Fall 2014 semester, which would serve as a real-time improvement over the static GTFS feed. Several non-transit stakeholder agencies have developed web tools for their own purposes and it may be possible to incorporate a regional transit element into one or more of these web tools. Some stakeholders have taken notice of the Transloc-developed web tool used by Triangle Transit, a transit operator in the Research Triangle area of North Carolina. This web tool is regional in scale and incorporates each of the fixed route transit providers in the area. Figure 6 shows a screenshot from the Triangle web tool that illustrates the functionality of the system. Each of the seven transit providers in the Triangle area upload their transit data to the site, which visualizes the location of buses on each route and allows the transit customer to more accurately plan trips across the region.

Objectives for future intern

The next GIS Intern, Catherine Howey, will continue the project after Graham Owen’s involvement has come to a close. A number of objectives will help guide the development of the project during and after hand-off:

- 1) Work with PDC to develop file infrastructure necessary for GIS data sharing on FTP or open access site
- 2) Convert shapefiles in index to KML format for public consumption in Google Earth
- 3) Work with ITS and stakeholders to develop regional web tool
- 4) Work with RT, PAT, Valley Metro and Trillium Transit via Ride Solutions to establish timeline for data push-outs

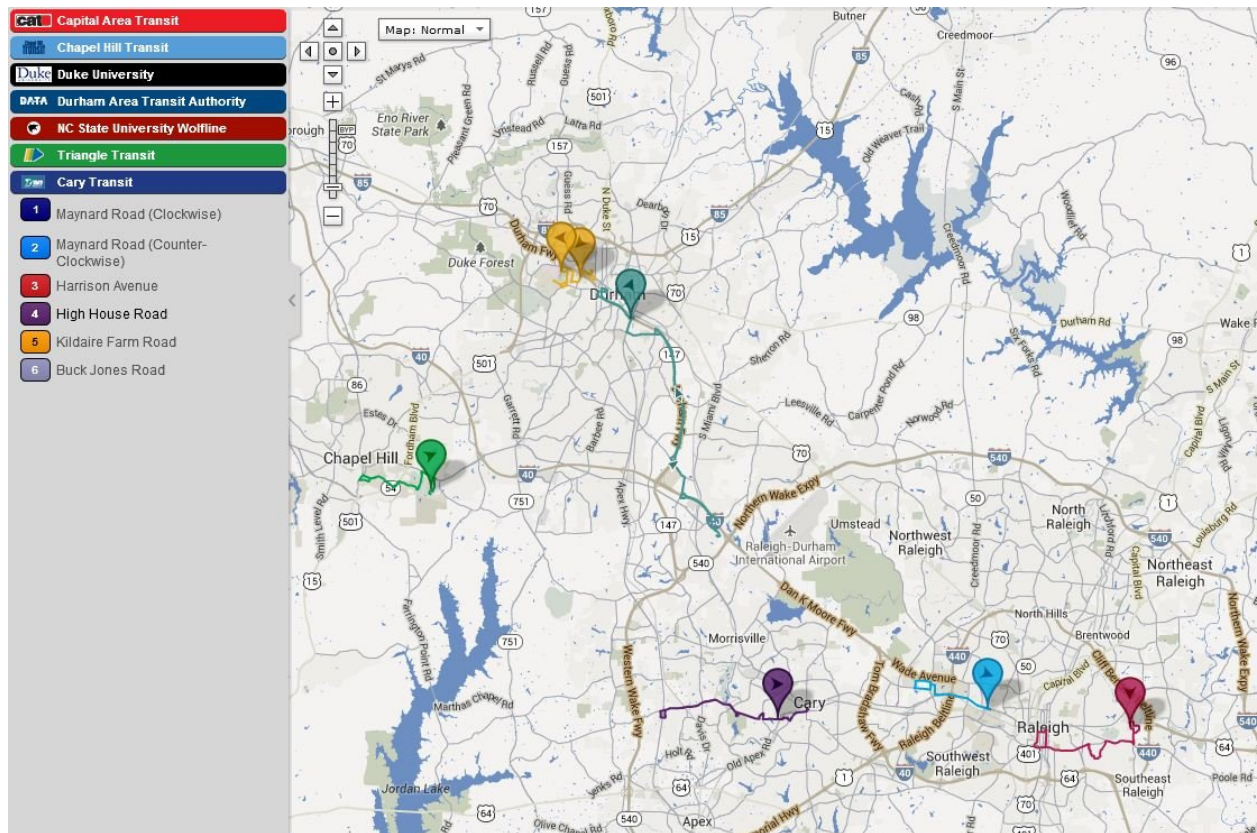


Figure 6. Triangle Transit Webtool
 Source: Triangle Transit (<http://triangle.transloc.com/>)

Appendix A. List of Stakeholder Contacts

Transportation Stakeholder	Stakeholder Website	Point Person	Email Address
Transit Providers			
Blacksburg Transit	http://www.blacksburg.gov/index.aspx?page=791	Erik Olsen	eolsen@blacksburg.gov
NRV Agency on Aging	http://www.nrvaoa.org/index.html	Chris Brown	wcbrown@nrvaoa.org
Pulaski Area Transit	http://www.pulaskitransit.org/index.html	Gary Heinline	gheinline@nrvc.org
Radford Transit	http://www.radfordtransit.org/	Brian Booth	bbooth@nrvc.org;
Valley Metro	http://www.valleymetro.com/	Carl Palmer	cpalmer@valleymetro.com
Municipalities			
Town of Blacksburg	http://www.blacksburg.gov/	Katherine Smith	ksmith@blacksburg.gov
Town of Christiansburg	http://www.christiansburg.org/	Dayton Poff	dpoff@christiansburg.org
Town of Pulaski	http://www.pulaskitown.org/		
Giles County	http://gilescounty.org/	Bryan Reed	blreed@gilescounty.org
Montgomery County	http://montva.com/	Bob Pearsall	pearsallrj@montgomerycountyva.gov
City of Radford	https://www.radford.va.us/	Jim Hurt	hurtjh@radford.va.us
Pulaski County	http://www.pulaskicounty.org/	Bryan Reed	blreed@pulaskicounty.org
Regional Organizations			
NRV Planning District Commission	http://www.nrvpdc.org/	Jonnell Sanciangco	jsanciangco@nrvpdc.org
Ride Solutions	http://www.ridesolutions.org/	Christy Straight	cstraight@nrvpdc.org
RVARC	http://www.rvarc.org/	Shane Sawyer	ssawyer@rvarc.org
Universities			
Radford University	http://www.radford.edu/	Andrew Foy	afoy@radford.edu
Virginia Tech	http://www.vt.edu/	Debbie Freed	dfreed@vt.edu
Consulting Firms			
AECOM (DRPT consultant for GTFS)	http://www.aecom.com	Charles Dingboom	charles.dingboom@aecom.com
Trillium Transit (PAT, RT, and Valley Metro consultant for GTFS)	http://www.trilliumtransit.com/	Aaron Antrim	aaron@trilliumtransit.com
Connetics Transportation Group (Pulaski TDP consultant)	http://www.ctgconsult.com/	Jim Baker	jbaker@ctgconsult.com

Appendix B. Regional GIS Index

Name	Description	Organization / Agency	File last modified	File directory
MPO Existing Transportation System	mxd	BT	3/20/2014	G:\21gis\BT\MPO Project Regional Transit
VBMP_2011_ortho_tiles	aerial orthophotoquad tiles	BT	3/21/2012	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Aerials\VBMP_2011_ortho_tiles
All_Trails	bburg trail network	TOB	3/22/2013	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Bburg\Final_Project\Final_Project_Data
Bike_Trails	bburg bike trails	TOB	3/25/2013	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Bburg\Final_Project\Final_Project_Data
Buildings	bburg buildings	TOB	3/22/2013	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Bburg\Final_Project\Final_Project_Data
Corporate Limits	bburg corporate limits	TOB	3/22/2013	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Bburg\Final_Project\Final_Project_Data
CRC_Hospital	BT CRC Hospital route, data updated 8/2004	BT	10/13/2010	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Bburg\Final_Project\Final_Project_Data
CRC_Shuttle	BT CRC Shuttle route	BT	10/13/2010	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Bburg\Final_Project\Final_Project_Data
Current_And_Future_Huckleberry	Huckleberry Trail	TOB	3/22/2013	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Bburg\Final_Project\Final_Project_Data
CurrentMultiUse	bburg Current AND PROPOSED multiuse trails	TOB	3/22/2013	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Bburg\Final_Project\Final_Project_Data
Future_Landuse	bburg future land use map	TOB	3/22/2013	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Bburg\Final_Project\Final_Project_Data
Harding	BT Harding Route, data updated 8/2004 and 6/2005	BT	10/13/2010	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Bburg\Final_Project\Final_Project_Data
Hethwood_A	BT Hethwood A route	BT	10/13/2011	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Bburg\Final_Project\Final_Project_Data
Hethwood_B	BT Hethwood B route	BT	10/13/2011	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Bburg\Final_Project\Final_Project_Data
Hokie_Express	BT Hokie Express, updated 8/2004	BT	10/12/2010	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Bburg\Final_Project\Final_Project_Data
Main_Street	BT Main Street route, updated 8/2004 and 1/2007	BT	10/13/2011	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Bburg\Final_Project\Final_Project_ata
Open_Space	bburg open space	TOB	3/22/2013	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Bburg\Final_Project\Final_Project_Data
Patrick_Henry	BT Patrick Henry route, updated 8/2004	BT	10/12/2010	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Bburg\Final_Project\Final_Project_Data
Paved_Parking	bburg paved parking areas	TOB	3/22/2013	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Bburg\Final_Project\Final_Project_Data
Paved_Roads	bburg paved roads	TOB	3/22/2013	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Bburg\Final_Project\Final_Project_Data
Progress_Street	BT Progress Street route, 8/2004	BT	10/12/2010	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Bburg\Final_Project\Final_Project_Data
sidewalks	bburg sidewalks	TOB	3/22/2013	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Bburg\Final_Project\Final_Project_Data
Stops_2011	BT Stops, updated 10/2011	BT	10/13/2011	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Bburg\Final_Project\Final_Project_Data
street_centerlines	bburg street centerlines, updated 7/2011	TOB	3/22/2013	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Bburg\Final_Project\Final_Project_Data
Tom's_Creek	BT Tom's Creek route, updated 8/2004	BT	10/12/2010	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Bburg\Final_Project\Final_Project_Data
Two_Town_Trolley	BT Two Town Trolley, no date	BT	10/27/2010	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Bburg\Final_Project\Final_Project_Data

U-Mall_Shuttle	BT University Mall Shuttle route, updated 8/2004	BT	10/12/2010	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Bburg\Final_Project\Final_Project_Data
University_City_Bldv	BT University City Blvd route, updated 8/2004	BT	10/12/2010	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Bburg\Final_Project\Final_Project_Data
Unpaved_Parking	bburg unpaved parking	TOB	3/22/2013	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Bburg\Final_Project\Final_Project_Data
Unpaved_Road	bburg unpaved roads	TOB	3/22/2013	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Bburg\Final_Project\Final_Project_Data
Town_Parks	bburg Town parks	TOB	3/22/2013	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Bburg\Final_Project\Final_Project_Data
VirginiaTech	Virginia Tech campus	TOB	3/22/2013	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Bburg\Final_Project\Final_Project_Data
Blacksburg Routes New 020614	Foursquare ITP Draft Route Proposals	BT	3/4/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Bburg\New Routes\Blacksburg Routes New 020614.gdb
CRC_Shuttle	BT CRC Shuttle route	BT	2/25/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Bburg
CRCConnector Only	BT CRC Shuttle stops	BT	2/7/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Bburg
BT_Stops_2011	BT Full Stops as of 2011	BT	1/31/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Bburg
BT_Stops_GTF S	BT Full Stops as of 1/2014	BT	3/20/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Bburg
CRCstops	BT CRC Shuttle stops	BT	2/21/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Bburg
VACOUNTY1	VA Counties (old, includes Clifton Forge as Ind. City)	US Census	11/30/2013	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Census Tracts\Counties
VATOWNCITY	VA Towns and Cities	US Census	11/30/2013	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Census Tracts\Counties
tl_2013_51_tract	VA Census Tracts from 2013	US Census	8/2/2013	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Census Tracts\tl_2013_51_tract
Allegheny	Allegheny County census tracts 2013	US Census	3/18/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Census Tracts
Botetourt	Botetourt County census tracts 2013	US Census	3/18/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Census Tracts
Covington	City of Covington census tracts 2013	US Census	3/18/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Census Tracts
Craig	Craig County census tract 2013	US Census	3/18/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Census Tracts
Franklin	Franklin County census tracts 2013	US Census	3/18/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Census Tracts
NRVPDC_Census_Tracts	NRV PDC census tracts 2013	US Census	1/31/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Census Tracts
RVARC_Census_Tracts	RVARC census tracts 2013	US Census	1/31/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Census Tracts
Radford_City	City of Radford census tracts 2013	US Census	3/18/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Census Tracts
Roanoke_City	City of Roanoke census tracts 2013	US Census	3/18/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Census Tracts
Roanoke_Co	Roanoke County census tracts 2013	US Census	3/18/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Census Tracts
Salem_City	City of Salem census tracts 2013	US Census	3/18/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Census Tracts
TwoTown	Town Limits Blacksburg and Christiansburg	US Census	3/19/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Census Tracts
Bus_Stops	Bus stops - proposed Narrows-Bburg Employment Mobility Study	PDC	3/20/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\data
Route	Bus route - proposed Narrows-Bburg Employment Mobility Study	PDC	3/20/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\data

Trans_RoadSegment	NRV PDC road network - downloaded 2/3/2014 from National Map Viewer, load date 10/9/2012	USGS	2/3/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Foundation
MontCoRoads	Road Network - Montgomery County	Montgomery County	1/31/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Municipalities\MontCo
MontVa_Bldgs_March2014	Buildings - Montgomery County, unincorp only, layer provided by MontCo GIS Services	Montgomery County	3/14/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Municipalities\MontCo\MontBuildings
25EMPBlocks	Census Blocks (2000) with employment areas along PAT fixed route	Pulaski County	3/20/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Municipalities\PulaskiCo\Pulaski
25HHBlocks	Census Blocks (2000) with households along PAT fixed route	Pulaski County	3/20/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Municipalities\PulaskiCo\Pulaski
75EmpBlocks	Census Blocks (2000) with employment areas along PAT fixed route	Pulaski County	3/20/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Municipalities\PulaskiCo\Pulaski
75HHBlocks	Census Blocks (2000) with households along PAT fixed route	Pulaski County	3/20/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Municipalities\PulaskiCo\Pulaski
Pulaski Area Transit Projects	PAT project analyzing census tracts by household and employment areas	Pulaski County	3/20/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Municipalities\PulaskiCo\Pulaski
bldgs	Buildings - Pulaski County, incorp and unincorp areas	Pulaski County	3/14/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Municipalities\PulaskiCo\rail shp
rail	Rail Network - Pulaski	Pulaski County	3/14/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Municipalities\PulaskiCo\rail shp
roads	Road Network - Pulaski County	Pulaski County	3/14/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Municipalities\PulaskiCo\rail shp
BIKELANES	Bike Lanes - City of Radford	Radford	3/25/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Municipalities\Radford
RADFORDTRAILS	Trail Network - City of Radford	Radford	3/25/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Municipalities\Radford
RadfordTransit Stops	RT Stops as of 10/22/2012 (duplicate of NRV PDC layer)	Radford	10/22/2012	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Municipalities\Radford
SIDEWALK-PKLOT-LINES	Sidewalks - Radford	Radford	3/25/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Municipalities\Radford
Road_Centerlines	Road Network - Radford, linefile	Radford	3/25/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Municipalities\Radford
Roadshape	Road Network - Radford, shapefile	Radford	3/25/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Municipalities\Radford
RT_Stops	RT Stops duplicated from GTFS	Radford	3/7/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Municipalities\Radford
Bikes_and_Trails_B76_MontCo	Biking Routes, MontCo unincorp only	PDC	3/18/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\PDC data\Transportation.gdb
Bikes_and_Trails_Bikelanes_Proposed_Blacksburg	Bike Lanes proposed - Blacksburg	PDC	3/18/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\PDC data\Transportation.gdb
Bikes_and_Trails_Huckleberry_CurrentFuture_Blacksburg	Huckleberry Trail Future - Blacksburg	PDC	3/18/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\PDC data\Transportation.gdb
Bikes_and_Trails_Lanes_Blacksburg	Bike Lanes and Trails Current - Blacksburg	PDC	3/18/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\PDC data\Transportation.gdb

Bikes_and_Trails_Leftside_Bikelanes_Proposed_Blacksburg	Bike Lanes Leftside proposed - Blacksburg	PDC	3/18/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\PDC data\Transportation.gdb
Bikes_and_Trails_Multiuse_Current_Blacksburg	Multiuse Trails - Blacksburg	PDC	3/18/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\PDC data\Transportation.gdb
Bikes_and_Trails_Multiuse_Proposed_Blacksburg	Multiuse Trails proposed - Blacksburg	PDC	3/18/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\PDC data\Transportation.gdb
Bikes_and_Trails_PTF_Blacksburg	Multiuse Trails public/private current/proposed - Blacksburg	PDC	3/18/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\PDC data\Transportation.gdb
Bikes_and_Trails_PTF_Landuse_Blacksburg	Blacksburg Future Land Use, duplicate of Future_Landuse	PDC	3/18/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\PDC data\Transportation.gdb
Bikes_and_Trails_Routes_Blacksburg	Bike Routes - Blacksburg	PDC	3/18/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\PDC data\Transportation.gdb
Bikes_and_Trails_Sharrows_Proposed_Blacksburg	Sharrows proposed - Blacksburg	PDC	3/18/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\PDC data\Transportation.gdb
Bikes_and_Trails_VITL_Crossings_MontCo	Village Plan Road Crossings	PDC	3/18/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\PDC data\Transportation.gdb
Bikes_and_Trails_VITL_Framework_MontCo	Village Plan Framework	PDC	3/18/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\PDC data\Transportation.gdb
Trail_Appalachian_Trail_NRV	Appalachian Trail in NRV PDC	PDC	3/18/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\PDC data\Transportation.gdb
Trail_New_River_and_Huckleberry_Trails	Incomplete NRV Trail and Huckleberry Trail	PDC	3/18/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\PDC data\Transportation.gdb
Transits_Pulaski_Transit_Routes	PAT fixed route	PDC	3/18/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\PDC data\Transportation.gdb
Transits_Pulaski_Transit_Stops	PAT stops, not current	PDC	3/18/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\PDC data\Transportation.gdb
Transits_Radford_Transit_Routes	RT routes, not current	PDC	3/18/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\PDC data\Transportation.gdb
Transits_SmartWay_Routes	SmartWay routes, not current	PDC	3/18/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\PDC data\Transportation.gdb
Biking	Biking trails - downloaded from PDC webtool	PDC	1/31/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\PDC data
Walking	Walking - downloaded from PDC webtool	PDC	1/31/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\PDC data
Bus_Routes	Bus Routes - entire PDC as of 10/2011, created by BT Intern Tara Hensley	PDC	1/31/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\PDC data
Census_NRV_Counties_Boundary	NRV Counties, downloaded from PDC webtool	PDC	2/21/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\PDC data
Census_NRV_Towns_Boundaries	NRV Towns, downloaded from PDC webtool	PDC	2/21/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\PDC data
NRV_MPO_Boundary	NRV MPO Boundary, downloaded from PDC webtool	PDC	2/21/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\PDC data

NRV_Towns	towns and cities in PDC	PDC	3/25/2014	G:\21gis\BTMPO Project Regional Transit\GIS shapefiles\PDC data
Road_Center_Line	NRV Roads, downloaded from PDC webtool, less complete than USGS layer	PDC	1/31/2014	G:\21gis\BTMPO Project Regional Transit\GIS shapefiles\PDC data
Bburg_routes_GTFS	BT Routes from GTFS Feed dated 1/7/2014	TOB	3/14/2014	G:\21gis\BTMPO Project Regional Transit\GIS shapefiles\Transit Agencies\GTFS Shapes
BT_routes_GTFS	BT Routes from GTFS Feed dated 1/7/2014	TOB	3/14/2014	G:\21gis\BTMPO Project Regional Transit\GIS shapefiles\Transit Agencies\GTFS Shapes
PAT_routes_GTFS	PAT Routes from GTFS Feed dated 3/2013	Trillium	3/14/2014	G:\21gis\BTMPO Project Regional Transit\GIS shapefiles\Transit Agencies\GTFS Shapes
Pulaski_Routes	PAT Routes from GTFS Feed dated 3/2013	Trillium	3/14/2014	G:\21gis\BTMPO Project Regional Transit\GIS shapefiles\Transit Agencies\GTFS Shapes
RT_routes_GTFS	RT Routes from GTFS Feed dated 11/13/2013	RT	3/14/2014	G:\21gis\BTMPO Project Regional Transit\GIS shapefiles\Transit Agencies\GTFS Shapes
Raddy	RT Routes from GTFS Feed dated 11/13/2013	RT	3/14/2014	G:\21gis\BTMPO Project Regional Transit\GIS shapefiles\Transit Agencies\GTFS Shapes
Roanoke	SmartWay Routes from GTFS Feed dated 1/21/2014	Trillium	3/14/2014	G:\21gis\BTMPO Project Regional Transit\GIS shapefiles\Transit Agencies\GTFS Shapes
ValleyMetro_routes_GTFS	SmartWay Routes from GTFS Feed dated 1/21/2014	Trillium	3/14/2014	G:\21gis\BTMPO Project Regional Transit\GIS shapefiles\Transit Agencies\GTFS Shapes
PAT_StopsGTFS	PAT stops from GTFS Feed dated 3/2013	Trillium	3/7/2014	G:\21gis\BTMPO Project Regional Transit\GIS shapefiles\Transit Agencies\PAT
PATstopsJB	PAT stops digitized from approximate lat-long coordinates for fixed routes (do not use)	Trillium	3/4/2014	G:\21gis\BTMPO Project Regional Transit\GIS shapefiles\Transit Agencies\PAT
Smartway_stops	SmartWay Stops digitized from approximate lat-long coordinates (do not use)	Trillium	3/4/2014	G:\21gis\BTMPO Project Regional Transit\GIS shapefiles\Transit Agencies\Smartway
ValleyMetro_stops	SmartWay Stops from GTFS Feed dated 1/21/2014	Trillium	3/6/2014	G:\21gis\BTMPO Project Regional Transit\GIS shapefiles\Transit Agencies\Smartway
Cburg_Buildings	Christiansburg Buildings	TOC	4/8/2014	G:\21gis\BTMPO Project Regional Transit\GIS shapefiles\Municipalities\Cburg
Cburg_Sidewalk	Christiansburg Sidewalks	TOC	4/8/2014	G:\21gis\BTMPO Project Regional Transit\GIS shapefiles\Municipalities\Cburg
Cburg_Trails	Christiansburg Trail Network	TOC	4/8/2014	G:\21gis\BTMPO Project Regional Transit\GIS shapefiles\Municipalities\Cburg
Bicycle_Shops_Repair	RVARC Bicycle Repair Shops	RVARC	4/8/2014	G:\21gis\BTMPO Project Regional Transit\GIS shapefiles\RVARC\MPO Bicycle Plan and Facilities.gdb
Blue_Ridge_Parkway_Access	RVARC Blue Ridge Parkway Bicycle Access Points	RVARC	4/8/2014	G:\21gis\BTMPO Project Regional Transit\GIS shapefiles\Municipalities\Cburg
Share_Road_Sign	RVARC Sharrow Signs	RVARC	4/8/2014	G:\21gis\BTMPO Project Regional Transit\GIS shapefiles\RVARC\MPO Bicycle Plan and Facilities.gdb
Sharrow	RVARC Sharrows (not duplicate)	RVARC	4/8/2014	G:\21gis\BTMPO Project Regional Transit\GIS shapefiles\Municipalities\Cburg
Bicycle_Racks	RVARC Bicycle Racks	RVARC	4/8/2014	G:\21gis\BTMPO Project Regional Transit\GIS shapefiles\RVARC\MPO Bicycle Plan and Facilities.gdb
Carvins_Cove_Trails	RVARC Carvins Cove Trail Network	RVARC	4/8/2014	G:\21gis\BTMPO Project Regional Transit\GIS shapefiles\Municipalities\Cburg
Directional_Signage	RVARC Directional Signage for Bicycles	RVARC	4/8/2014	G:\21gis\BTMPO Project Regional Transit\GIS shapefiles\RVARC\MPO Bicycle Plan and Facilities.gdb
Fishburn_Park	RVARC Fishburn Park	RVARC	4/8/2014	G:\21gis\BTMPO Project Regional Transit\GIS

Trails	Trail Network			shapefiles\Municipalities\Cburg
Greenhill_Park_Trails	RVARC Greenhill Park Trail Network	RVARC	4/8/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\RVARC\MPO Bicycle Plan and Facilities.gdb
Havens_trail	RVARC Havens Trail Network	RVARC	4/8/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Municipalities\Cburg
Mill_Mountain_Trails	RVARC Mill Mountain Trail Network	RVARC	4/8/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\RVARC\MPO Bicycle Plan and Facilities.gdb
MPO_Existing_On_Road_Accomodations	Roanoke MPO regional road network containing cycling accomodations	RVARC	4/8/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Municipalities\Cburg
RVAMPO_Bike way_Lists_2011	Roanoke MPO Bikeway Plan 2012 update, regional bikeways	RVARC	4/8/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\RVARC\MPO Bicycle Plan and Facilities.gdb
VGIN_BLDGS_2011	Radford Buildings from 2011	Radford	4/10/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Municipalities\Radford\Buildings
World_Imagery	World-size aerial/satellite photograph, downloaded through ArcGIS online: http://services.arcgisonline.com/arcgis/services	ESRI	4/22/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Aerials
BusStops	Radford Transit Bus stops, obtained from Dr. Andrew Foy 5/19/2014	RU	5/19/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\RU\RUmobileApp_1.gdb
ParkingLabels	RU Parking Labels, parking restrictions, etc	RU	5/19/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\RU\RUmobileApp_1.gdb
Sidewalks	RU Sidewalks linefile	RU	5/19/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\RU\RUmobileApp_1.gdb
ParkingLots	RU Parking Lots shapefile	RU	5/19/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\RU\RUmobileApp_1.gdb
Buildings	RU Buildings CAD layer with building names	RU	5/19/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\RU\RUmobileApp_1.gdb
PATDemandResponseArea	Pulaski Area Transit demand response area, 1 mile radius around Town of Pulaski	PAT	5/9/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Municipalities\PulaskiCo\PATDemandResponseArea
I81	Interstate 81 linefile	BT	5/9/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Municipalities\I81
Multimodal_Centers	Multimodal Centers within MPO, downloaded from MPO/PDC webtool 5/13/2014	PDC	5/13/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\PDC data
Primary_Walking	1/4 radius around multimodal centers in MPO	PDC	5/13/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\PDC data
Secondary_Walking	1 mile radius around multimodal centers in MPO	PDC	5/13/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\PDC data
Primary_Biking	Cycling buffer around multimodal centers in MPO	PDC	5/13/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\PDC data
Multimodal_Districts	Multimodal Districts polygon file	PDC	5/13/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\PDC data
tl_2013_51750	City of Radford water features, including New River	US Census	5/9/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Water
tl_2013_51155	Pulaski County water features, including new River and Claytor Lake	US Census	5/9/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Water

tl_2013_51121	Montgomery County water, including New River and Roanoke River	US Census	5/9/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Water
tl_2013_51071	Giles County water features, including New River	US Census	5/9/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Water
tl_2013_51063	Floyd County water features	US Census	5/9/2014	G:\21gis\BT\MPO Project Regional Transit\GIS shapefiles\Water