PERFORMANCE MEASURES REPORT

Roanoke Valley Area Metropolitan Planning Organization
November 2012

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BACKGROUND

This report is being generated as part of a statewide effort among Transportation Management Area Metropolitan Planning Organizations (TMA MPO) to track common performance measures to evaluate the region's transportation system against its transportation goals and standards and contribute to the Statewide Transportation Plan. The Roanoke Valley Area Metropolitan Planning Organization (RVAMPO), as a new TMA MPO, is now required by the state to track regional performance measures. RVAMPO will be eligible for funding through sources only available to TMA MPOs and receipt of those funds is contingent upon the MPO's development and the Commonwealth Transportation Board's approval of the regional performance measures.

Regional performance measures fall under the following categories:

- Congestion Reduction
- Safety
- Bicycle and Pedestrian Facility Usage
- Transit Usage
- HOV Usage
- Jobs-to-Housing Ratio
- Job and Housing Access to Pedestrian Facilities
- Air Quality
- Movement of Freight

Due to the lack of data for the southwest portion of the state, not all performance measures requested by the State are applicable to the Roanoke area particularly in the categories of congestion reduction and air quality. Such performance measures may be added in the future if data becomes available. A master list of all performance measures tracked by RVAMPO is included on the following page.

	REGIONAL PERFORMANCE MEASURES FOR THE ROANOKE VALLEY AREA MPO						
	Performance Measure	**Data Requirements**	**Data Source**	**Level of Data Collection**	**Desired Trend**	**Preferred Reporting Format**	**Frequency of Update**
	1.0 Congestion Reduction						
1.1	Total Miles of Bicycle Lanes	Location and miles of bike lanes striped in the past year.	Local governments and VDOT	MPO localities	Upwards	Table	Annually starting in 2013.
1.2	Total Miles of Paved Shoulders	Location and miles of paved shoulders added in the past year.	Local governments and VDOT	MPO localities	Upwards	Table	Annually starting in 2013.
1.3	Total Miles of Wide Travel Lanes	Location and miles of wide travel lanes created in the past year.	Local governments and VDOT	MPO localities	Upwards	Table	Annually starting in 2013.
1.4	Total Miles of Signed Bicycle Routes	Location and miles of signed bike routes installed in the past year.	Local governments and VDOT	MPO localities	Upwards	Table	Annually starting in 2013.
1.5	Total Number of Share the Road Signs	Location and number of share the road signs installed in the past year.	Local governments and VDOT	MPO localities	Upwards	Table	Annually starting in 2013.
1.6	Total Number of Sharrows	Location and number of sharrows painted in the past year.	Local governments and VDOT	MPO localities	Upwards	Table	Annually starting in 2013.
1.7	Total Number of Bicycle Racks	Location and number of newly added bike racks in the past year.	Local governments and VDOT	MPO localities	Upwards	Table	Annually starting in 2013.
	2.0 Safety						
2.1	Number of Highway Fatalities and Fatality Rate per 100 million VMT	Number of Fatalities on Highways and VMT	DMV & VDOT	PDC	Downwards	Table and Bar Chart	Annual
2.2	Number of Highway Crashes and Crash Rate per 100 million VMT	Number of crashes on Highways and VMT	DMV & VDOT	PDC	Downwards	Table and Bar Chart	Annual
2.3	Annual Transit Collisions	Number of Collisions per Passenger Miles Travelled (PMT)	FTA	System	Downwards	Table	Annual
2.4	Annual Transit Injuries	Number of injuries per 100 million PMT	FTA	System	Downwards	Table	Annual
2.5	Annual Transit Fatalities	Number of fatalities per 100 million PMT	FTA	System	Downward (If 0 fatalities then Steady)	Table	Annual

	REGIONAL PERFORMANCE MEASURES FOR THE ROANOKE VALLEY AREA MPO						
	Performance Measure	**Data Requirements**	**Data Source**	**Level of Data Collection**	**Desired Trend**	**Preferred Reporting Format**	**Frequency of Update**
2.6	Annual Aviation Crashes	Number of aviation crashes	NTSB Aviation Database, DOAV	Regional	Downwards	Table	Annual
2.7	Annual Aviation Fatalities	Number of aviation fatalities	NTSB Aviation Database, DOAV	Regional	Downward (If 0 fatalities then Steady)	Table	Annual
2.8	Annual Bicycle Crashes	Number of bicycle crashes	DMV	MPO localities	Downwards	Table	Annual
2.9	Annual Bicycle Injuries	Number of bicycle injuries	DMV	MPO localities	Downwards	Table	Annual
2.10	Annual Bicycle Fatalities	Number of bicycle fatalities	DMV	MPO localities	Downward (If 0 fatalities then Steady)	Table	Annual
2.11	Annual Pedestrian Crashes	Number of pedestrian crashes	DMV	MPO localities	Downwards	Table	Annual
2.12	Annual Pedestrian Injuries	Number of pedestrian injuries	DMV	MPO localities	Downwards	Table	Annual
2.13	Annual Pedestrian Fatalities	Number of pedestrian fatalities	DMV	MPO localities	Downward (If 0 fatalities then Steady)	Table	Annual
	3.0 Bicycle and Pedestrian Facility Usage						
3.1	Number of bicyclists by location	Number of bicyclists by location	Roanoke Valley Area MPO Annual National Bike and Pedestrian Documentation Project	By location	Upwards	Table	Annually starting in 2013.
3.2	Number of pedestrians by location	Number of pedestrians by location	Roanoke Valley Area MPO Annual National Bike and Pedestrian Documentation Project	By location	Upwards	Table	Annually starting in 2013.
3.3	Number of greenway users by location	Number of greenway users by location	Roanoke Valley Area MPO	By location	Upwards	Table	Annually starting in 2013.
3.4	Number of Bicycle Friendly Businesses	Number of Bicycle Friendly Businesses	RideSolutions	MPO localities	Upwards	Table	Annually starting in 2013.

REGIONAL PERFORMANCE MEASURES FOR THE ROANOKE VALLEY AREA MPO

	Performance Measure	Data Requirements	Data Source	Level of Data Collection	Desired Trend	Preferred Reporting Format	Frequency of Update
4.0 Transit Usage							
4.1	Annual Unlinked Passenger Transit Trips	# of transit trips	DRPT	System	Upwards	Table	Annual
4.2	Annual Unlinked Passenger Transit Trips Per Capita	# of transit trips and service area population	DRPT	System	Upwards	Table and Bar Graph	Annual
4.3	Annual Vehicle Revenue Miles	Transit Revenue Miles as reported by service provider	DRPT	System	Upwards	Table	Annual
4.4	Annual Vehicle Revenue Miles per Capita	Revenue miles and service area population	DRPT	System	Upwards	Table and Bar Graph	Annual
4.5	Annual Passenger Miles Traveled	Transit Passenger Miles	DRPT	System	Upwards	Table	Annual
4.6	Annual Passenger Miles Traveled per Capita	Transit Passenger Miles and service area population	DRPT	System	Upwards	Table and Bar Graph	Annual
4.7	Annual Smart Way Connector Bus Ridership	# of Smart Way Connector Bus Boardings	Greater Roanoke Transit Company	System	Upwards	Table	Annual
5.0 HOV Usage							
5.1	# of Park and Ride Lots and Spaces	Number of P-n-R lots and spaces	VDOT	PDC	Upwards	Table and Line Chart Graph	LRTP Update
5.2	# of members in Ride Solutions program	# of members in Ride Solutions program	RideSolutions	System	Upwards	Table	Annual
6.0 Jobs-to-Housing Ratio							
6.1	Ratio of jobs to households at the regional & jurisdictional levels	Jobs and Housing census data	Bureau of Economic Analysis for # of jobs; ACS Table S2501 Occupancy Characteristics of Households	By locality for PDC	Steady	Table and Line Chart Graph	LRTP Update
6.2	Regional Linear Jobs-Households Dissimilarity index (0.0 to1.0) *	Number of Jobs/ Households	Bureau of Economic Analysis for # of jobs; ACS Table S2501 Occupancy Characteristics of Households	By locality for PDC	Below 0.5	Table	LRTP Update
6.3	Ratio of jobs to work force	Number of Jobs/ Civilian Labor Force	Bureau of Economic Analysis for # of jobs; Virginia Workforce Connection for labor market data (http://www.vawc.virginia.gov/analyzer/default.asp)	By locality for PDC	Upwards	Table	Annual

REGIONAL PERFORMANCE MEASURES FOR THE ROANOKE VALLEY AREA MPO

	Performance Measure	Data Requirements	Data Source	Level of Data Collection	Desired Trend	Preferred Reporting Format	Frequency of Update
6.4	Inter and Intra regional commuting data	Commuting pattern data; % of workers working in the County in which they live	Census Journey to Work data from the Bureau of Economic Analysis	PDC	Upwards	Table or Map at PDC level	LRTP Update
6.5	Mean Travel Time to Work	Commuting pattern data from Census	ACS; Table S0802. Means of Transportation to Work	PDC	Downwards	Table or GIS Map by locality for PDC	Annual
	* VRTC Study "Feasibility of Using Jobs/Housing Balance in Virginia Statewide Planning www.virginiadot.org/vtrc/main/online_reports/pdf/11-r1.pdf p. 26						
	7.0 Job and Housing Access to Transit						
7.1	% of population and/or households in TAZs served by transit	Transit GIS layer and % of households in TAZ's served by transit	TAZ Model Data and Transit GIS shapefiles	MPO Urban Areas	Upwards	GIS Map by TAZ	LRTP Update
7.2	% of employment in TAZs served by transit	Transit GIS layer and % of workers in TAZ's served by transit	TAZ Model Data and Transit GIS shapefiles	MPO Urban Areas	Upwards	GIS Map by TAZ	LRTP Update
	8.0 Job and Housing Access to Pedestrian Facilities						
8.1	# and % of residents who walk to work	Population and number who walk to work	Census (ACS) Journey to Work data	MPO Localities (Census Data)	Upwards	Table	LRTP Update
	9.0 Air Quality						
9.1	Annual # of Days when Ozone Levels were Above 8-Hour Standard	# of days Ozone levels are above 8-hour standard	DEQ	PDC	Downwards	Table and Bar Graph	Annual
	10.0 Movement of Freight						
10.1	Truck and Rail Mode Share, by value	Value of freight by mode share	Census Commodity Flow Data or Transearch data via VDOT Statewide License	PDC or as available	Upwards	Table and Bar Graph	As available
10.2	Truck and Rail Mode Share, by tons	Tonnage of freight by mode share	Census Commodity Flow Data or Transearch data via VDOT Statewide License	PDC or as available	Upwards	Table and Bar Graph	As available
	Annual Performance Measures will be prepared by October 15th of each year and will be placed on the MPOs web-site, which will then be linked to the State's Annual Performance						

1.0 CONGESTION REDUCTION

Measures will be collected in 2012 and reported in 2013.

1.1   Total Miles of Bike Lanes
1.2   Total Miles of Paved Shoulders
1.3   Total Miles of Wide Travel Lanes
1.4   Total Miles of Signed Bike Routes
1.5   Total Number of Share the Road signs
1.6   Total Number of Sharrows
1.7   Total Number of Bicycle Racks

2.0 SAFETY

2.1   Number of Highway Fatalities and Fatality Rate per 100 million VMT

Locality	Highway Fatalities in 2011	Fatalities per 100 million VMT
Alleghany	4	611
Bedford	10	605
Botetourt	6	321
Covington	0	0
Craig	0	0
Franklin	11	842
Roanoke City	5	235
Roanoke County	13	570
Salem City	0	0
Planning District Commission	**49**	**465**

Data Sources:
Fatalities: http://www.dmv.state.va.us/webdoc/safety/crash_data/crash_facts/crash_facts_11.pdf
Vehicle Miles Traveled (VMT):
http://www.virginiadot.org/info/resources/Traffic_2011/VMTReport_1200_2011.pdf

2.2   Number of Highway Crashes and Crash Rate per 100 million VMT

Locality	Highway Crashes in 2011	Crashes per 100 million VMT
Alleghany	212	32,383
Bedford	882	53,324
Botetourt	648	34,622
Covington	87	88,586
Craig	100	99,793
Franklin	908	69,538
Roanoke City	1849	86,878
Roanoke County	1191	52,226
Salem City	493	111,740
Planning District Commission	**6,370**	**60,468**

Data Sources:
Crashes: http://www.dmv.state.va.us/webdoc/safety/crash_data/crash_facts/crash_facts_11.pdf
Vehicle Miles Traveled (VMT):
   http://www.virginiadot.org/info/resources/Traffic_2011/VMTReport_1200_2011.pdf

2.3   Annual Transit Collisions
2.4   Annual Transit Injuries
2.5   Annual Transit Fatalities

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
# of Collisions per 100 million PMT	13	0	0	0	0	10	0	0	0	17
Total Injuries per 100 million PMT	13	77	22	11	186	97	86	107	107	103
Total Fatalities per 100 million PMT	0	0	0	0	0	0	0	0	0	0

Data Source:
http://www.ntdprogram.gov/ntdprogram/data.htm
NTD Database website – Access NTD Data - Safety & Security Data – Safety & Security Time Series; Transit Data for Demand Response and Motor Bus (Fixed-Route) Combined

2.4   Annual Aviation Crashes
2.5   Annual Aviation Fatalities

	2010	2011
Annual Aviation Crashes	1	0
Annual Aviation Fatalities	1	0

Source:
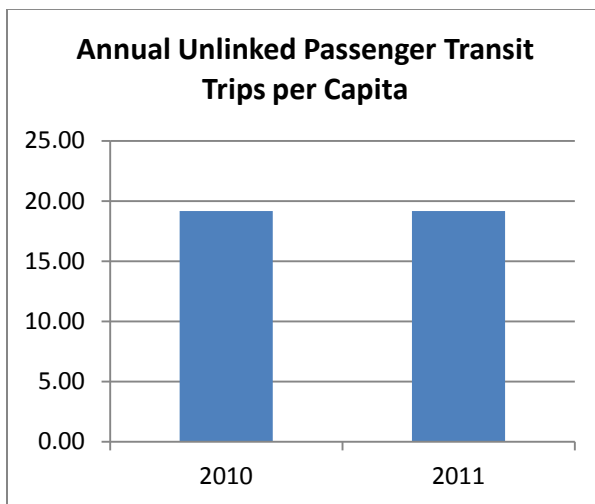FAA Accident Database & Synopses, http://www.ntsb.gov/aviationquery/index.aspx

3.0 BICYCLE AND PEDESTRIAN FACILITY USAGE

Measures will be collected in 2012 and reported in 2013.

3.1   Number of bicyclists by location
3.2   Number of pedestrians by location
3.3   Number of greenway users by location
3.4   Number of Bicycle Friendly Businesses

4.0 TRANSIT USAGE

4.1   Annual Unlinked Passenger Transit Trips
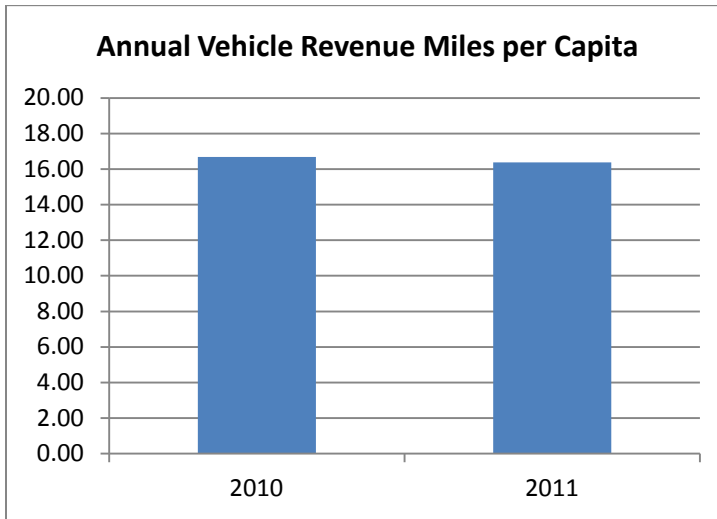**4.2   Annual Unlinked Passenger Transit Trips Per Capita**

Annual Unlinked Passenger Transit Trips per Capita

	2010	**2011**
Annual Unlinked Passenger Transit Trips	2,491,742	2,491,742
2010 Service Area population (City of Salem, City of Roanoke, Town of Vinton)	129,932	129,932
Annual Transit Revenue Miles per Capita	**19.18**	**19.18**

Data Sources:
NTD Database website – Access NTD Data - Safety & Security Data – Safety & Security Time Series http://www.ntdprogram.gov/ntdprogram/data.htm
Population data from 2010 Census http://2010.census.gov/2010census/data/

4.3   Annual Vehicle Revenue Miles

4.4   Annual Vehicle Revenue Miles Per Capita

Annual Vehicle Revenue Miles per Capita
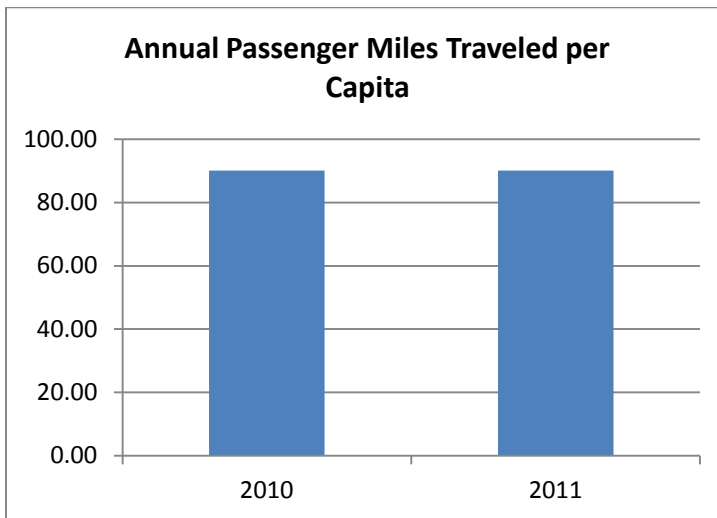
	2010	2011
Annual Vehicle Revenue Miles	2,166,948	2,127,330
2010 Service Area population (City of Salem, City of Roanoke, Town of Vinton)	129,932	129,932
Annual Transit Revenue Miles per Capita	**16.68**	**16.37**

4.5   Annual Passenger Miles Traveled

4.6   Annual Passenger Miles Traveled Per Capita

Annual Passenger Miles Traveled per Capita

	2010	2011
Annual Passenger Miles Traveled	2,166,948	2,127,330
2010 Service Area population (City of Salem, City of Roanoke, Town of Vinton)	129,932	129,932
Annual Passenger Miles Traveled per Capita	**16.68**	**16.37**

Data Sources:
NTD Database website – Access NTD Data - Safety & Security Data – Safety & Security Time Series http://www.ntdprogram.gov/ntdprogram/data.htm
Population data from 2010 Census http://2010.census.gov/2010census/data/

4.7   Annual Smart Way Connector Bus Ridership

	2010	2011
Annual Smart Way Connector Bus Ridership	N/A	4,855*

*Smart Way Connector service began on July 19, 2011.

Data Sources:
Smart Way Connector Data received from Valley Metro.

5.0 HOV USAGE

5.1   Number of Park and Ride Lots and Spaces

	2011
Total official lots	2
Total official spaces	107
Total unofficial lots	2
Total unofficial spaces	108

Category	Park and Ride Lot Name	Spaces
Official	**I-81 Exit 140**	92
Official	**I-81 Exit 150**	15
Unofficial	**Waldron Park**	74
Unofficial	**Orange Market**	44

Data Sources:
RideSolutions website: http://ridesolutions.org/resources/parkride.shtml

5.2   Number of members in Ride Solutions program

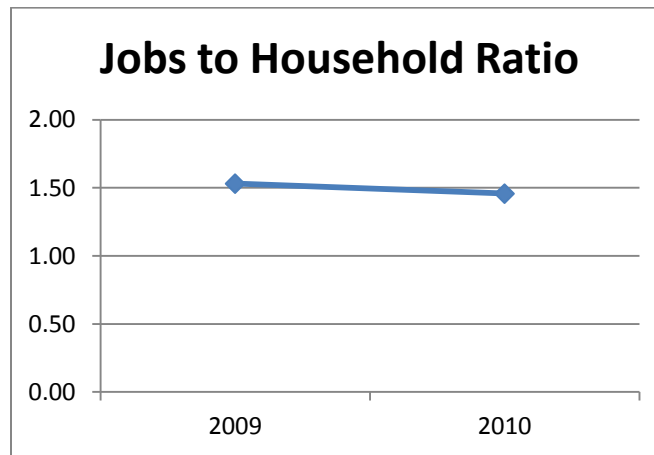|	2011
Members in RIDE Solutions	2,260

Data Sources:
RIDE Solutions member database.

6.0 JOBS-TO-HOUSING RATIO

6.1   Ratio of jobs to households at the regional and jurisdictional levels

	Jobs	Households	2010
Alleghany County and City of Covington	10,304	9,605	1.07
Botetourt County	15,468	12,918	1.20
Craig County	1,773	1,989	0.89
City of Roanoke	74,820	42,833	1.75
Roanoke County and City of Salem	79,493	47,723	1.67
Franklin County	19,865	23,355	0.85
Total PDC	**201,723**	**138,423**	**1.46**

Jobs to Household Ratio

2.00	
1.50	◆ ─── ◆
1.00	
0.50	
0.00	
	2009 2010

Data Sources:
Employment - Bureau of Economic Analysis, CA25N Total full-time and part-time employment by NAICS industry, Total employment (number of jobs) in 2010.
Households – ACS Survey 2006-2010, B11016 Household Type by Household Size

6.2   Regional Linear Jobs-Households Dissimilarity Index (0.0 to 1.0)

	Jobs (W)	Households (B)	Dissimilarity Index
Alleghany County and City of Covington	10,304	9,605	0.0106
Botetourt County	15,468	12,918	0.0104
Craig County	1,773	1,989	0.0031
City of Roanoke	74,820	42,833	0.0223
Roanoke County and City of Salem	79,493	47,723	0.0155
Franklin County	19,865	23,355	0.0383
Total PDC	**201,723**	**138,423**	**0.1003**

Data Sources:
Employment - Bureau of Economic Analysis, CA25N Total full-time and part-time employment by NAICS industry, Total employment (number of jobs) in 2010.
Households – ACS Survey 2006-2010, B11016 Household Type by Household Size

Dissimilarity Index equation: $\dfrac{1}{2}\sum_{i=1}^{N}\left| \dfrac{b_i}{B} - \dfrac{w_i}{W} \right|$

6.3   Ratio of jobs to work force

	2010 Jobs	2010 Civilian Labor Force	Ratio of Jobs to Labor Force
Alleghany County and City of Covington	10,304	9,945	1.04
Botetourt County	15,468	17,875	0.87
Craig County	1,773	2,569	0.69
Franklin County	19,865	13,078	1.52
City of Roanoke	74,820	48,848	1.53
Roanoke County and City of Salem	79,493	49,621	1.60
Total PDC	**201,723**	**141,936**	**1.42**

Data Sources:
Employment - Bureau of Economic Analysis, CA25N Total full-time and part-time employment by NAICS industry, Total employment (number of jobs) in 2010.
Civilian Labor Force – Virginia Workforce Connection, Labor Force Employment and Unemployment (LAUS) data.

6.4   Inter and Intra regional commuting data

The table below indicates the percentage of residents working in the jurisdiction in which they live.

	1970	1980	1990	2000
Alleghany County and City of Covington	88%	89%	88%	87%
Botetourt County	38%	36%	31%	35%
Craig County	36%	37%	28%	24%
Franklin County	63%	62%	58%	60%
City of Roanoke	74%	72%	69%	63%
Roanoke County and City of Salem	42%	45%	49%	53%

Data Sources:
Bureau of Economic Analysis

6.5   Mean Travel Time to Work

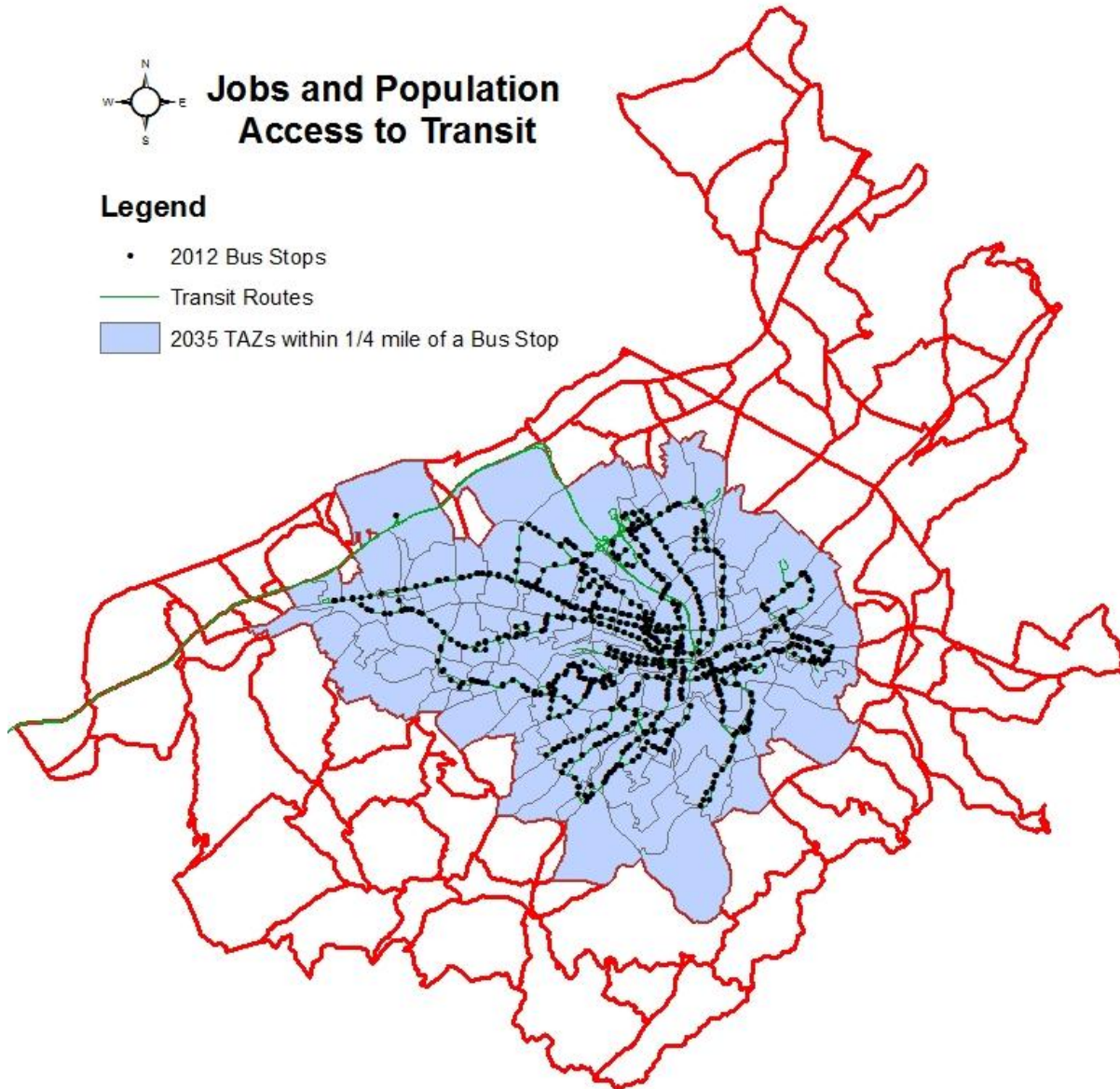|	2005-2009 ACS Estimate (minutes)	2006-2010 ACS Estimate (minutes)
Alleghany County	25.2	Not Available
Bedford County	26.2	30.6
Botetourt County	Not Available	Not Available
City of Covington	Not Available	Not Available
Craig County	Not Available	Not Available
Franklin County	27.3	Not Available
City of Roanoke	18.2	18.8
Roanoke County	20.4	21.3
City of Salem	17.7	Not Available

Data Sources:
American Community Survey (ACS) Estimates, Table S0802.

7.0 JOB AND HOUSING ACCESS TO TRANSIT

7.1   **Percent of population and/or households in TAZs served by transit**

7.2   **Percent of employment in TAZs served by transit**

Data Year	% of Population in TAZs served by Transit	% of Employment in TAZs served by Transit
2005	66%	82%

Data Sources:
2035 TAZs and associated 2005 estimates of population and employment.
2012 Valley Metro fixed-route and Smart Way Bus Stops

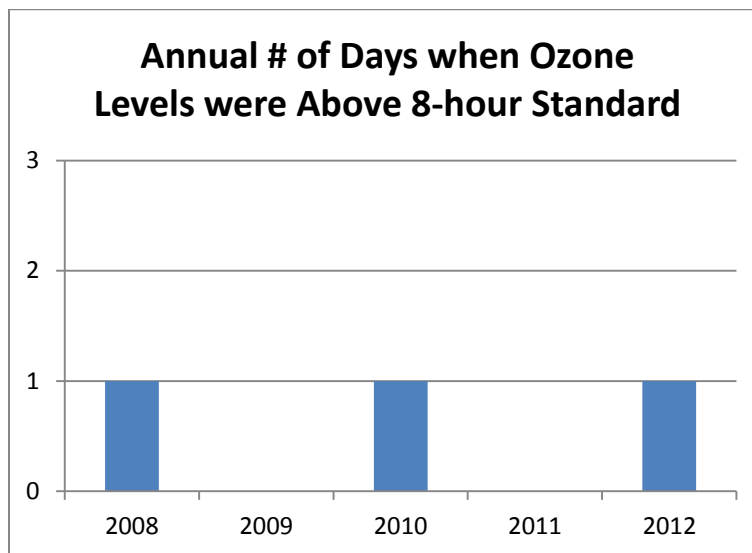# 8.0 JOB AND HOUSING ACCESS TO PEDESTRIAN FACILITIES

8.1 Number and Percent of residents who walk to work

	# of Residents who Walk to Work	Total # of Workers 16 Years and Over	% of Workers who Walk to Work
Bedford County	226	32,451	0.70%
Botetourt County	111	16,102	0.69%
City of Roanoke	922	43,849	2.10%
Roanoke County	619	46,456	1.33%
City of Salem	499	11,528	4.33%
Total	**2,377**	**150,386**	**9.15%**

9.0 AIR QUALITY

9.1 Annual number of days when ozone levels were above the 8-hour standard

Year	# days above 8-hour standard
2008	1
2009	0
2010	1
2011	0
2012	1

Annual # of Days when Ozone Levels were Above 8-hour Standard

Data Sources:
Department of Environmental Quality

10.0 MOVEMENT OF FREIGHT

10.1   Truck and Rail Mode Share, by value

Origin Location	Truck	Rail
Botetourt County	$915,736,229	$13,061,615
Roanoke County	$7,402,847,256	$69,863
City of Roanoke	$15,625,412,933	$1,645,909
City of Salem	$15,920,228,318	$3,025,520
Total Value in 2004	**$39,864,224,736**	**$17,802,907**

Destination Location	Truck	Rail
Botetourt County	$4,983,794,770	$9,278,637
Roanoke County	$2,127,568,295	$18,134,007
City of Roanoke	$7,894,637,680	$19,015,654
City of Salem	$4,129,808,893	$10,683,020
Total Value in 2004	**$19,135,809,638**	**$57,111,318**

Data Sources:
2007 Global Insight Inc. Transearch 2004 Virginia Freight Flows.

10.2   Truck and Rail Mode Share, by tons

Origin Location	Truck	Rail
Botetourt County	1,696,893	12,115
Roanoke County	3,261,429	288
City of Roanoke	6,134,111	1,871
City of Salem	2,252,915	1,169
Total Value in 2004	13,345,348	15,443

Destination Location	Truck	Rail
Botetourt County	2,402,830	9,985
Roanoke County	2,038,500	18,633
City of Roanoke	4,959,179	11,370
City of Salem	1,386,790	7,816
Total Value in 2004	10,787,299	47,804

Data Sources:
2007 Global Insight Inc. Transearch 2004 Virginia Freight Flows.