

Watershed Model Issues

Presentation to Water Resources Technical Committee

July 8, 2010

Watershed Model Development Status

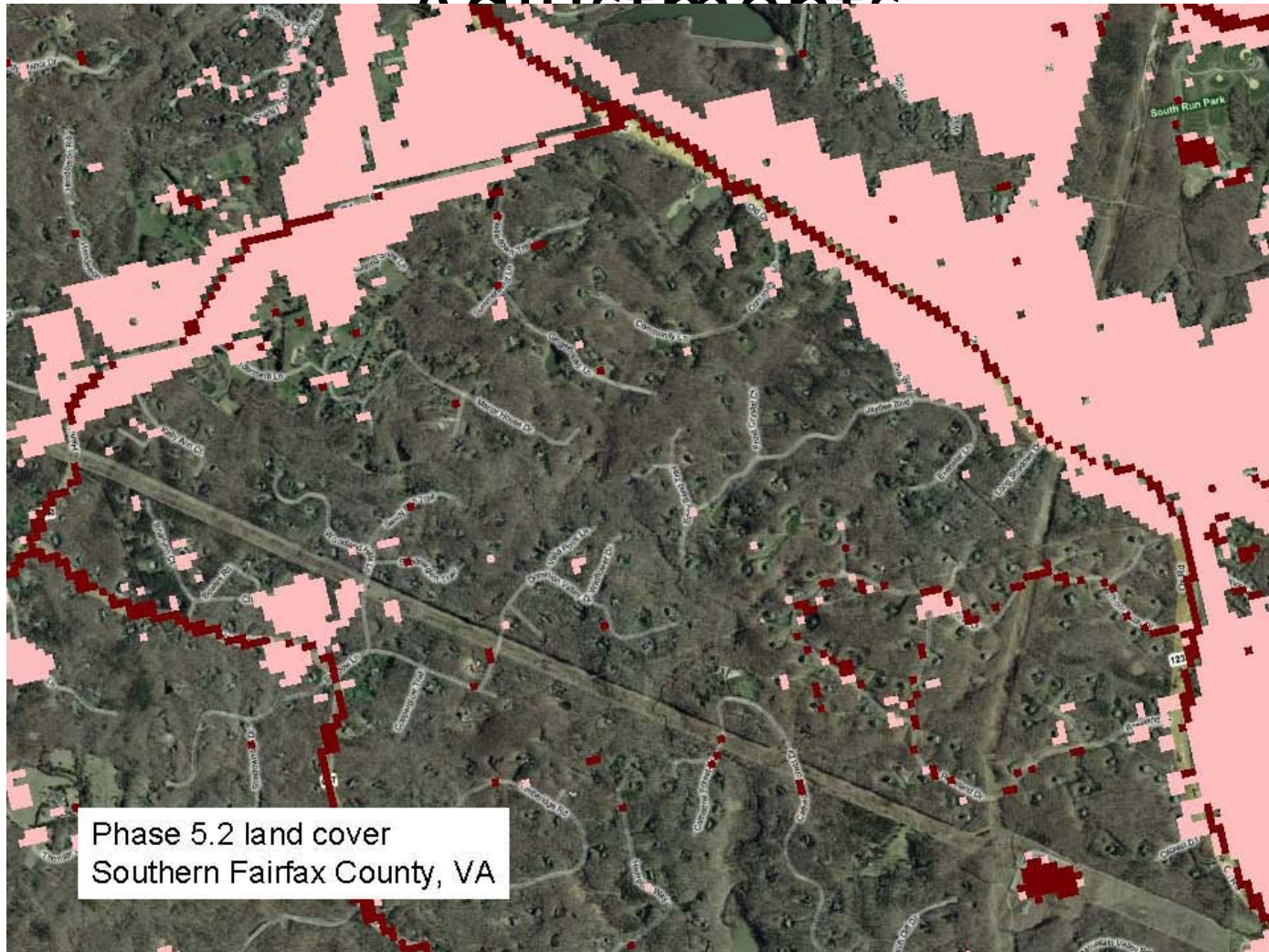
- November 2009 – Phase 5.2 output used for preliminary allocations
- March - May 2010 – Phase 5.3 output available; major problems identified
 - Few corrections made (e.g. urban E3 scenario definition), but others deferred to new version (5.4 - ?)
- June – July 2010 – Phase 5.3 output used for final allocations, Phase I WIPs despite known flaws
 - Work begins on revising land use; collecting state data for new version
- Sometime in 2011 - 5.4 output available (in time for Phase II WIPs)

Phase 5.3 Issues

- Urban Issues – to be addressed in Version “5.4” and used in Phase II WIPs
 - Undercounts urban acreage (particularly pervious urban)
- Ag Issues – to be addressed in Version “5.4” and used in Phase II WIPs
 - Nutrient management
 - Manure transport
 - Excess manure

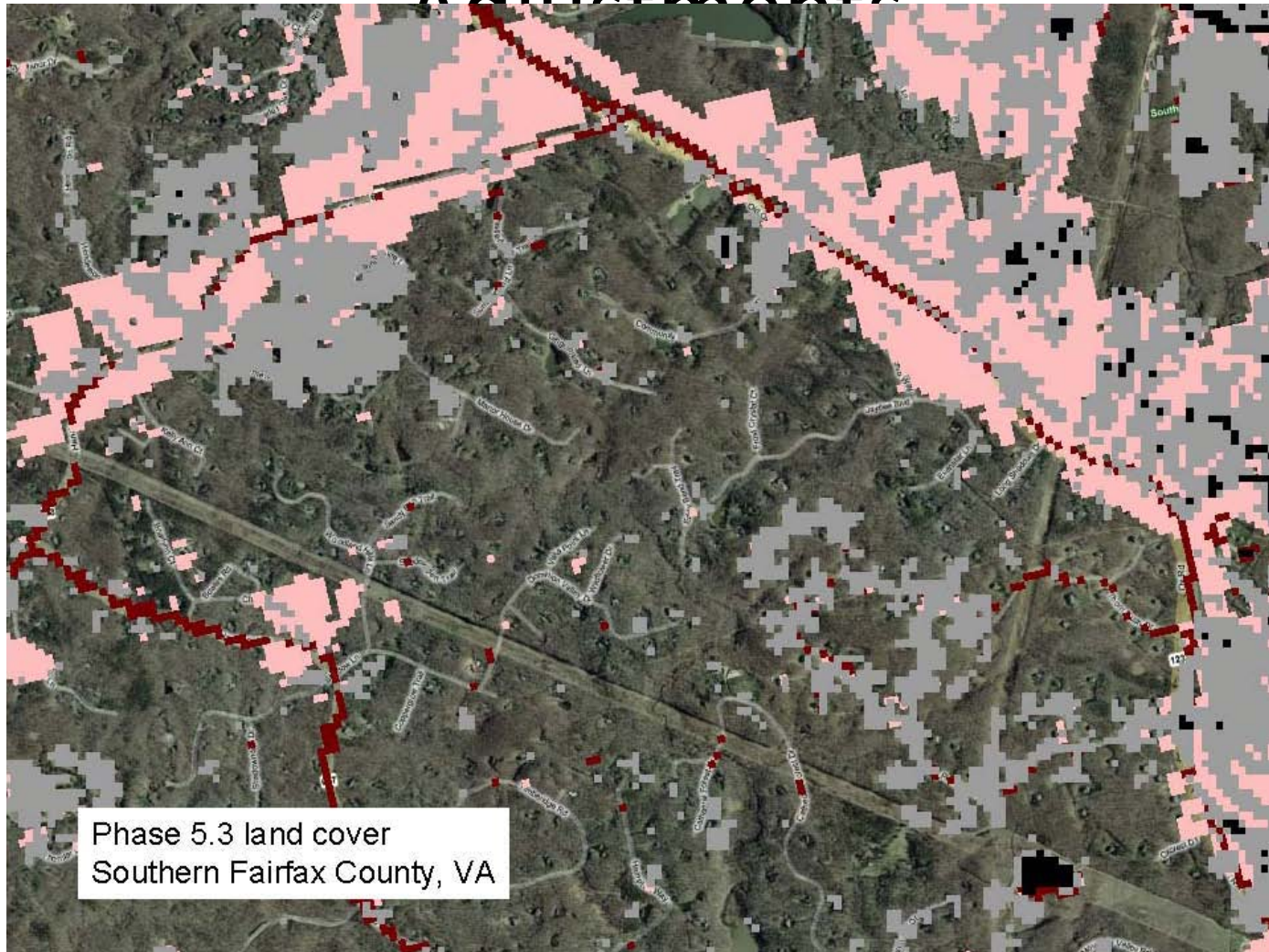
Watershed Model Land Use

Adjustments



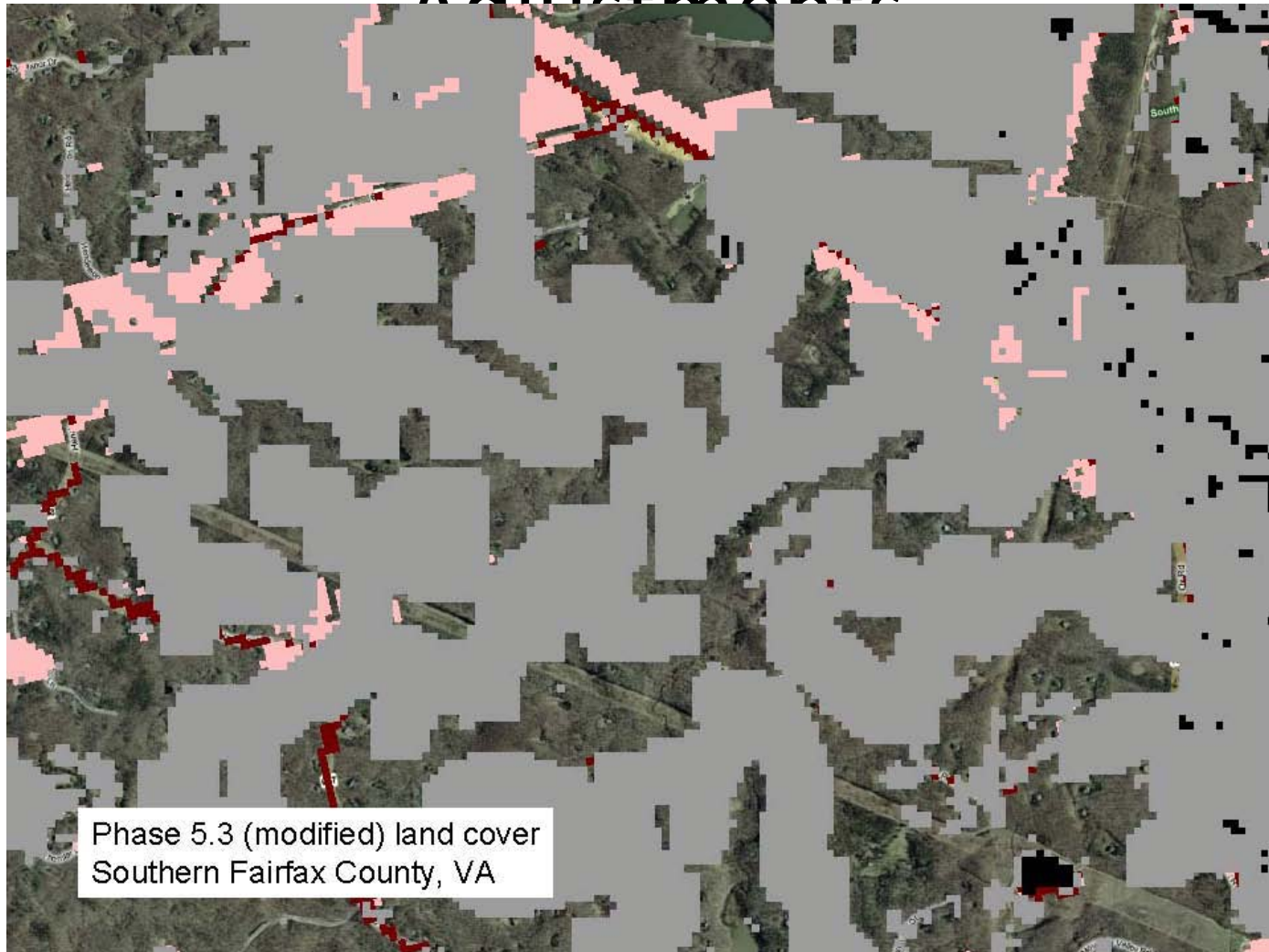
Watershed Model Land Use

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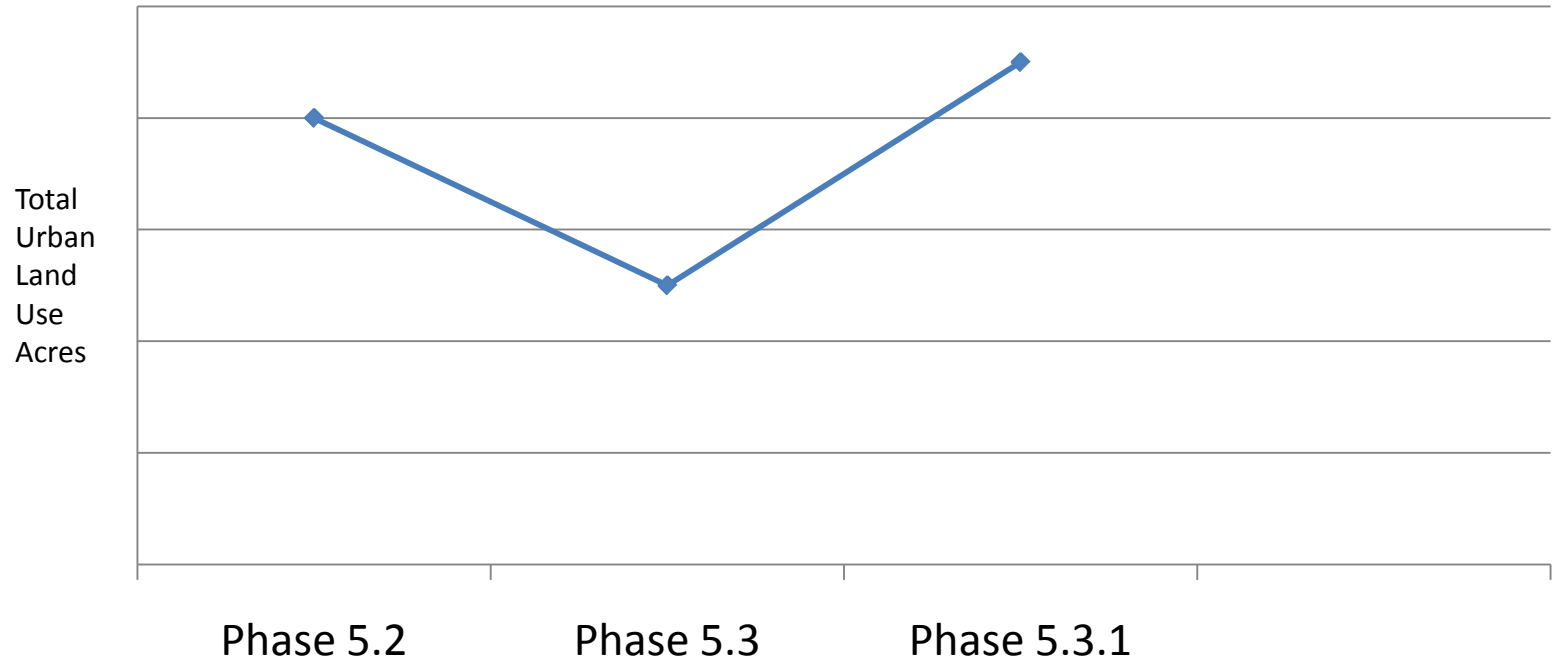


Urban Land Use Area Comparison

Jurisdiction	Low Intensity PerVIOUS			High Intensity PerVIOUS			Low Intensity Impervious			High Intensity Impervious			Total Urban Land*		
	2008 Phase 6.2	2008 Phase 6.3	2008 Phase 6.3.1	2008 Phase 6.2	2008 Phase 6.3	2008 Phase 6.3.1	2008 Phase 6.2	2008 Phase 6.3	2008 Phase 6.3.1	2008 Phase 6.2	2008 Phase 6.3	2008 Phase 6.3.1	2008 Phase 6.2	2008 Phase 6.3	2008 Phase 6.3.1
ALEX-ANDRIA	3,109	2,976	3,659	1,363	1,905	2,322	1,343	567	741	3,507	2,732	2,813	9,322	8,180	9,536
ARLINGTON	8,072	6,709	8,488	2,075	2,660	2,975	2,574	1,197	1,640	3,614	3,613	3,398	16,335	14,179	16,501
DIST. OF COLUMBIA	10,928	9,331	13,261	5,021	4,478	9,362	4,454	1,578	2,487	14,535	5,516	11,589	34,937	20,904	36,700
FAIRFAX	120,778	79,021	145,844	14,225	16,111	17,241	18,559	12,892	25,088	20,426	20,861	18,767	173,988	128,885	206,940
FAIRFAX CITY	2,151	1,715	2,412	262	476	524	547	287	427	816	719	664	3,777	3,197	4,027
FALLS CHURCH	743	486	768	77	138	153	179	90	146	249	934	200	1,248	1,647	1,267
FREDERICK	68,614	41,711	43,112	13,915	3,924	1,749	7,901	6,822	8,925	6,683	5,213	1,985	97,113	57,670	55,770
LOUDOUN	37,372	28,302	73,434	16,297	7,446	7,255	6,366	4,696	14,017	10,283	9,607	7,851	70,318	50,052	102,558
MANASSAS	3,313	2,809	3,352	746	1,037	1,127	725	488	622	1,138	1,400	1,274	5,922	5,735	6,375
MANASSAS PARK	783	634	941	113	254	256	240	110	166	254	313	273	1,391	1,312	1,637
MONTGOMERY	112,932	67,921	129,169	15,259	9,549	11,199	16,722	11,303	21,917	14,219	13,558	12,239	159,132	102,330	174,523
PRINCE GEORGES	98,246	54,107	121,402	16,571	15,078	20,457	19,457	10,992	20,744	20,906	24,097	21,941	155,180	104,274	184,543
PRINCE WILLIAM	51,988	33,598	79,942	9,102	7,674	7,481	6,544	5,197	13,693	8,107	9,565	7,893	75,741	56,035	109,008

*Totals do not include construction or extractive uses

Urban Land Use Acre Comparison



Low and High Intensity Pervious:

Phase 5.3.1 > Phase 5.2 > Phase 5.3

Low Intensity Impervious

Some increases and some decreases from Phase 5.2 to Phase 5.3.1

High Intensity Impervious

Phase 5.3.1 < Phase 5.2

Implications of Continued Model Change

- TMDL uncertainty
 - Loads will change from 5.3 to 5.4
 - Source allocations (e.g. ag (biggest portion of Load Allocation) vs. urban (largely in Waste Load Allocation) will change
 - Adjustments to TMDL in 2011 - ?
- Land use a critical driver for loads at local level (small segment-sheds or county-wide WIPs)
 - Option for states, local jurisdictions to supply own data for land use estimation assumptions
 - Option for jurisdictions to substitute their land use for Bay Program default - ?

Issues for Further Exploration

- Load analysis at local level (land-river segment) on hold; no one wants to work with outdated numbers
- Impact of delivery ratios – waiting for Bay Program feedback
- BMP analysis (by number, type and acres treated)

Lessons from the WIP local pilots

- Importance of local land use
 - Anne Arundel intends to use its land use and maybe its load estimates
 - Prince William wants to use OWML-generated land use
- Flexible interpretation of MS4 responsibility
 - Local governments not responsible for reductions needed from federal, state, municipal, farm (and even private -?) lands

Lessons from the WIP local pilots

- Local government to serve as clearinghouse
 - Anne Arundel sees its role as keeping track of the land use and reduction goals of the different land owners, but not as the prime sponsor of retrofits or other reduction measures
 - State envisions being the “book keeper” for counties without the same level of resources, e.g. Caroline