

Comparison of Local and Phase 5.3.2 Land Uses in Southeastern Virginia

Presented to
Chesapeake Bay Program Land Use Workgroup

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Regional Land Use Comparison

- Collected and tabular land use data from localities in 2011.
- Localities reported acres in terms of land use categories in VAST.
- Acres were calculated using various methodologies.
- PDC staff calculated regional difference in edge of stream loads.



	Total Local Changes*	Average load per Acre based on VAST**			Calculated difference in regional loads			
Landuse	acres	N	P	TSS	N	P	TSS	
Agriculture	(3,016)	13.31	1.66	417.24	(40,136)	(5,007)	(1,258,277)	
Forest	12,884	1.81	0.07	15.37	23,348	935	197,990	
Extractive	(319)	9.50	2.92	955.45	(3,033)	(931)	(304,910)	
Impervious Developed	20,424	8.57	1.63	485.95	174,986	33,190	9,925,065	
Pervious Developed	(41,653)	8.36	0.57	71.97	(348,314)	(23,593)	(2,997,876)	
Regulated construction	(1,378)	18.63	5.34	2152.93	(25,674)	(7,359)	(2,966,940)	
Water	17,455	7.79	0.66	0.00	135,976	11,520	-	
Grand Total	4,398				(82,847)	8,756	2,595,052	
Grand Total no water	(13,057)				(218,823)	(2,765)	2,595,052	

* Positive values mean locality estimates more acres than VAST.

** Calculated from 2010 No BMP VAST data for Hampton Roads

Regional Land Use Comparison Highlights

➤ Model overestimates:

Agriculture

Construction

Extractive

Pervious developed

➤ Model Underestimates:

➤ Forest

➤ Impervious

➤ Water

➤ Model overestimates Nitrogen loads by 200,000 lbs and Phosphorus loads by 2,700 lbs.

➤ Model underestimates sediment by 2.5 million lbs.



Closer Look at Locality Data

- Obtained GIS data from Norfolk, Hampton, and Virginia Beach.
- Derived from Virginia Base Map Program (VBMP) aerial photography.
- 1 foot pixel resolution.
- 6 land cover classes

Impervious	Wetland/Marsh
Managed Turf	Open Water
Forest/Wooded land	Sand/Beach/Dunes



Locality Comparison Highlights

- Comparison is complicated by differences in resolution.
- Difficult to compare land use versus land cover.
- Highlights issue of how to categorize trees (forest) in the urban landscape.



Locality Comparison: Norfolk							
5.3.2 data	Impervious	Forest/Wooded	Managed Turf	Wetland/Marsh	Water	Sand	Acres
Barren						4.72%	11
Cultivated Crops							2
Deciduous Forest		0.30%		0.15%			26
Evergreen Forest		1.61%		0.10%			114
Mixed Forest		0.17%					11
Dev Open Space	7.71%	21.50%	28.66%	17.55%	1.09%	9.29%	5667
Emergent Wetlands	0.10%	4.17%	0.25%	5.39%	0.69%		376
Scrub/shrub			0.02%				8
Grassland							5
High Int Developed	27.02%	1.13%	5.76%	1.43%	0.94%	12.03%	5557
Low Int Developed	35.57%	56.55%	45.74%	42.56%	4.65%	18.51%	14807
Med Int Developed	26.30%	8.88%	17.11%	2.47%	0.77%	23.51%	7012
Residential	0.14%	0.48%	0.25%	18.89%	0.32%		232
Residential - DOS	1.84%	2.17%	0.63%	0.40%	0.24%	1.45%	540
Residential - HID		0.17%					29
Residential - LID		0.12%					17
Rural Developed - DOS							8
Rural Developed - HID							3
Rural Developed - LID							18
Rural Developed - MID							2
Unconsolidated Shore						0.60%	4
Water	1.12%	2.54%	1.18%	10.54%	91.08%	29.83%	8176
Woody Wetlands							0.22
Total Acres	17804	5724	9887	678	8323	206	42625

Locality Comparison: CBP							
p532_Ic06	Impervious	Forest/Wooded	Managed Turf	Wetland/Marsh	Water	Sand	Acres
Water	2.44%	1.78%	1.43%	0.88%	92.72%	0.75%	8176
Dev Open Space	24.23%	21.72%	50.00%	2.10%	1.61%	0.34%	5667
Low Int Developed	42.77%	21.86%	30.54%	1.95%	2.62%	0.26%	14807
Med Int Developed	66.78%	7.25%	24.13%	0.24%	0.91%	0.69%	7012
High Int Developed	86.56%	1.16%	10.25%	0.17%	1.41%	0.45%	5557
Barren	1.58%		3.50%		3.75%	91.17%	11
Unconsolidated Shore	12.62%		5.74%		51.36%	30.21%	4
Deciduous Forest	13.33%	64.70%	11.96%	3.90%	6.11%		26
Evergreen Forest	8.10%	80.90%	7.43%	0.60%	2.95%		114
Mixed Forest	4.81%	92.05%	3.03%		0.11%		11
Scrub/shrub	24.82%	41.38%	27.95%		5.86%		8
Grassland			100.00%				5
Cultivated Crops			100.00%				2
Woody Wetlands		100.00%					0
Emergent Wetlands	4.83%	63.61%	6.49%	9.74%	15.32%		376
Residential	10.58%	11.96%	10.47%	55.34%	11.65%		232
Residential - DOS	60.72%	23.03%	11.56%	0.51%	3.63%	0.55%	540
Residential - LID	27.57%	40.52%	31.62%		0.28%		17
Residential - HID	32.27%	33.51%	24.64%	0.49%	9.09%		29
Rural Developed - DOS	27.47%	34.01%	38.44%				8
Rural Developed - LID	13.68%	25.02%	25.29%	18.27%	17.47%	0.28%	18
Rural Developed - MID	39.33%	4.02%	0.84%		55.80%		2
Rural Developed - HID	6.05%				93.95%		3
Acres	17804	5724	9887	679	8323	207	