



Potomac River Crossing Data Development Study

December 17, 2013
Technical Working Group

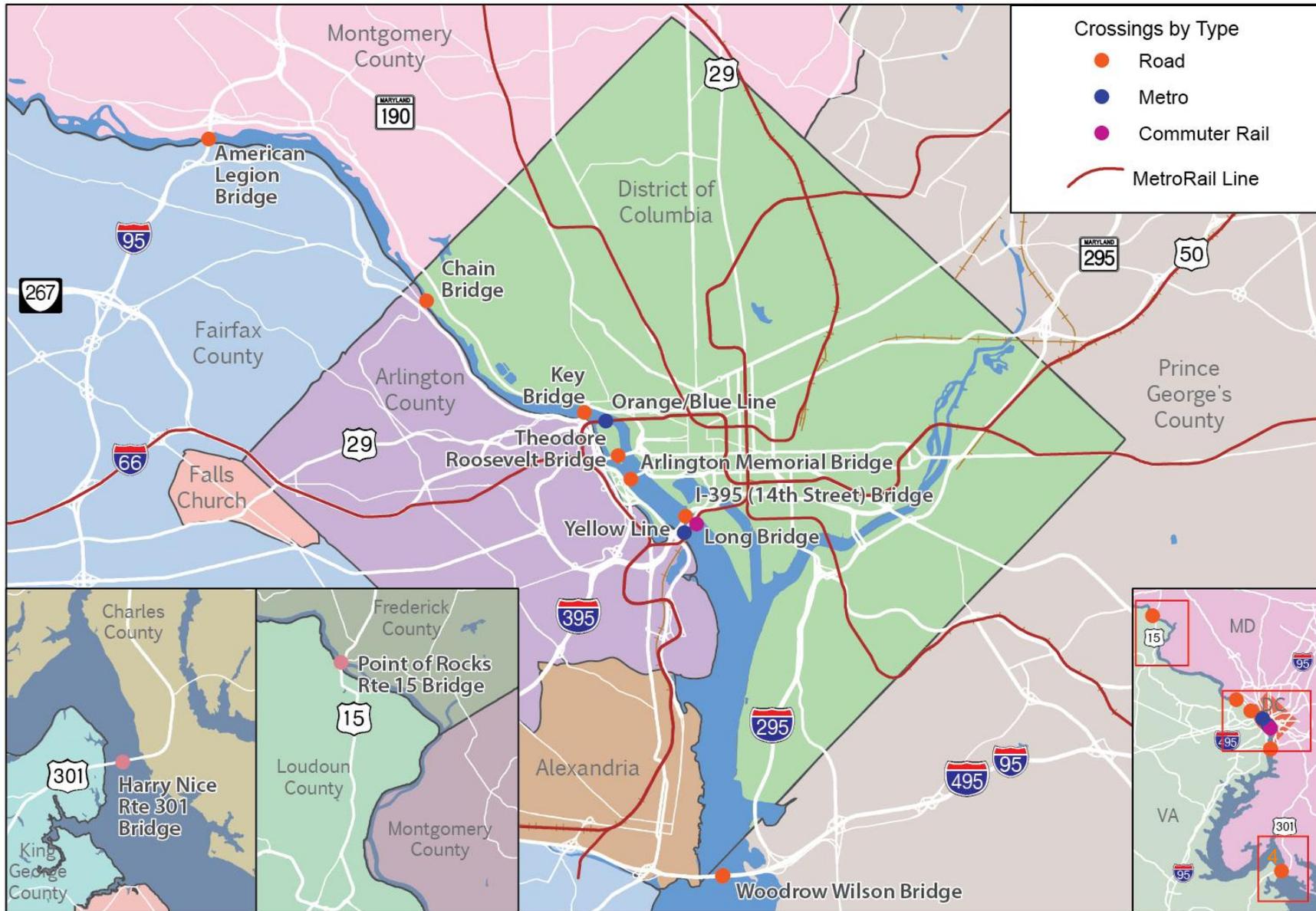
Presentation Outline

- **Study Background and Introduction**
- **Existing count information on bridges**
- **Existing speed information on bridges**
- **Existing regional OD pattern information**
- **Status of travel forecasting effort**
- **Update on website**
- **Next Steps**

Study Background and Objectives

- Examine cross-river traffic and movement demand at existing crossings from Point of Rocks in Virginia to Route 301 in Maryland
- Develop a common set of data
- **DEFINE THE PROBLEM, NOT RECOMMEND THE SOLUTION**

Study Area and Crossings



Study Organization

- **Regional Partnership Committee (RPC)**
- **Technical Working Group (TWG)**
- **VDOT NoVA District (Planning Section)**
- **Consultants:**
 - **Michael Baker corp.**
 - **Delcan corp.**
- **Project Scope**

Study Approach

- Document existing travel demand and patterns across the bridges over the Potomac river
- Forecast travel demand and patterns across the bridges over the Potomac river in 2040 (use National capital Region Transportation Planning Board's Model & inputs from the CLRP)
- Establish and maintain a project website
- Prepare technical memorandum to document results

Highway Count Inventory

Highway Bridge	Most Recent Count Date	Source	Weekday Hourly	Weekend Hourly	New Count	AADT
Point of Rocks – US 15	Nov 2013	Baker/PMA	Yes	Yes	Completed	21,600
American Legion Memorial Bridge – I-495	Nov 2013	Baker/PMA	Yes	Yes	Completed	231,935
Chain Bridge – Rte 120	Aug 2013	DDOT	Yes	Yes		18,237
Key Bridge – US 29	Aug 2013	DDOT	Yes	Yes		54,900
Theodore Roosevelt Memorial Bridge – I-66	Nov 2013	Baker/PMA	Yes	Yes	Completed	105,600
Arlington Memorial Bridge	Nov 2013	Baker/PMA	Yes	Yes	Completed	56,200
14th Street Bridge Complex – I-395	Aug 2013	DDOT	Yes	Yes		241,800
Woodrow Wilson Bridge – I-95/I-495	March 2012 & Nov 2013	MDOT & Baker/PMA	Yes Mar 2012	Yes Nov 2013	Partially Completed	202,300
Harry Nice Memorial Bridge – US 301	Apr 2011	MDOT	Yes	Yes	Construction Activity	16,800

Transit Data Inventory

Transit Data	Data Type	Date of Source Data	River Crossings Estimated
WMATA MetroRail	Ridership and Origin/Destination	May 2012	Orange/Blue Line: 171,043 Daily Yellow Line: 52,836 Daily
WMATA MetroBus	Ridership and Limited On/Off Counts by Route	March 2013	Cannot estimate crossings from existing data
VRE	Ridership by Train and Survey of O/D	Ridership: 2013 Survey: 2012	Mid-Week Daily Average Crossings: 11,499
Loudoun County Transit	Ridership by Route	July 2013	Cannot estimate crossings from existing data
PRTC	Ridership by Route Boarding Counts	April 2012	Cannot estimate crossings from existing data

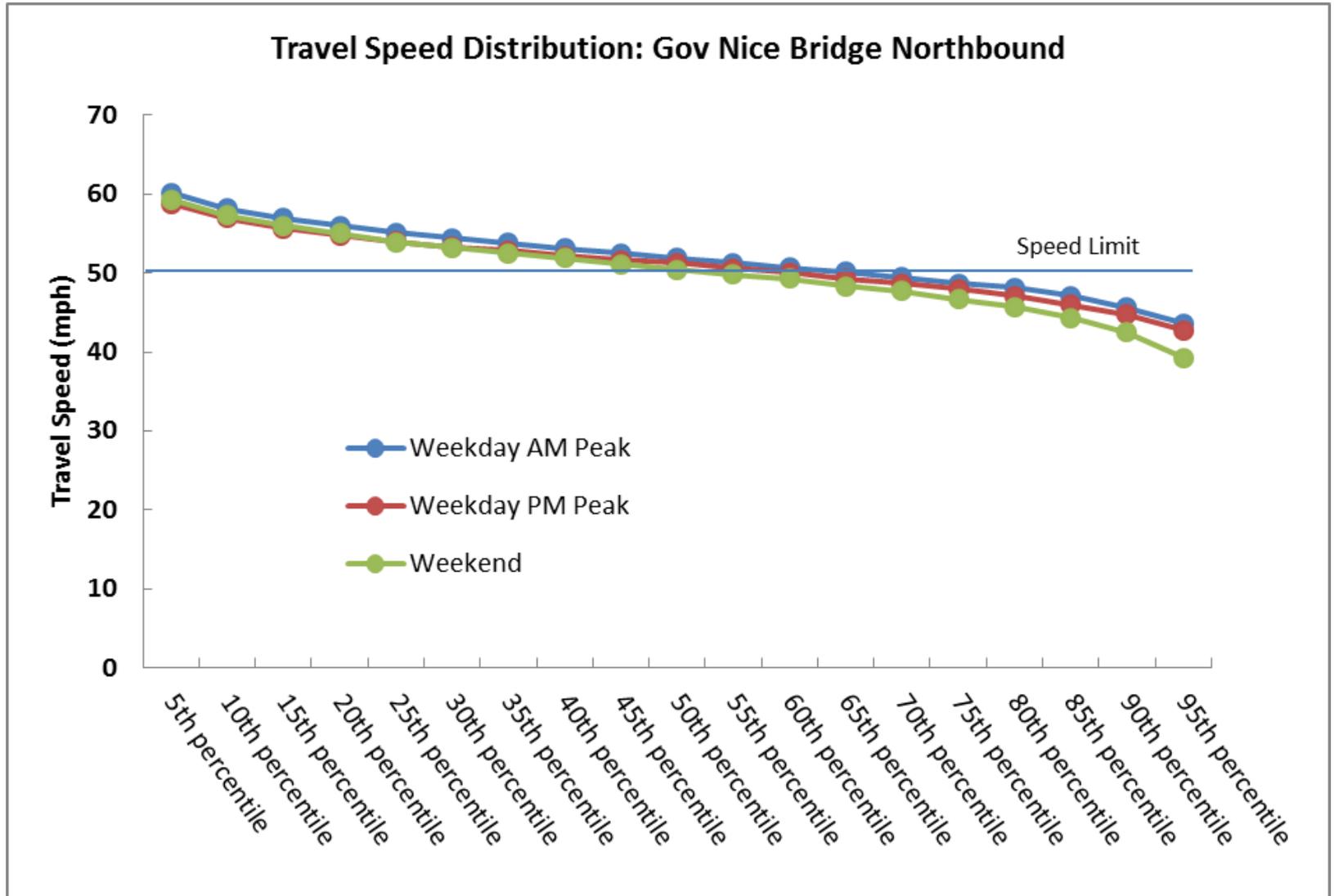
Speed Data

- Collected for each study area bridge
- TomTom data (Delcan)
- Collected over 2012 (excluding Nov 17-25 & Dec 22-31)
- Weekday peak period & weekend day

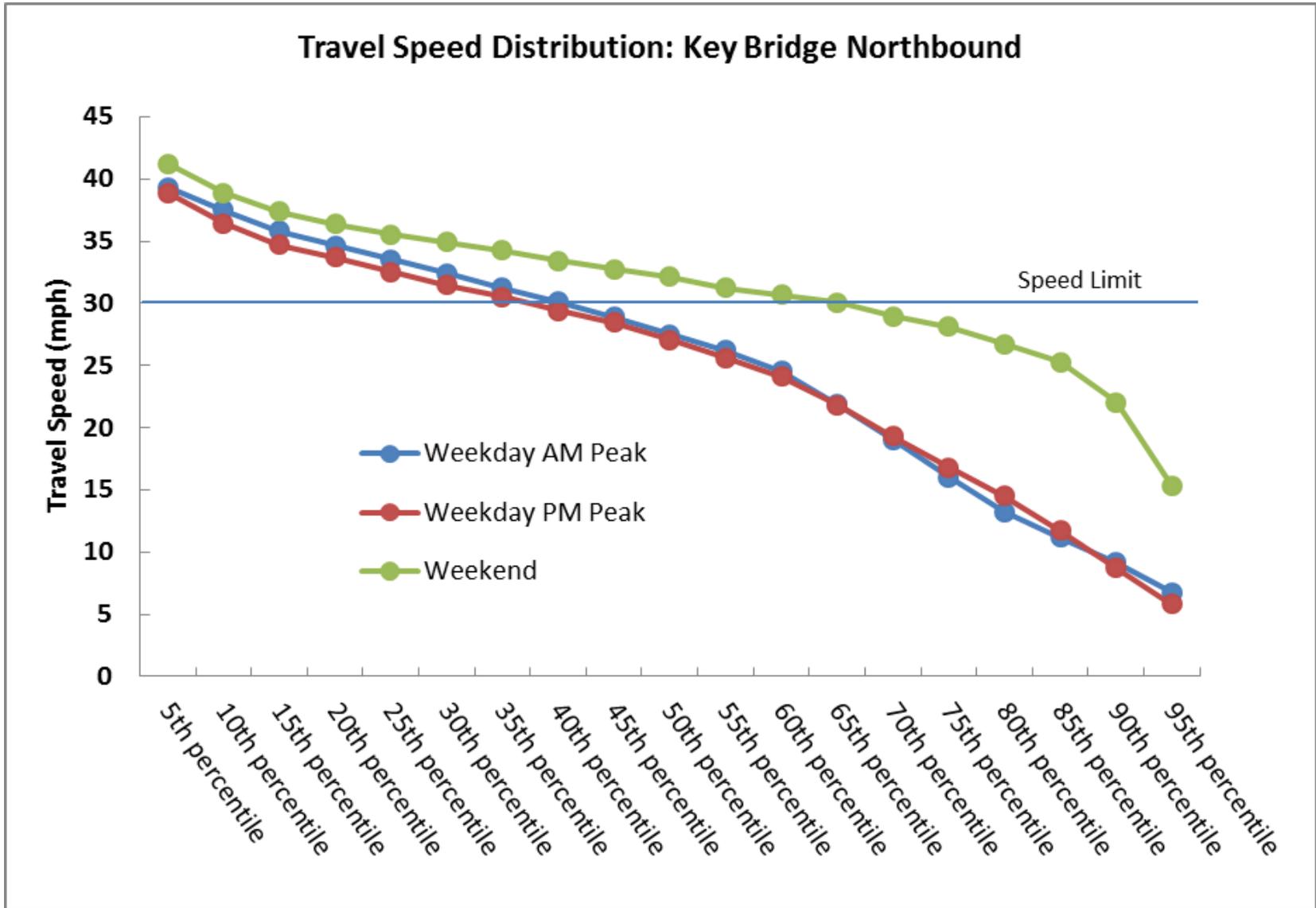
Speed Data Example

Crossing Name		Gov Nice Bridge Northbound			Gov Nice Bridge Southbound		
Covered Route Length		2.03 mile			2.03 mile		
Time Groups		Weekday AM Peak: Tue/Wed/Thu, 06:00-09:00	Weekday PM Peak: Tue/Wed/Thu, 15:00-19:00	Weekend: Sat/Sun, 00:00-24:00	Weekday AM Peak: Tue/Wed/Thu, 06:00-09:00	Weekday PM Peak: Tue/Wed/Thu, 15:00-19:00	Weekend: Sat/Sun, 00:00-24:00
Sample size		362	637	2,440	343	1,022	2,076
Travel Speed (mph)	Average	51.2	50.4	49.2	49.5	47.5	48.5
	Median	51.9	51.3	50.5	50.3	48.7	49.6
	5th percentile	60.2	58.8	59.3	58.1	56.7	57.7
	10th percentile	58.2	56.9	57.3	56.5	54.6	55.6
	15th percentile	57.0	55.7	56.0	55.1	53.7	54.4
	20th percentile	56.0	54.8	55.0	54.1	52.5	53.4
	25th percentile	55.1	54.0	53.9	53.2	51.7	52.7
	30th percentile	54.4	53.3	53.3	52.7	51.0	52.0
	35th percentile	53.8	52.8	52.5	52.0	50.5	51.4
	40th percentile	53.1	52.2	51.9	51.4	49.9	50.7
	45th percentile	52.5	51.6	51.1	50.8	49.2	50.2
	50th percentile	51.9	51.3	50.5	50.3	48.7	49.6
	55th percentile	51.3	50.6	49.8	49.6	48.1	48.9
	60th percentile	50.7	50.0	49.3	49.0	47.5	48.2
	65th percentile	50.2	49.3	48.4	48.5	46.5	47.6
	70th percentile	49.5	48.7	47.7	47.7	45.8	46.8
	75th percentile	48.7	48.0	46.7	47.0	44.9	46.0
	80th percentile	48.1	47.1	45.7	46.2	44.0	45.0
85th percentile	47.1	46.0	44.3	45.3	42.6	43.8	
90th percentile	45.6	44.8	42.5	43.8	41.2	42.4	
95th percentile	43.7	42.7	39.3	41.0	38.6	40.1	

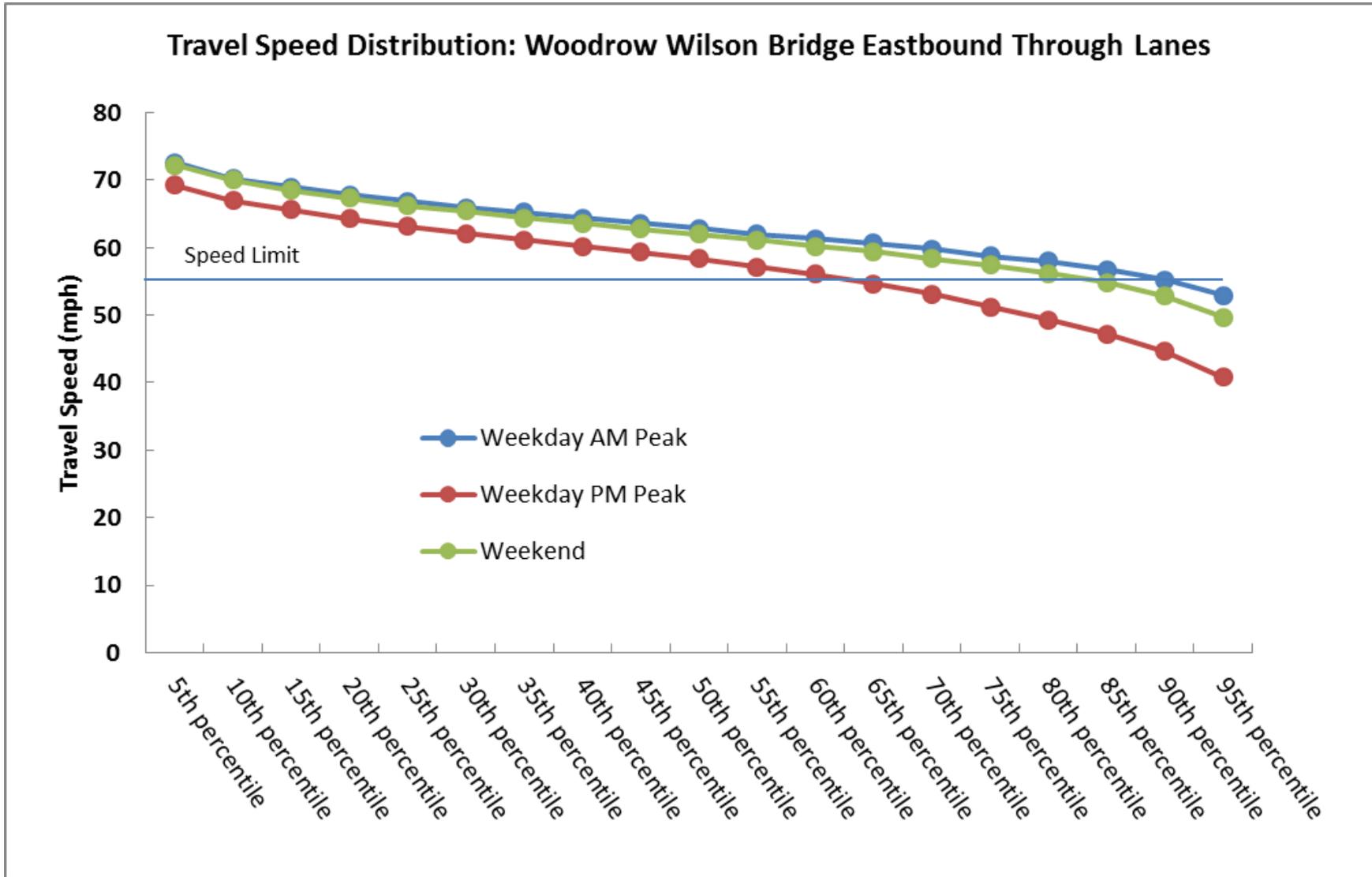
Speed Data Example (cont)



Speed Data Example (cont)



Speed Data Example (cont)

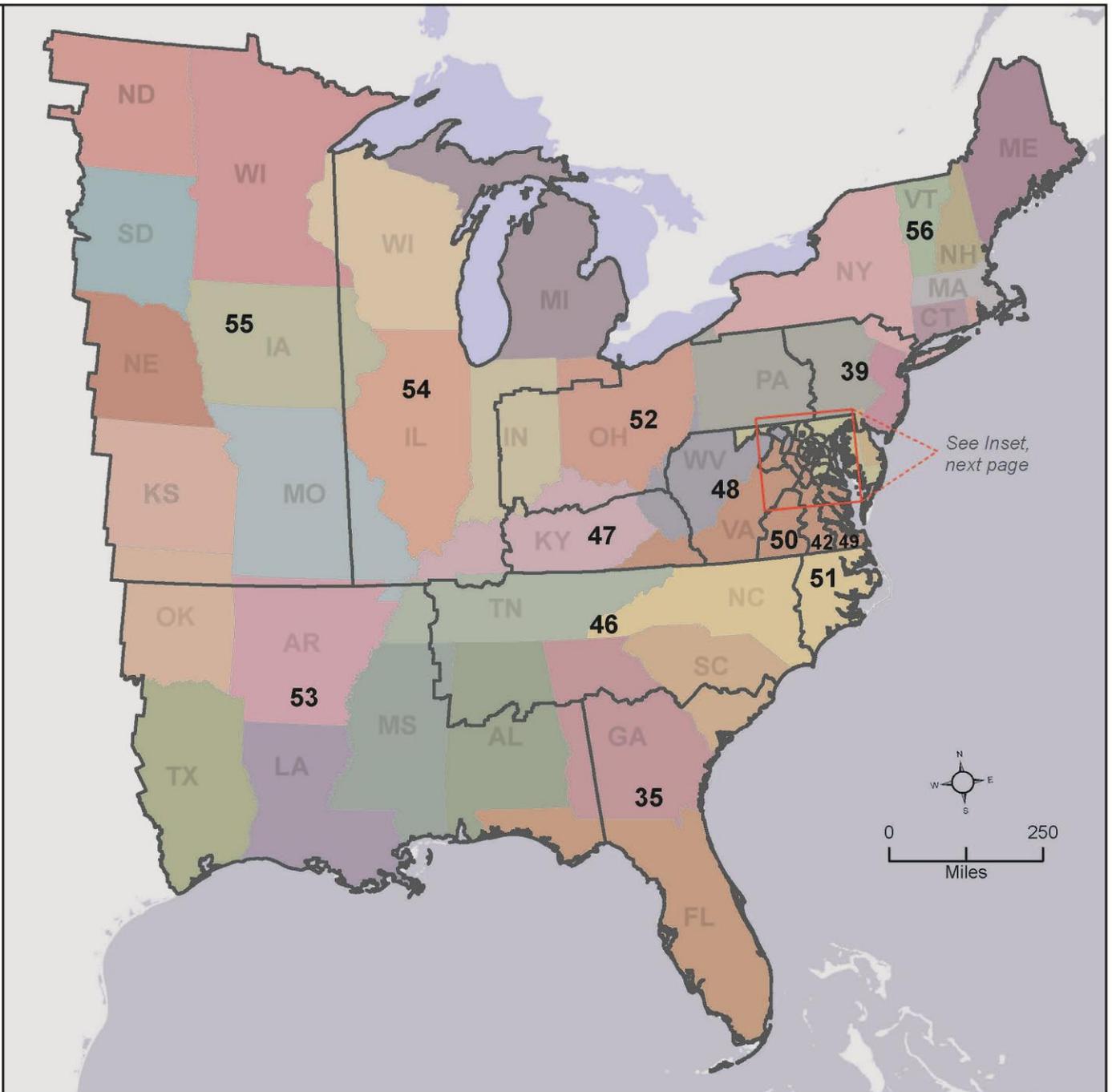


OD Pattern Data

- Collected by bridge by defined geography
- TomTom data (Delcan)
- Collected over 2012 (excluding Nov 17-25 & Dec 22-31)
- Weekday 24-hr & peak period & weekend day

Potomac River Crossing Data
Development Study
Districts

District #	Proposed Label
35	Southeast Atlantic states
39	New Jersey and eastern PA
42	Southern I-95 corridor in Virginia
46	Tennessee & Central / western NC
47	SW Virginia & Kentucky
48	NW Virginia & West Virginia
49	Virginia Hampton Roads area
50	South central Virginia
51	Easternmost North Carolina
52	Western PA, Ohio, Indiana
53	States bordering north Gulf Coast
54	Midwest states
55	Dakotas, Nebraska & points west
56	New York / New England & points north



Baker

Example Origin-Destination Table

Nice Bridge, Northbound (to MD) Weekend														
Trip Percentages	Destinations													
Origins	2	7	8	9	10	14	21	33	36	37	39	56	Grand Total	
11	0.9%		1.3%	5.3%	5.1%	0.6%	1.0%		1.3%	0.6%	0.8%			16.9%
12				3.0%	3.3%		0.5%							6.8%
40	0.7%		1.9%	2.7%	2.0%		0.9%	0.6%	1.1%		2.9%	0.6%		13.3%
41	1.2%	0.6%	1.1%	2.1%	1.4%		1.0%		0.7%		1.5%			9.7%
42	0.9%		1.3%	5.8%	5.9%		1.9%		1.5%	1.0%	2.3%			20.5%
46				1.4%	0.8%									2.1%
48				1.5%	2.1%									3.6%
49			1.3%	1.9%	1.0%		0.8%							5.1%
50				0.6%	0.6%						0.5%			1.6%
51				0.8%					0.6%					1.4%
Grand Total	3.7%	0.6%	6.8%	25.1%	22.2%	0.6%	6.1%	0.6%	5.3%	1.6%	7.9%	0.6%		81.0%

Potomac River Crossing Data
Development Study

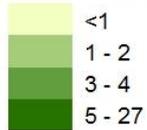
Key Bridge:
AM Peak Period
Northbound (to DC)

Circa 2012

- Bridge
- Counties

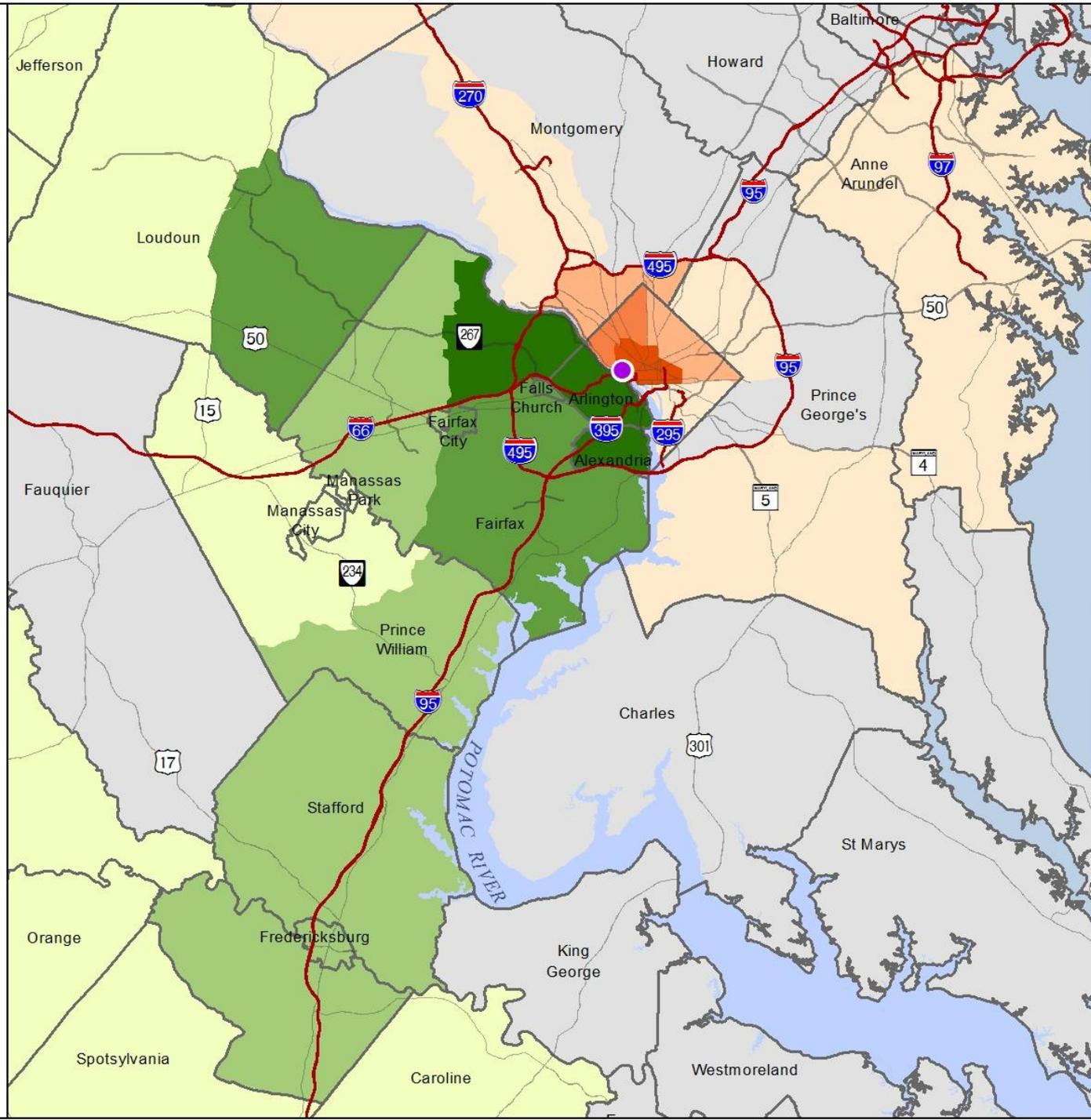
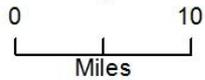
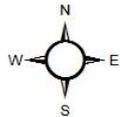
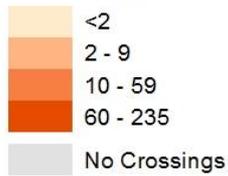
Origins

Crossings per Square Mile



Destinations

Crossings per Square Mile



Potomac River Crossing Data
Development Study

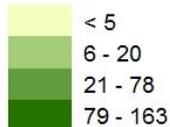
Woodrow Wilson Bridge:
Weekday Westbound
(to VA)

Circa 2012

- Bridge
- Counties

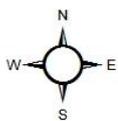
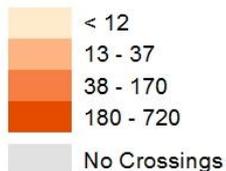
Origins

Crossings per Square Mile

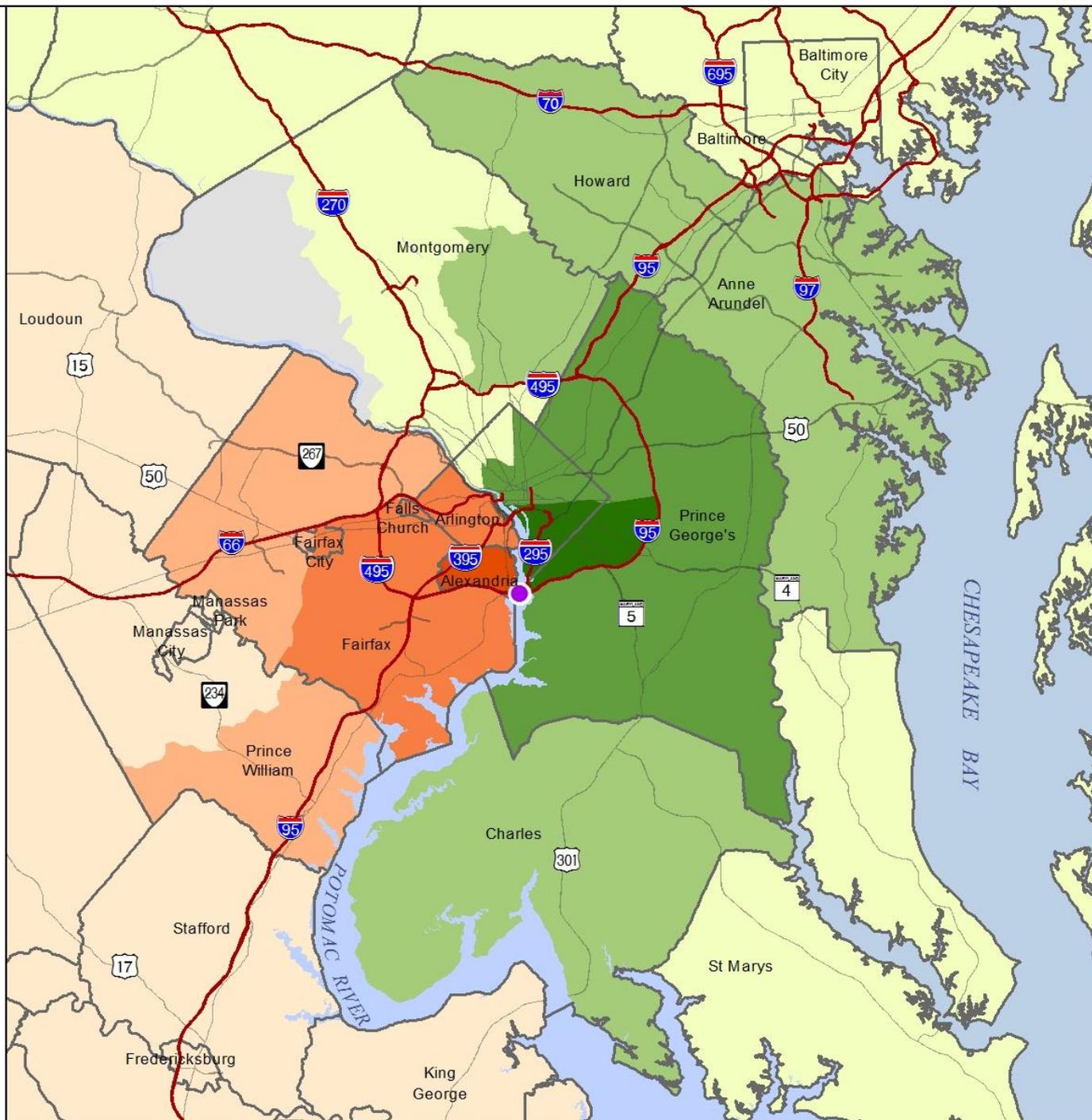


Destinations

Crossings per Square Mile



Baker



Potomac River Crossing Data
Development Study

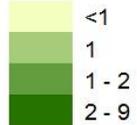
Nice Bridge:
Weekend Northbound
(to MD)

Circa 2012

- Bridge
- ▭ States
- ▭ Counties

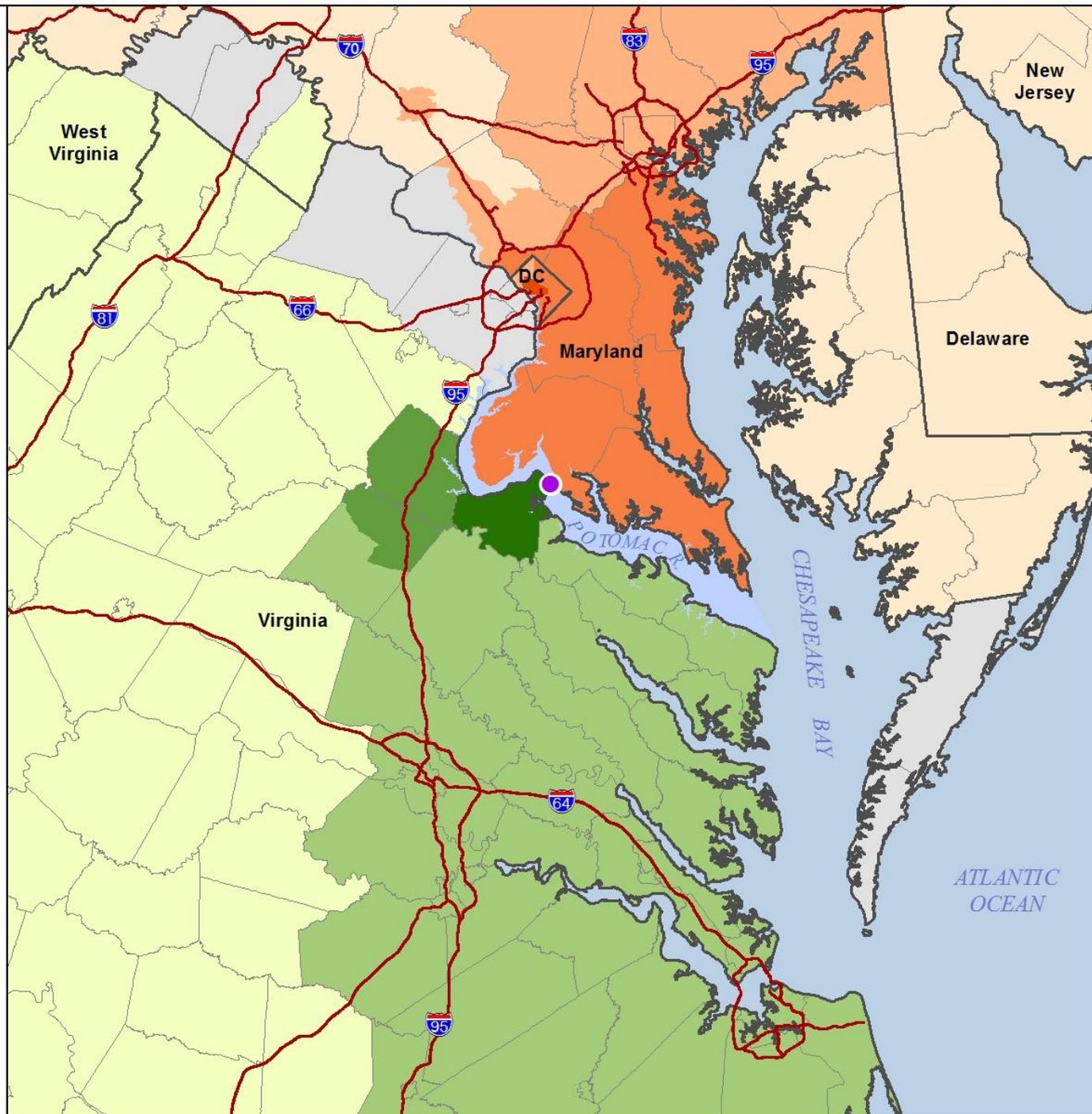
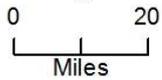
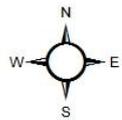
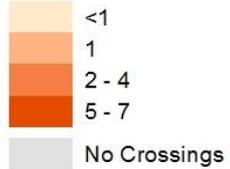
Origins

Crossings per Square Mile



Destinations

Crossings per Square Mile



OD Pattern Observations – Key Bridge (2012)

Direction	Time Period	Principal Origins	Principal Destinations
Northbound	AM Peak	N.E. Fairfax Co. (20%) Arlington (15%) E. Loudoun Co. (15%) S.E. Fairfax Co. (10%)	DC Core (65%) DC Northwest (20%)
	PM Peak	Arlington (30%) N.E. Fairfax Co. (10%) N.W. Fairfax Co. (10%)	DC Core (50%) DC Northwest (10%)
	Weekday	Arlington (25%) N.E. Fairfax Co. (15%) S.E. Fairfax Co. (10%)	DC Core (55%) DC Northwest (15%)
	Weekend	Arlington (30%) N.E. Fairfax Co. (10%)	DC Core (50%) DC Northwest (15%)
Southbound	AM Peak	DC Core (25%) S. Central Montgomery Co. (20%) DC Northwest (10%)	Arlington (60%)
	PM Peak	DC Core (50%) DC Northwest (20%)	Arlington (30%) S.E. Fairfax Co. (10%) N.E. Fairfax Co. (10%)
	Weekday	DC Core (40%) DC Northwest (20%) Close In Montgomery Co. (10%)	Arlington (40%) S.E. Fairfax Co. (10%)
	Weekend	DC Core (40%) DC Northwest (20%) Close In Montgomery Co.(10%)	Arlington (40%) S.E. Fairfax Co. (10%)

OD Pattern Observations – WW Bridge (2012)

Direction	Time Period	Principal Origins	Principal Destinations
Eastbound	AM Peak	S.E. Fairfax Co. (20%) Fairfax Co., E. of I-95 (20%) Alexandria (15%)	S. Prince Georges Co. (15%) DC South (15%) Anne Arundel Co. (10%) N.E. Prince Georges Co., Inside Beltway (10%)
	PM Peak	Fairfax Co., E. of I-95 (20%) S.E. Fairfax Co. (15%) Alexandria (15%)	S. Prince Georges Co. (20%) Anne Arundel Co. (15%) N.E. Prince Georges Co. (15%)
	Weekday	Fairfax Co., E. of I-95 (20%) S.E. Fairfax Co. (15%) Alexandria (15%) VA I-95 Corridor (10%)	S. Prince Georges Co. (20%) Anne Arundel Co. (10%) N.E. Prince Georges Co. (10%) New Jersey/E. Pennsylvania (10%)
	Weekend	Fairfax Co., E. of I-95 (20%) S.E. Fairfax Co. (15%) Alexandria (15%) S. Prince William Co. (10%) VA I-95 Corridor (10%)	S. Prince Georges Co. (20%) New Jersey/E. Pennsylvania (10%) N.E. Prince Georges Co. (10%) Anne Arundel Co. (10%)
Westbound	AM Peak	S. Prince Georges Co. (20%) Anne Arundel Co. (15%) Charles Co. (15%) N.E. Prince Georges Co. (15%)	Fairfax Co., E. of I-95 (20%) S.E. Fairfax Co. (15%) Alexandria (15%)
	PM Peak	S. Prince Georges Co. (15%) New Jersey/E. Pennsylvania (15%) Anne Arundel Co. (10%)	Fairfax Co., E. of I-95 (20%) S.E. Fairfax Co. (15%) Alexandria (15%) S. Prince William Co. (10%)
	Weekday	S. Prince Georges Co. (15%) Anne Arundel Co. (10%) N.E. Prince Georges Co. (10%) New Jersey/E. Pennsylvania (10%)	Fairfax Co., E. of I-95 (20%) S.E. Fairfax Co. (15%) Alexandria (15%)
	Weekend	New Jersey/E. Pennsylvania (15%) S. Prince Georges Co. (15%) Anne Arundel Co. (10%) Baltimore City & North (10%)	Fairfax Co., E. of I-95 (20%) Alexandria (15%) S.E. Fairfax Co. (10%) VA I-95 Corridor (10%)

OD Pattern Observations – Nice Bridge (2012)

Direction	Time Period	Principal Origins	Principal Destinations
Northbound	AM Peak	King George Co. (40%) VA I-95 Corridor (25%) VA Northern Neck Cos. (15%)	Charles Co. (20%) Calvert/St. Mary's Cos. (15%) DC Core (10%)
	PM Peak	VA I-95 Corridor (25%) King George Co. (25%) Fredericksburg (10%) VA Northern Neck Cos. (10%)	Charles Co. (30%) Calvert/St. Mary's Cos. (25%)
	Weekday	King George Co. (30%) VA I-95 Corridor (20%) VA Northern Neck Cos. (15%)	Charles Co. (25%) Calvert/St. Mary's Cos. (25%) New Jersey/E. Pennsylvania (10%)
	Weekend	King George Co. (20%) VA I-95 Corridor (20%) VA Northern Neck Cos. (15%) VA Peninsula Cos. (10%)	Charles Co. (25%) Calvert/St. Mary's Cos. (25%)
Southbound	AM Peak	Charles Co. (30%) Calvert/St. Mary's Cos. (30%)	King George Co. (25%) Fredericksburg (15%) VA I-95 Corridor (15%) VA Northern Neck Cos. (15%)
	PM Peak	Charles Co. (20%) Calvert/St. Mary's Cos. (15%) DC South (10%) New Jersey/E. Pennsylvania (10%)	King George Co. (30%) VA I-95 Corridor (20%) VA Northern Neck Cos. (10%)
	Weekday	Charles Co. (25%) Calvert/St. Mary's Cos. (20%) New Jersey/E. Pennsylvania (10%)	King George Co. (30%) VA I-95 Corridor (20%) VA Northern Neck Cos. (15%) Fredericksburg (10%)
	Weekend	Charles Co. (30%) Calvert/St. Mary's Cos. (25%) New Jersey/E. Pennsylvania (10%)	King George Co. (20%) VA I-95 Corridor (20%) VA Northern Neck Cos. (15%) Fredericksburg (10%)

Status of Travel Forecasting

- Highway
 - Forecasts complete
 - Compiling data

- Transit
 - Data collection/inventory on-going
 - Finalizing forecasting methodology

Status of Website Development

Potomac River Crossing Data Development Study... | Site Actions | Browse | Page | Wagg, Scudder

Potomac River Crossing Data Development Study

Internal Data | Contact

Project Information

This internal site will serve as a data portal for sharing documents and other information between the Regional Partnership Committee members, the Technical Working Group members, the study team staff and consulting team staff. As the study progresses, new information, documents and other data will be added to this internal site for review by various members of the study team.

Data posted here should be considered confidential and should only be discussed with individuals listed as having access to this "Internal" portion of the study website.

Project Study Team Contacts

Name	Role	E-mail Address	Phone Number
Kanti Srikanth	VDOT Northern Virginia District Planner	Kanathur.Srikanth@vdot.virginia.gov	703-259-2220
Robert Moore	Project Manager	Robert.Moore@vdot.virginia.gov	703-259-1945
Paul Prideaux	Project Manager	PPRIDEAUX@mbakercorp.com	804-287-3160
Bill Thomas	Travel Modeling	BThomas@mbakercorp.com	410-689-3450
Scudder Wagg	Transportation Planner	swagg@mbakercorp.com	804-287-3161

[Add new item](#)

Technical Working Group (TWG) Members

Name	Agency	Role	Phone	Email
John Thomas	SHA	Regional Planner	410-545-5671	JThomas10@sha.state.md.us
Lyn Ericson	MDOT	Manager, Office of Planning & Capital Programming	410-865-1279	lerickson@mdot.state.md.us

Next Steps

- Continue QA/QC of existing data
- Continue posting of approved data to web
- Continue travel forecasting process
- Hold next TWG meeting in January
- RPC coordination to follow
- Draft technical memorandum
- Finalize technical memorandum



Questions / Comments

THANKS!

Previous Studies

- ***South Side Transit Study***
 - MTA, April 2013.
- ***Capital Beltway South Side Mobility Study, Phase 2***
 - USDOT, VDOT, MSHA, DDOT, August 2008.
- ***I-66 Multimodal Study***
 - VDOT, Virginia Department of Rail and Public Transportation, June 2012.
- ***14th Street Bridge Corridor/Draft Environmental Impact Statement***
 - USDOT, January 2012.
- ***I-66 Inside The Capital Beltway, HOV-2 Annual Report***
 - VDOT, September 1997.
- ***Report of the Virginia Department of Transportation and the Department of Rail and Public Transportation on the Western Transportation Corridor***
 - VA Senate Document No. 301998.
- ***Western Transportation Corridor Study, Major Investment Study Report***
 - VDOT, November 1997.
- ***Woodrow Wilson Bridge Improvement Study, Regional Travel Demand Analysis, Executive Summary***
 - MWCOCG, May 1996.

Previous Studies (cont'd)

- *Woodrow Wilson Bridge Improvement Study, Supplemental Draft Environmental Impact Statement*
 - USDOT, VDOT, MDOT, DCDPW, July 1996.
- *The Potential for Circumferential Transit in the Washington Region*
 - MWCOG, National Capital Region Transportation Planning Board, August 1993.
- *Theodore Roosevelt Memorial Bridge Study, Traffic Needs Report*
 - DCDPW, June 2001.
- *Washington Bypass Study, Technical Memorandum No. 3 – Traffic*
 - USDOT, VDOT, MDOT, April 1990.
- *Passenger Ferry Boat Feasibility Study*
 - VDOT, April 2000.
- *Morning Commuter Traffic Crossing American Legion Bridge*
 - VDOT, April 2004.
- *West Side Mobility Study*
 - MSHA, MTA, November 2009.
- *Beyond the Legion Bridge: An Evaluation of the Transportation Connections between Montgomery and Fairfax Counties*
 - GMU Center for Regional Analysis, June 2013.