LAND CHANGE ANALYSIS AS PRESENTED IN "THE FUTURE OF SUSTAINABLE FARMING AND FORESTRY IN MARYLAND"

Research Supported by the Harry R. Hughes Center for Agro-Ecology

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KEY QUESTIONS

1. What's sustainability?
2. Effects of environmental (on farming & $$s) & smart growth (on LU & farming) policies?
3. Where are farming & forestry headed under existing trends in external forces?
4. Can policy evolve to help?

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METHODS

- Published & other reports, data
- Stakeholder/ expert interviews, consultations
- Growth/ land use projections & impacts
- Draft report

- Stakeholder/ expert review & input
- Final Report

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Using Planning's Growth Simulation Model to Calculate Projected Land Use Change to 2040
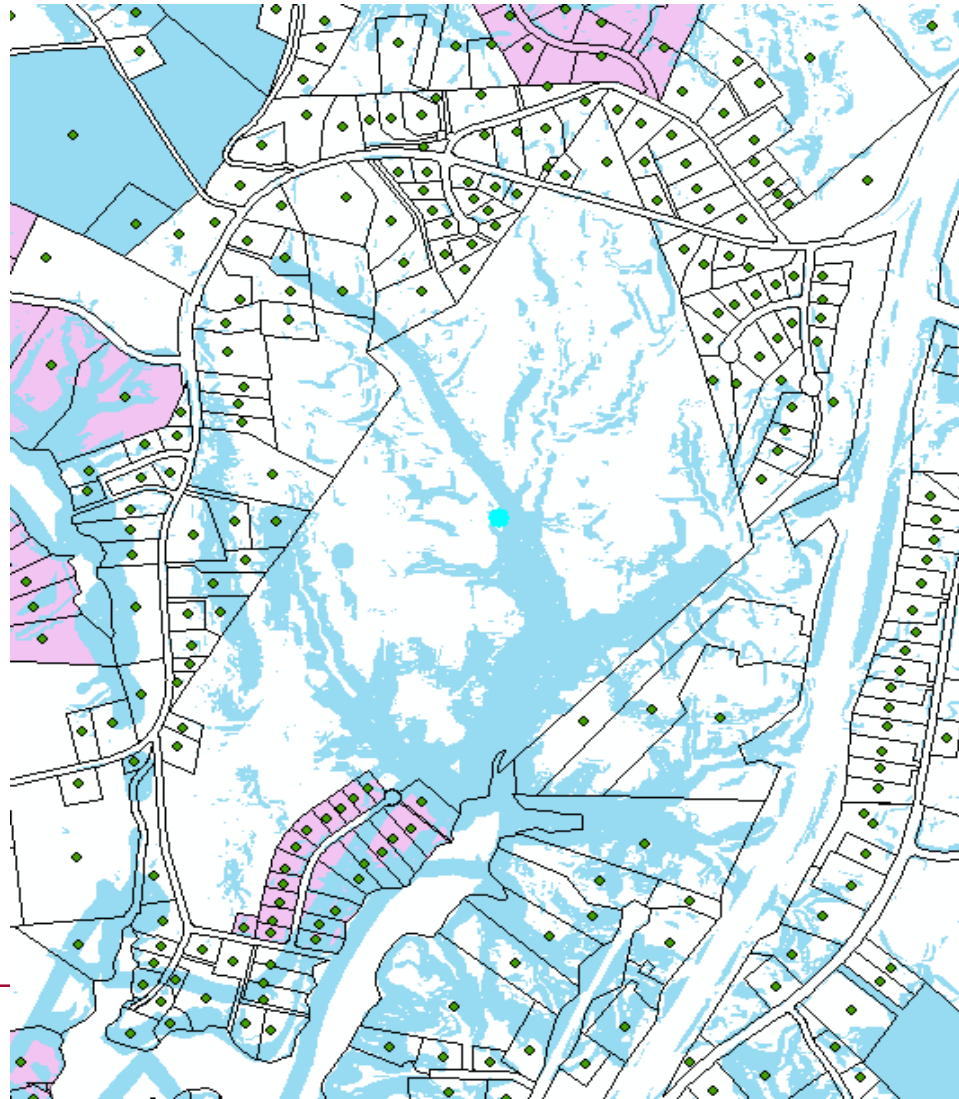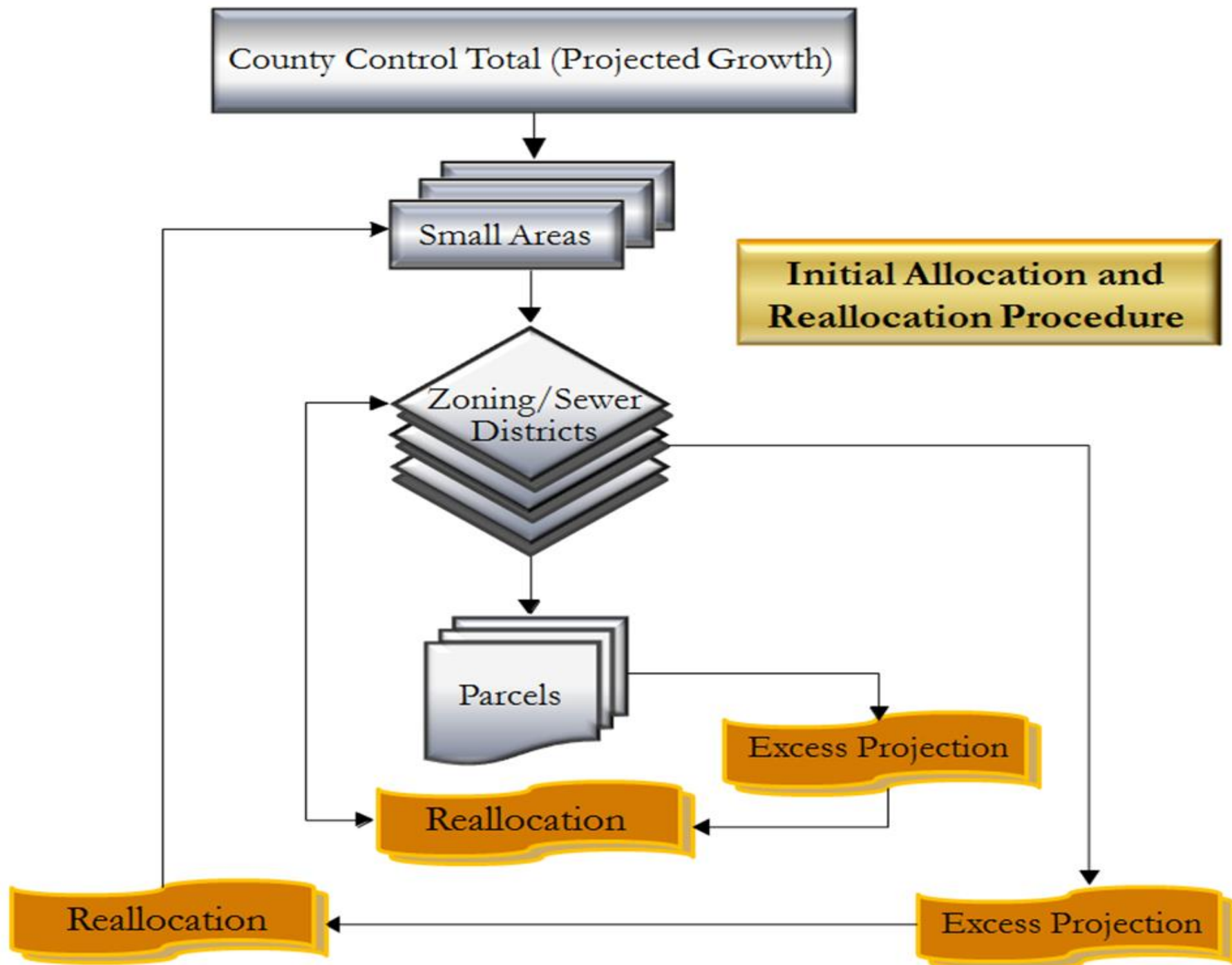
DEVELOPMENT CAPACITY ANALYSIS (RESIDENTIAL)

- Relies heavily on local zoning, sewer, and other land use policies
- parcel level restrictions/conditions (i.e. stormwater management, dedicated open space, etc)
- Site-level constraints (environmental, road frontage, etc).

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BASIC METHODOLGY

- Developable acres * density yield
- On small, "improved" parcels:
  - ((developable acres*density yield) – 1)/2
- Scenarios base on:
  - Changes to assumptions about developable acres (i.e. as a result of site constraints)
  - Changes to assumptions about density yield by zoning district (example: changes in density yield based on a concentrated growth scenario, or the use of TDRs)

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APPX 150 ACRE PARCEL, NHC VARIES FROM 145 – 435, DEPENDING ON DENSITY AND DEVELOPABLE ACRES ASSUMPTIONS

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County Control Total (Projected Growth)

Small Areas

Initial Allocation and Reallocation Procedure

Zoning/Sewer Districts

Parcels

Excess Projection

Reallocation

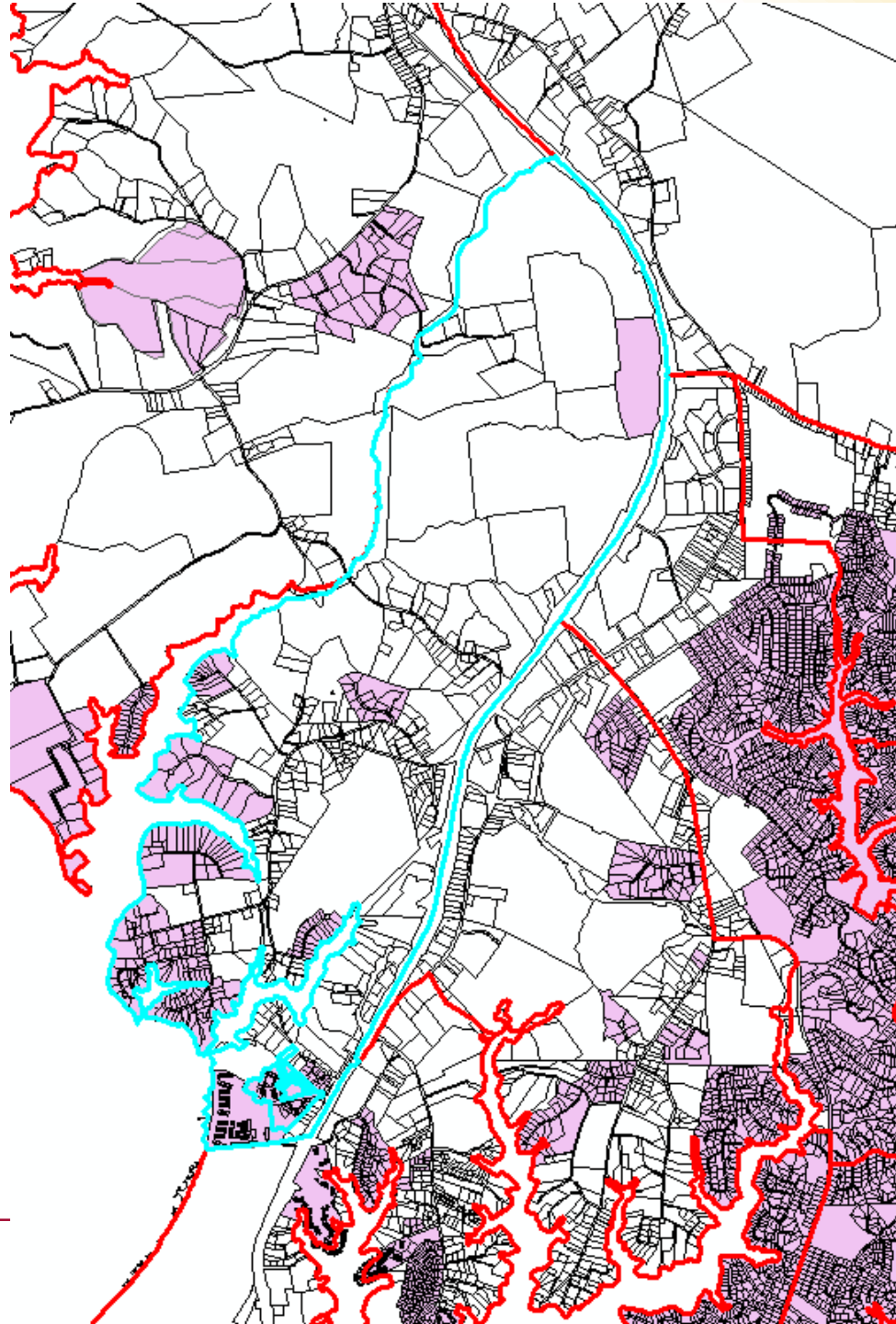Reallocation

Excess Projection

SMALL AREA PROJECTIONS (RESIDENTIAL)

- Planning's Countywide Projections
  - Allocate to block groups based on percentage of recent growth in each block group.
- Small area projections for metro counties (TAZ)
 - Use what BMC and WashCOG produce as-is

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Geography = 240098609002
135 Housing Units allocated
based on recent growth

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ZONING/SEWER AREAS

- Small Area forecasts allocated to zoning/sewer areas

- Based on percent of recent growth in zoning/sewer areas within small areas

- Example: if 20% of recent growth happened within "R1-S1" in TAZ 435, 20% of TAZ 435's projected growth would be pushed to that area.

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# Allocation based on percent of recent growth
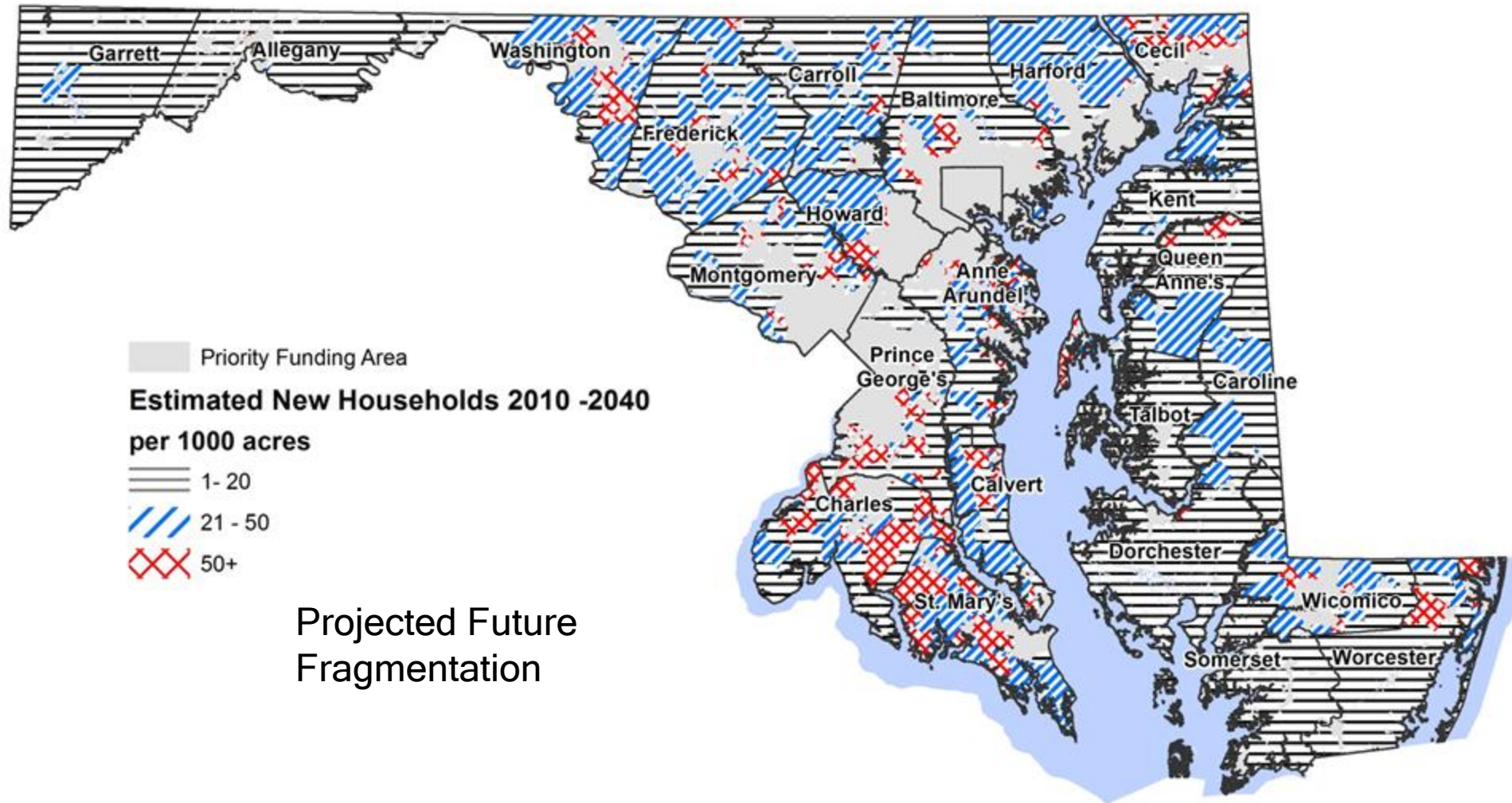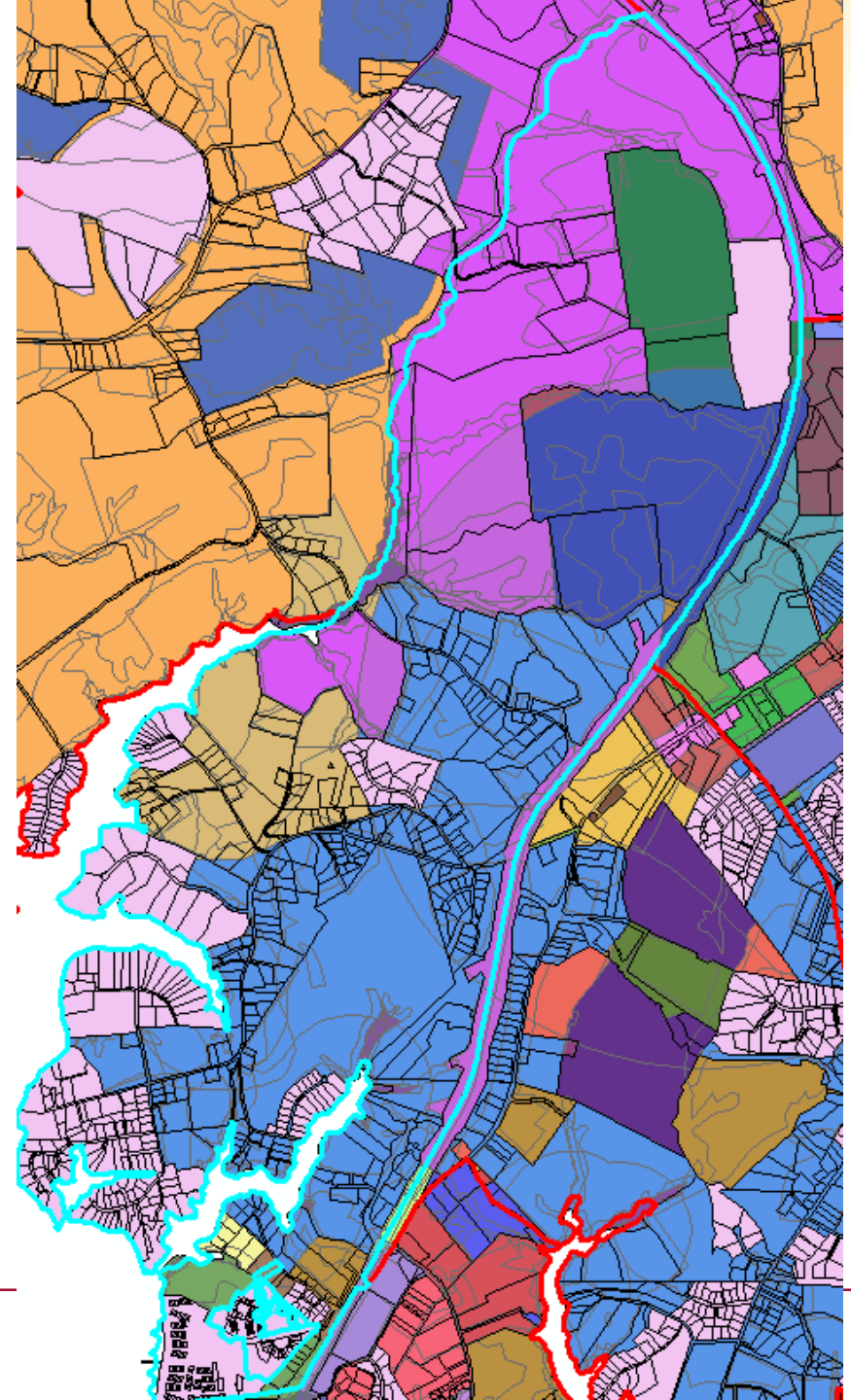
ALLOCATION TO PARCELS

- Use proximity measures to rank parcels for allocation:
  - Existing Sewer service
  - Major roads
  - Residential developed land
  - Commercial developed lands; and
  - Transit stations.
- If proximity score is the same, parcels ranked based on development capacity.

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17 acre parcel
5.25 du/acre allowable density
Capacity = 87
Proximity Score = 6
Allocation = 80
New developed acres = 15.24

Planning.Maryland.gov

Field	Value
MDE6DIGT	021311
MDE6NAME	PATUXENT RIVER
MDE8DIGT	02131101
MDE8NAME	Patuxent River lower
DNR12DIG	021311010873
STRANAME	PATUXENT
PROT	
GENZONE	MEDIUM DENSITY RESIDENTIAL
OVERLAY	
ZONING	S-F1
ACRES_ORIG	16.7
DEV_ACRES	10.342302
WET_ACRES	14.990682
ACRES_POLY	18.384251
SEWSTAT	E
ALLOWDENS	5.25
NHC	87
NHA	80
DEVPROB	6
NEWDEVAC	15.2381
ZONEDLUCODE	12
RESULTLUCODE	12
RESULTDENS	5.25
NONRESCAP	0
FCAAC	<null>
CLUPCT	<null>
CLUDENS	<null>
CLUSTLUCODE	<null>

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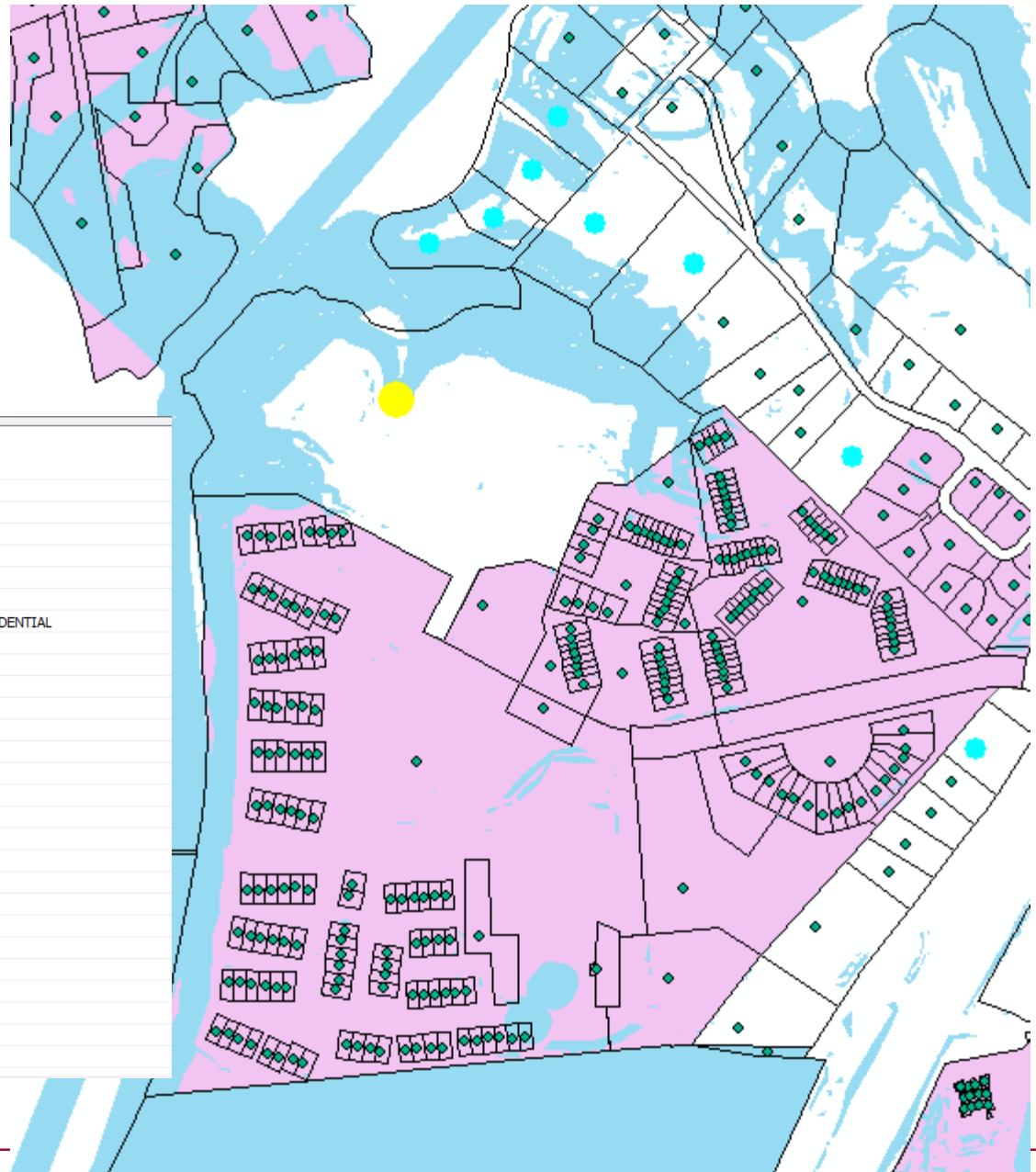
Estimated Residential Development Outside PFAs, 2010-2040, Maryland

Projected Future Fragmentation

FUTURE LAND USE CHANGE (RESIDENTIAL)

- Base land use is Planning's 2010 Land Use/Land Cover

- Number of new developed acres by parcel aggegrated to unit of analysis (Countuy, "Geography", LRSeg, etc)

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FUTURE LAND USE CHANGE (COMMERCIAL/INDUSTRIAL)

- Inventory existing commercial lands within each small area, % of total county by small area, initial allocation based on this %
- Calculate existing employment density by commercial/industrial uses, carry that density forward
- Inventory undeveloped parcels within non-residential zoning districts to determine available land for commercial/industrial dev't
- Estimate need for commercial/industrial acres on undeveloped parcels based on (employees per acre * projected employees) by small area
- Allocate acres needed to parcels (random) within small areas until demand is satisfied.

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Estimated Acres of Agriculture and Forest, 2010 & 2040
State of Maryland

Figure 3.2-5

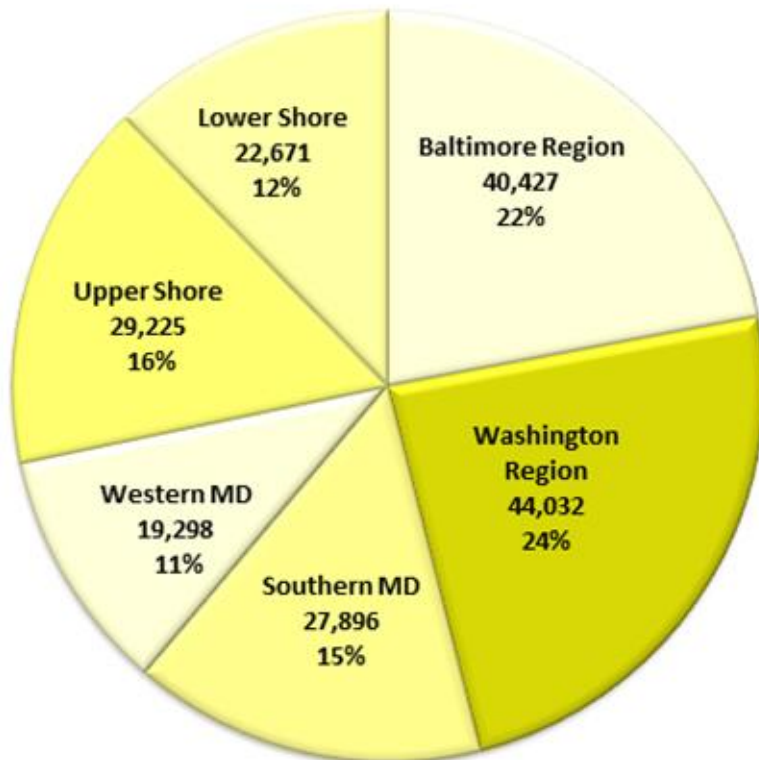Potential Loss of Ag and Forest land: 345,981 acres (-8.0%)
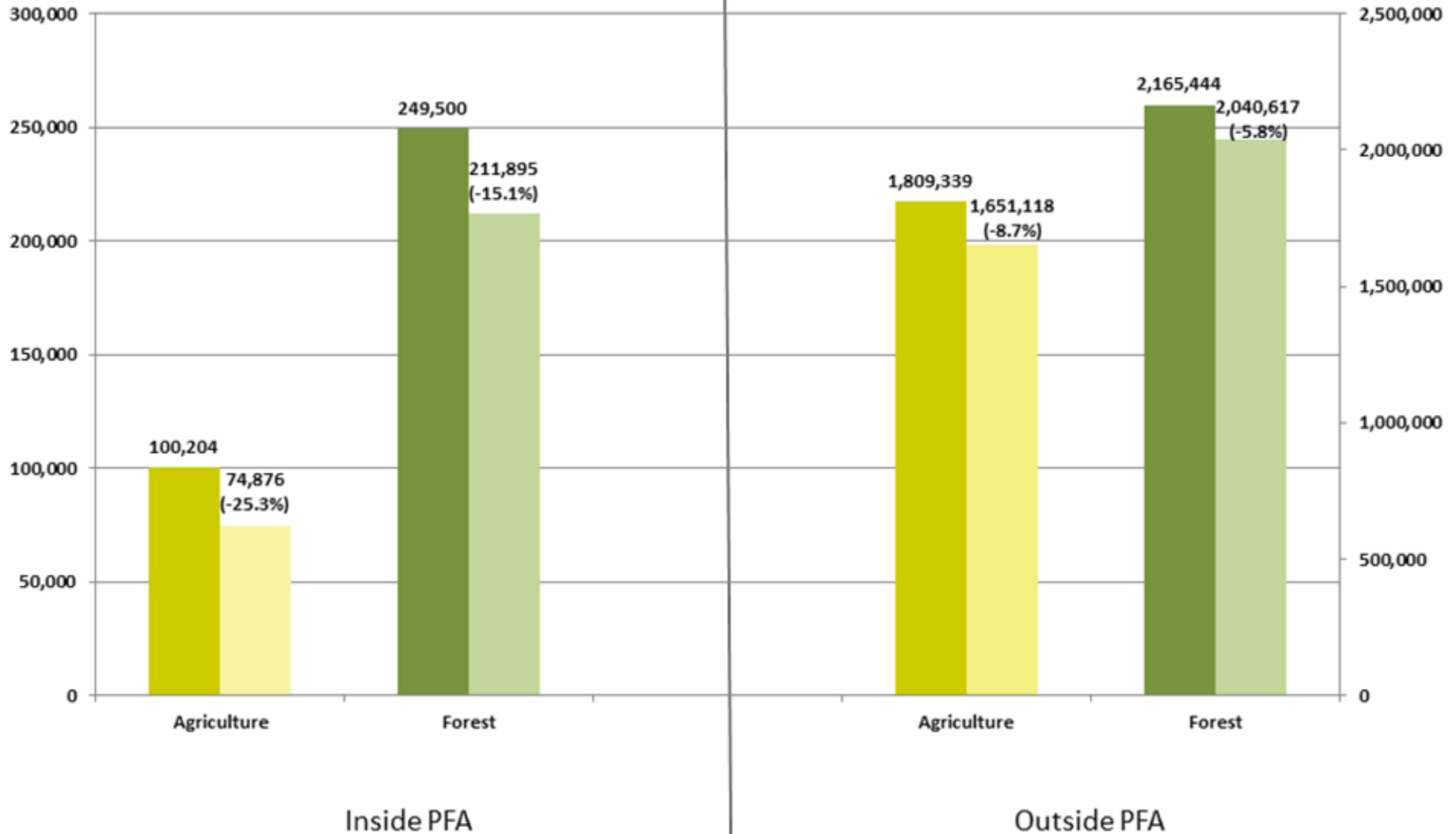
Potential Loss of Agriculture and Forest Land, 2010-2040
State of Maryland

Figure 3.2-6

Total Loss of Ag and Forest land: 345,981 acres

Agricultural Land,
183,549 acres

- Lower Shore 22,671 12%
- Baltimore Region 40,427 22%
- Upper Shore 29,225 16%
- Washington Region 44,032 24%
- Western MD 19,298 11%
- Southern MD 27,896 15%

Forest Land,
162,433 acres

- Lower Shore 9,161 6%
- Upper Shore 14,752 9%
- Western MD, 13,156 8%
- Baltimore Region 36,982 23%
- Southern MD 52,599 32%
- Washington Region 35,783 22%

Maryland Region	New Households/Yr by Region Number (& % of State Total)		% New Households in PFAs		% Developed Acres outside PFAs[1]	
Table 3.2-1 Residential Development, 1999-2012 (Actual) & 2010-2040 (Projected)						
	1999-2012[2]	**2010-2040**[3]	**1999-2012**[4]	**2010-2040**[5]	**1999-2012**	**2010-2040**
Central MD	6,377 (37%)	5,497 (33%)	78%	79%	74%	75%
Capital Region	5,352 (31%)	6,438 (38%)	81%	78%	63%	74%
Southern MD	2,093 (12%)	2,138 (13%)	51%	46%	88%	88%
Upper Eastern Shore	1,310 (8%)	1,181 (7%)	57%	47%	83%	85%
Lower Eastern Shore	1,144 (7%)	788 (5%)	60%	42%	78%	89%
Western MD	899 (5%)	732 (4%)	47%	48%	86%	88%
Statewide	17,176 (100%)	16,773 (100%)	71%	68%	77%	81%

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