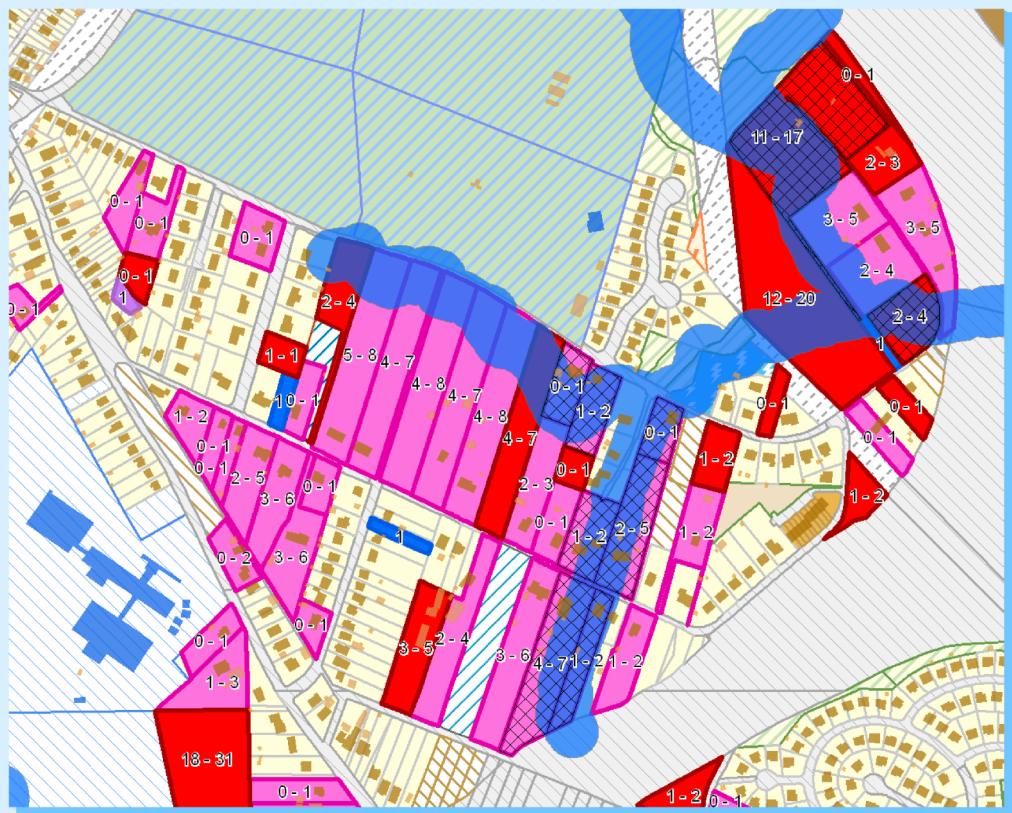


Baltimore County

Residential Development Capacity Study



Baltimore County Office of Planning

October 25, 2010

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INTRODUCTION

The Baltimore County Residential Development Capacity Study determined the potential number and location of additional residential units that could be constructed under existing regulations. This study is a refinement of an earlier study, completed in June 2005, which determined development capacity by transportation analysis zones based on population projections.

The calculation of development capacity is a statewide planning effort that was initiated by the signing of an agreement between the Maryland Association of Counties, the Maryland Municipal League, the Maryland Department of Planning, and the Maryland Homebuilders Association.

This study examined development potential within the Urban/Rural Demarcation Line. This is the “urban” area of the county where the bulk of future growth is planned.

Objectives

Baltimore County’s parcel-based analysis contains maps and numerical data identifying tracts of land with future residential development potential, and the number of housing units that may result under current zoning and development regulations. The analysis considered the following types of residential development:

- New development on vacant, residentially-zoned parcels under conventional review processes.
- New development on previously developed, residentially zoned parcels that have additional potential (underdeveloped parcels).
- Development/redevelopment of parcels through the Planned Unit Development process.

Approach

Any analysis of development capacity can only be a “best guess.” Many considerations enter into how and when a parcel is developed with residential units. The approach used in this analysis was to

provide an estimated range of potential units, based on several factors.

The analysis was structured into a number of steps so that the effect of each factor can be discerned. This allows public scrutiny to ensure that the outcome constitutes a reasonable estimation.

Also, the approach was designed so that the development capacity figures can be updated periodically. ArcGIS was used to record the existing land use for each parcel. The land uses are continuously updated as development projects are proposed and buildings receive occupancy permits or are razed. The ArcGIS Model Builder tool was used to calculate development capacity in this report, and can be run periodically to update the figures. The model can also construct various growth scenarios at different development densities, making it a useful tool for future community planning studies.

Factors Affecting Residential Development

In Baltimore County, the zoning and development regulations affecting residential development are numerous and somewhat complex. The zoning regulations play the largest role in determining where residential development can occur, and how many units per acre can be constructed. However, the regulations concerning density, lot sizes, and setbacks vary depending on when a parcel of land was recorded. Additionally, a number of other types of regulations, in particular, those dealing with environmental concerns, can modify the ability to physically achieve the allowable density.

Further discussion of these factors is provided below. How each factor was addressed in this study is shown in *italics*.

Zoning Current Regulations: The maximum number of residential units permitted on each parcel is regulated through its zoning designation. Some zones, for example, MH (Heavy Manufacturing), do not allow residential development (other than caretaker dwellings). The highest number of residential units permitted by zoning can be calculated by multiplying the acreage of the parcel by its allowable density per acre. Thus, a 10-acre parcel

zoned DR 5.5 can be developed with a maximum of 55 residential units.

For this study, the development capacity based on zoning was calculated as a high-end estimate. Under the conventional development review process for major subdivisions, this is the highest number of units that can be realized.

Historical Buildout Density: In Baltimore County over the past 25 years, few developments have achieved the maximum density allowed in large part because of environmental constraints. As parcels have been developed, the ones that presented the least challenges were generally developed first. Over time, the remaining vacant parcels generally exhibit increasing development challenges. Thus, looking at the densities achieved in recent developments may provide a more realistic estimate.

For this study, a historical density factor was calculated as the average number of units per acre of all development in each residential zone since

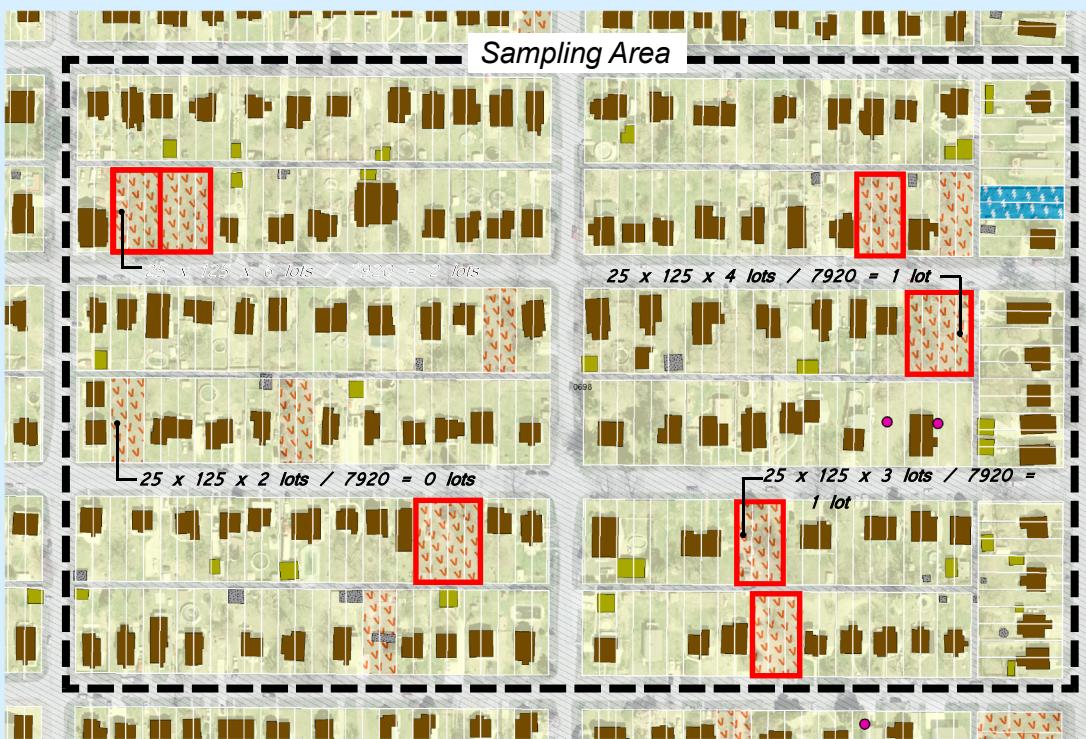
2000. The acreages of vacant parcels were multiplied by this factor to determine a second, more moderate development estimate (see Appendix C, page 52).

Infill Development in Older Subdivisions: The county adopted zoning in 1945. A major revision to the zoning regulations was adopted in 1970, which is the one in use today. However, the regulations in effect between 1945 and 1970 still apply to those subdivisions that were approved during that time period. Additionally, there are special regulations that apply to subdivisions recorded prior to 1945 that affect the number of units that can be developed, referred to as the “Small Lot Table.”

The regulations also govern certain small individual lots or tracts of lots in the same ownership that were never part of an approved subdivision. These parcels are defined as those too small to accommodate six dwelling/density units by their current zoning designation, or are less than ½ acre in total area.

Figure 1: Lot Yield Using Zoning Density.

In this example of an older subdivision zoned DR 5.5, the minimum lot area needed to accommodate one unit is 7920 SF. Applying a zoning density factor to the vacant parcels yields 7 additional lots.



Baltimore County has many older subdivisions containing lots that are 20, 25, 40, or 50 feet in width. Today, many infill opportunities exist where the lots were never developed. Figures 1 and 2 below demonstrate the difference in lot yield when the calculations are based on zoning density (Figure 1) and on the Small Lot Table (Figure 2). The Small Lot Table Yield in this example is almost double.

The county database containing the date of when a subdivision was recorded was not initiated until the late 1980s, so there is no easy way to determine which subdivisions were developed in the 1945-1970 period or earlier. However, with ArcGIS, it is possible to identify smaller lots that are likely to be eligible for development by using the Small Lot Table.

A separate calculation was made for the parcels that are smaller in area than the minimum required by zoning density. The Small Lot Table minimum lot size was used to calculate lot yield in

a test of the model. It was found that this approach did not account for many vacant lots in single family detached subdivisions originally built before 1970 that still had potential for housing units. The minimum lot size was reduced by 10% in DR 1 though DR 5.5 zones to better estimate this potential yield.

Zoning merger doctrine: When adjacent parcels are in the same ownership, it may be determined that they have been merged into one lot. For lots in older subdivisions, this means the lots would have to be resubdivided to accommodate any additional units, and then the current zoning regulations would apply.

Adjacent lots under the same ownership are deemed to be merged into one lot when there is evidence of intent to merge by the owner. Determining whether small lots have been merged must be done on a case by case basis. It cannot be assumed that they are merged because they have common ownership or

Figure 2: Lot Yield Using Small Lot Table.

By comparison with Figure 1, the lot yield using the Small Lot Table is 15 lots. A minimum of two existing lots are needed to meet minimum lot area of 6000 SF.

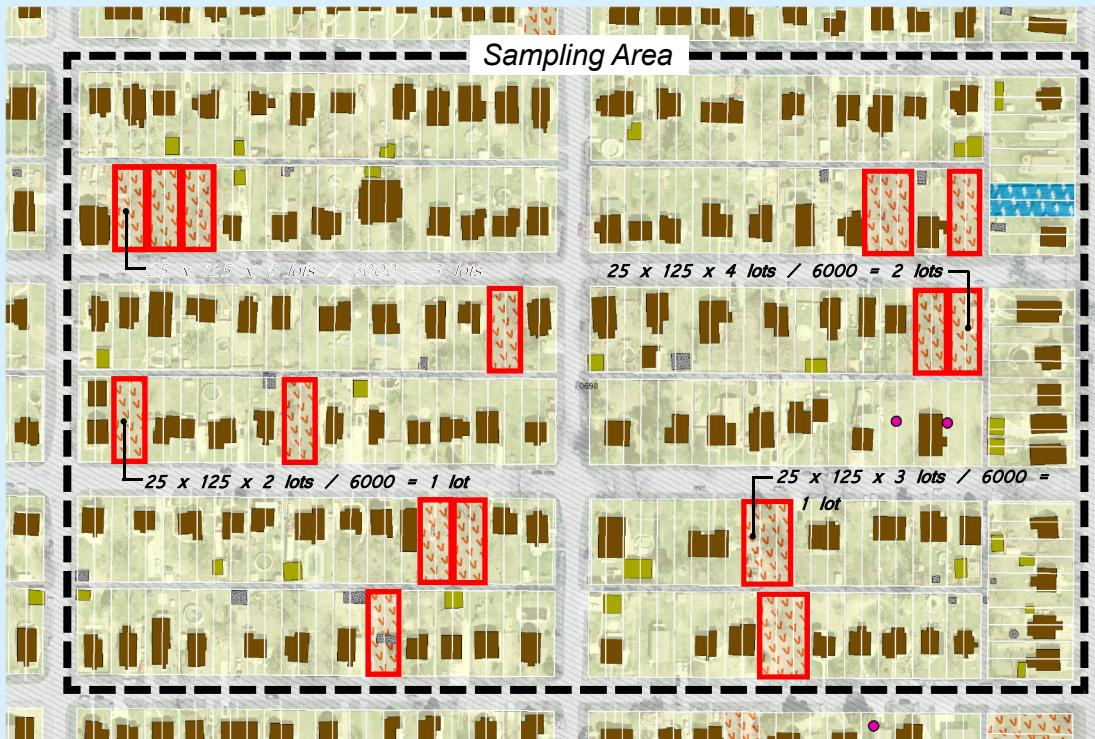


Figure 3: Effect of Zoning Merger Doctrine

Using the same sample area, when the zoning merger doctrine is applied, the resulting lot yield is 12, reducing the total yield by 3 lots from the the yield produced by the Small Lot Table in the previous example.



the same tax account number. Generally, if an adjacent lot has accessory improvements which are visible in an aerial photo, the two lots would be considered to have merged.

An example of the effect of the zoning merger doctrine is shown in Figure 3. When considering the ownership patterns and the presence of accessory structures, the number of potential dwelling units was reduced by a small amount.

Another factor to consider is the effect of the zoning merger doctrine over time. It is possible that an owner could remove accessory structures from an adjoining lot and years later build a second dwelling under the Small Lot Table regulations. Individual parcels could also be sold and no longer in common ownership.

Since the effect of the zoning merger doctrine does not appear to be significant, particularly over a long

period of time, a calculation to determine its impact was not included in the model. In addition, unless accessory structures occupied a significant portion of a lot, it was coded as vacant to allow it to be considered as having potential for an additional dwelling unit.

Lot Line Adjustments: Consideration was given to the ability for property owners to create buildable lots through a lot line adjustment. Using this process, lot lines can be moved or meandered so that each resulting lot configuration meets the zoning setbacks or Small Lot Table requirements. Some panhandle lots are created in this manner. During the coding of existing land use, small adjacent parcels that appeared to have potential for additional units by this means were coded vacant. This included parcels that were land-locked, or had a configuration that would make them difficult to develop without adjusting adjacent lot lines.

For the purposes of this study, a liberal interpretation was used in the coding of vacant parcels in existing subdivisions to produce a high estimate of infill potential. To obtain the moderate, mid-range estimate, the high estimate was divided by two, the average of high estimate and the lowest possible estimate for any particular parcel--zero.

Parcel Assemblage: When adjacent parcels are combined into one development project, and their acreages are combined, the resulting potential number of units can be greater than what would be permitted if each parcel is considered separately.

Parcel assembly is necessary to achieve additional units when the individual lots are too small to accommodate them on their own. Where adjacent parcels can accommodate units individually, however, it was determined in the test analysis that assembling them produced few if any additional units.

Parcel assembly was performed only for undersized lots (lots in older subdivisions able to use the Small Lot Table), and substandard lots (small parcels not included in a subdivision).

Environmental Factors: Environmental regulations frequently restrict the potential number of units. Use of the historical density factor generally accounts for impact of environmental factors that will affect parcel development. However, as the number of vacant parcels diminishes, the likelihood that the remaining ones will be significantly constrained increases, beyond what the historical density factor can account for.

Comparison of a 100-foot stream buffer to the forest conservation easement for developed parcels showed that they generally coincided, so the buffer appeared to be a good indicator of unbuildable areas within parcels. Because some parcels are completely covered by stream buffers, and others are only slightly impacted, an average was generated by using a 50% coverage factor. If a parcel was found to be covered by a stream buffer by more than 50%, its potential units were subtracted from the total number.

Slope factors were also considered. There have been many developments in recent years on parcels exhibiting severe slope constraints. The ability to use retaining walls, and to cluster development on the less steep areas makes it difficult to use a slope factor as an environmental constraint. In a test run of the model, it was observed that many of the underdeveloped parcels contained steep slopes. This led to a higher estimate than would seem realistic, especially since most of these underdeveloped parcels occurred in subdivisions where slope had likely been previously considered. Therefore, in this analysis, a steep slope factor was only applied to underdeveloped parcels. If these parcels contained slopes of 25% or more over more than 50% of their area, the number of potential units for the entire parcel were subtracted from the total.

Vesting: Development projects that are in the process of being approved by the county, or have been approved but have not yet been constructed, are considered to be “in the pipeline.” The county tracks pipeline projects so estimates of units to be constructed in the near future can be determined.

There are, however, a fairly substantial number of properties for which plans have been approved but the units were never built. The county has laws that govern how long an approved plan can remain valid. Approved minor subdivision plans never expire. The law regarding major subdivision plans and non-residential plans is less straightforward. In general, an approved plan, record plat, or permit will expire in four to eight years, unless substantial construction has occurred or an extension granted. Properties with permits approved prior to March 17, 2006, may be considered to be vested, even without evidence of substantial construction.

Determining whether the approval for development has expired must be done on a case-by-case basis, and it can be a difficult task, open to legal interpretation.

For the purposes of this study, it is assumed that if a property has not been developed in the last ten years, there is not a great likelihood it will be developed according to its plan. Therefore, these

properties are coded as vacant, rather than pipeline, and considered to have future development potential.

Residential development on non-residentially-zoned and RAE-zoned land: Some of the county's non-residential zoning classifications allow residential development, including Business zones and Office zones. It is not common for Business zones to be developed residentially. It has been more common for OR-1 and OR-2 Office-Residential zones. There are very few vacant parcels remaining with OR and RAE zones, which is a high-rise mixed use zone. Some of these zones have not been developed in the past 10 years, and so no historical density factor can be calculated.

The residential development capacity for RAE zones and non-residential zones was not calculated. Residential development of these zones would likely be similar to mixed use redevelopment by the Planned Unit Development process, which is discussed later in this study.

Residential development on agricultural land: A few areas in the urban part of the county are zoned for urban residential development, but currently used for agriculture. Many of these parcels occur in growth areas that have not yet been built out.

Agricultural parcels were identified and their future development potential for residential units was considered in the model along with vacant parcels.

Other factors: Several other factors have significant impact on the future potential of residential development that is not related to zoning. These include alternative development processes, in particular the Planned Unit Development Process, and the emergence of redevelopment which, when coupled with the PUD process, is producing residential units at a greater density. A discussion of these factors follows the zoning analysis.



THE MODEL--STEP BY STEP

The development capacity analysis was performed in a series of steps. The first step was a major undertaking--recording the existing land use of each parcel in Baltimore County in a GIS database. The remaining steps comprise the actual calculations performed to determine the residential development estimates. At each of these steps, the results of the calculations are reported, so that the effect of the various factors taken into account can be seen.

STEP 1. CODE EXISTING LAND USE

Each land parcel in Baltimore County was coded using the land use categories shown in Figure 4. The coding was based on available information contained in the County's Geographic Information System, including cadastral layer (property boundaries with tax parcel information), buildings classification data, and aerial photos. Community planners, who have personal knowledge of the land uses in the areas they are assigned, checked the coding for accuracy.

For simplicity, where there was more than one land use on a parcel, and it did not belong in one of the mixed use categories, the parcel was coded using the predominant use (covering more than 50% of the parcel).

Any parcel that did not contain a principal building was examined to determine whether it should be considered vacant. For non-residential parcels, if a parcel contained uses that were accessory to an adjoining parcel (such as a parking lot or garage), its land use was coded the same as the adjoining parcel. Residential parcels received a higher level of scrutiny in their coding. As mentioned previously, in order to obtain the highest estimate of development potential, a parcel with residential accessory structures was coded as vacant if it appeared large enough to accommodate a dwelling, and if its development would be consistent with the pattern of the neighborhood.

Figure 4: Land Use Codes

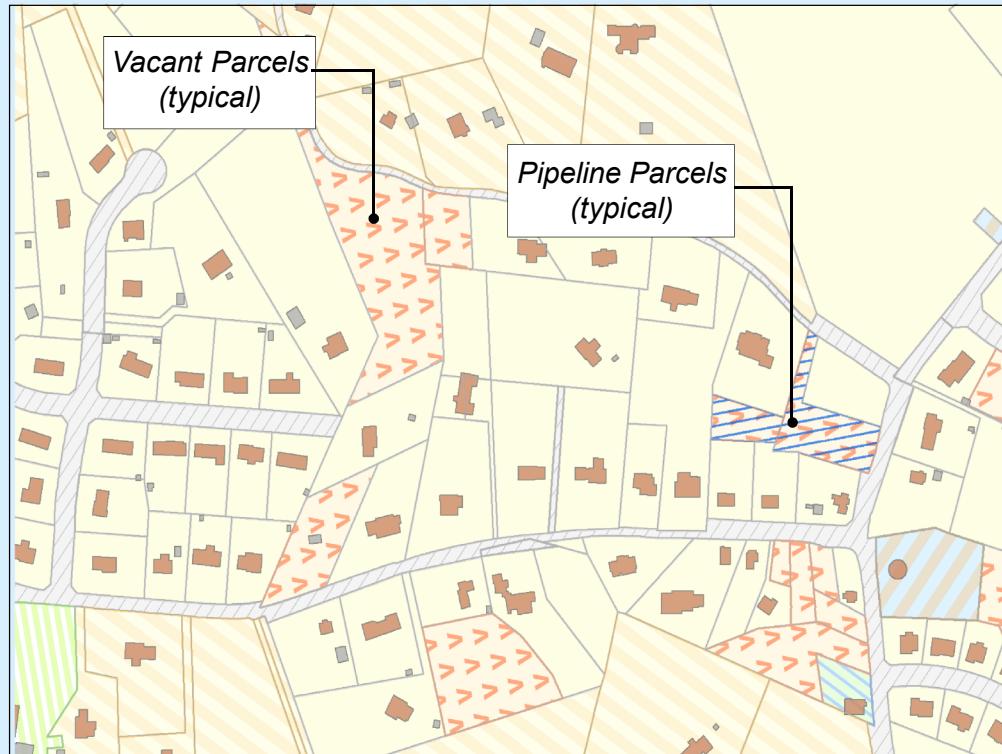


If a vacant parcel was too small or narrow to accommodate a dwelling but was in the same ownership as an adjoining parcel with a principal building, the parcel was coded the same as the adjoining parcel.

Some parcels were coded “Unbuildable” when it was known that they are extremely environmentally constrained or if its shape would not accommodate a dwelling (e.g., long, narrow parcels). If a parcel was part of a current development project, it was coded as “Pipeline.” If a parcel had been the subject of a development proposal formally submitted to the county, but it had been more than ten years since any activity had taken place, the parcel was coded “Vacant.” (See Appendix B, page 46 for a detailed description of the land use categories.)

Figure 5.1

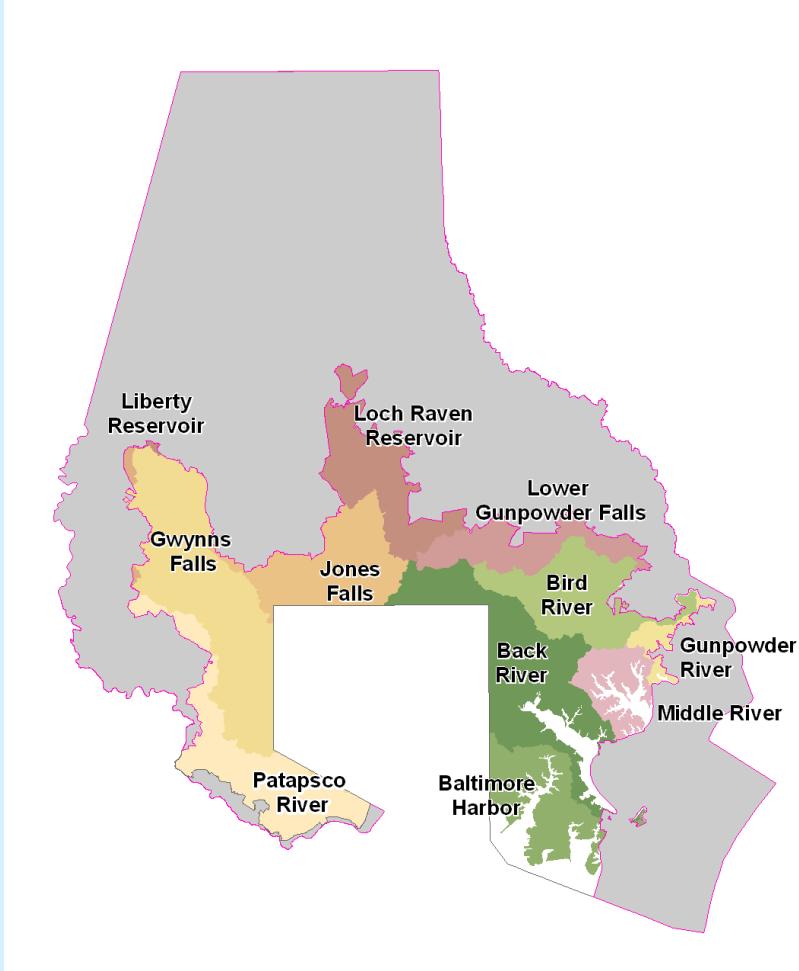
*Step One:
Identify Existing
Land Use.*



STEP 2. CREATE SUB- AREAS BASED ON WATER QUALITY PLANNING AREAS

Recent legislation requires Baltimore County to tie its land use to the water resources element. Watersheds were used in the water resources element to calculate pollutant loadings on the county's streams and the Chesapeake Bay. So that development capacity could be related to the water resources element, the county's urban area was subdivided into its watershed regions, and the model was run for each watershed (called Water Quality Planning Areas) separately. The results were tallied to calculate a total range for the entire urban area of the county.

Figure 5.2



*Step 2:
Water Quality Planning Areas*

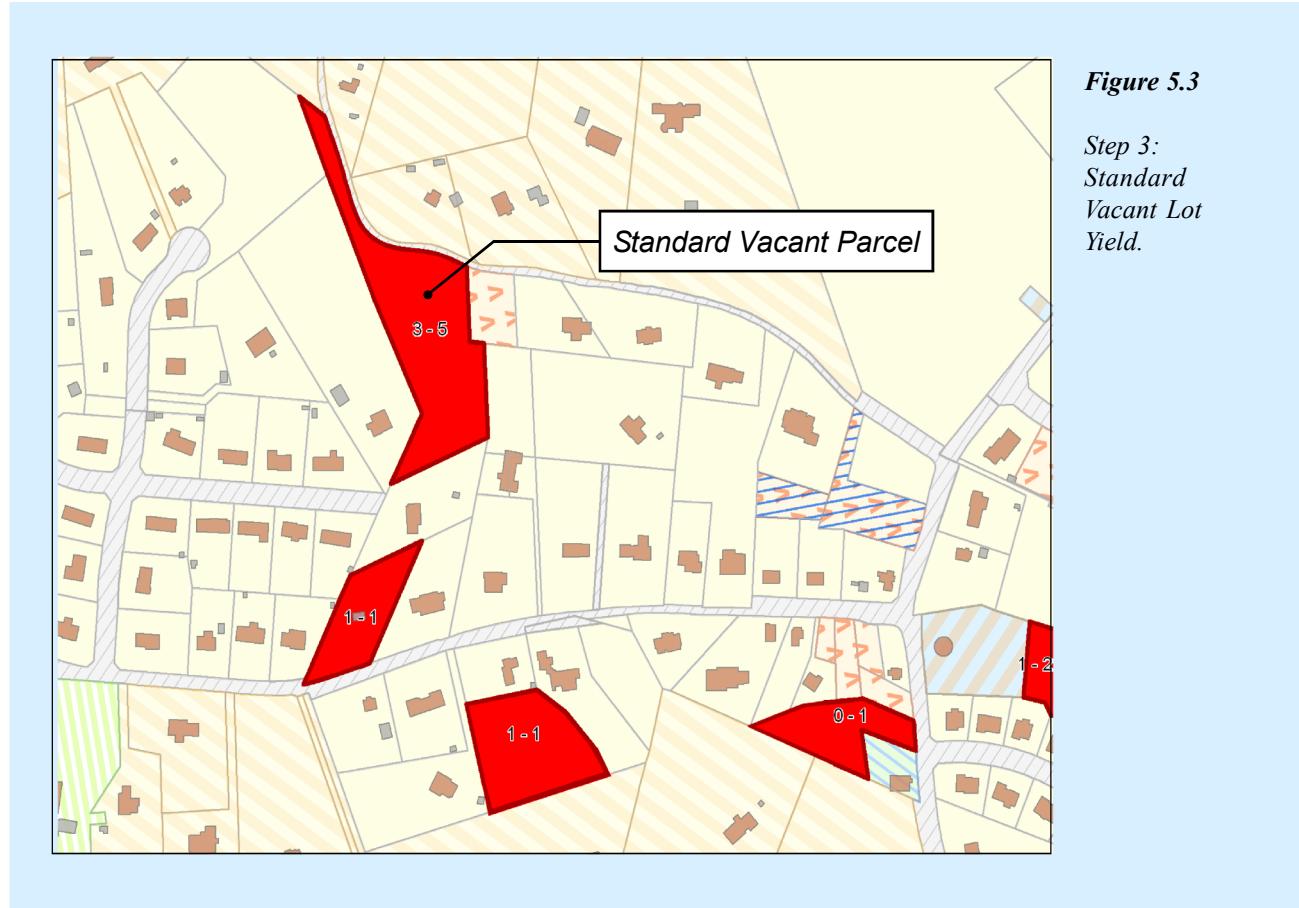


Figure 5.3

*Step 3:
Standard
Vacant Lot
Yield.*

STEP 3: IDENTIFY AND CALCULATE YIELD FOR STANDARD VACANT LOTS

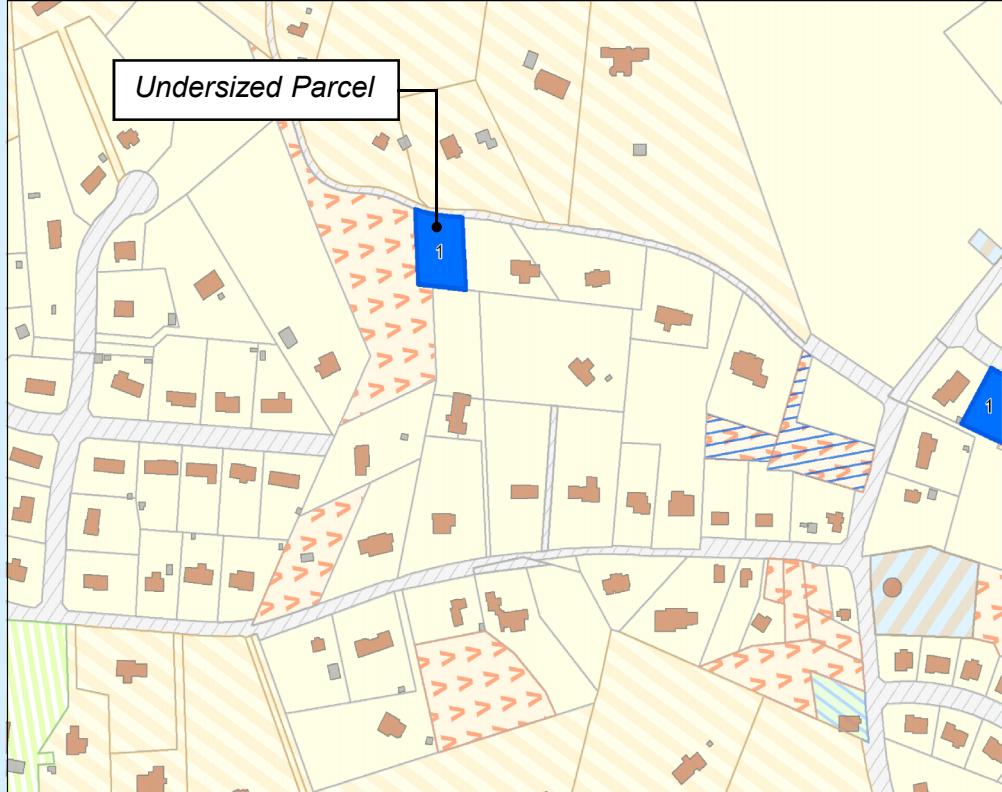
Three classes of vacant residential lots were created. The first class, Standard Vacant Lots, are of a size that could accommodate at least one dwelling by using the zoning density factor. For example, in DR 1, in which the zoning density allows one unit per acre, selected vacant lots have a minimum size of one acre. Two development capacity calculations

were performed to determine the potential number of dwelling units. First, the maximum number of potential dwellings units was calculated for each parcel by multiplying its area by the maximum density allowed by zoning. This number is given as the high estimate.

The calculation was repeated using the historical density factor. This number is given as the moderate estimate.

Figure 5.4

Step 4;
*Undersized Lots
capable of
yielding one
unit by using
the Small Lot
Table.*



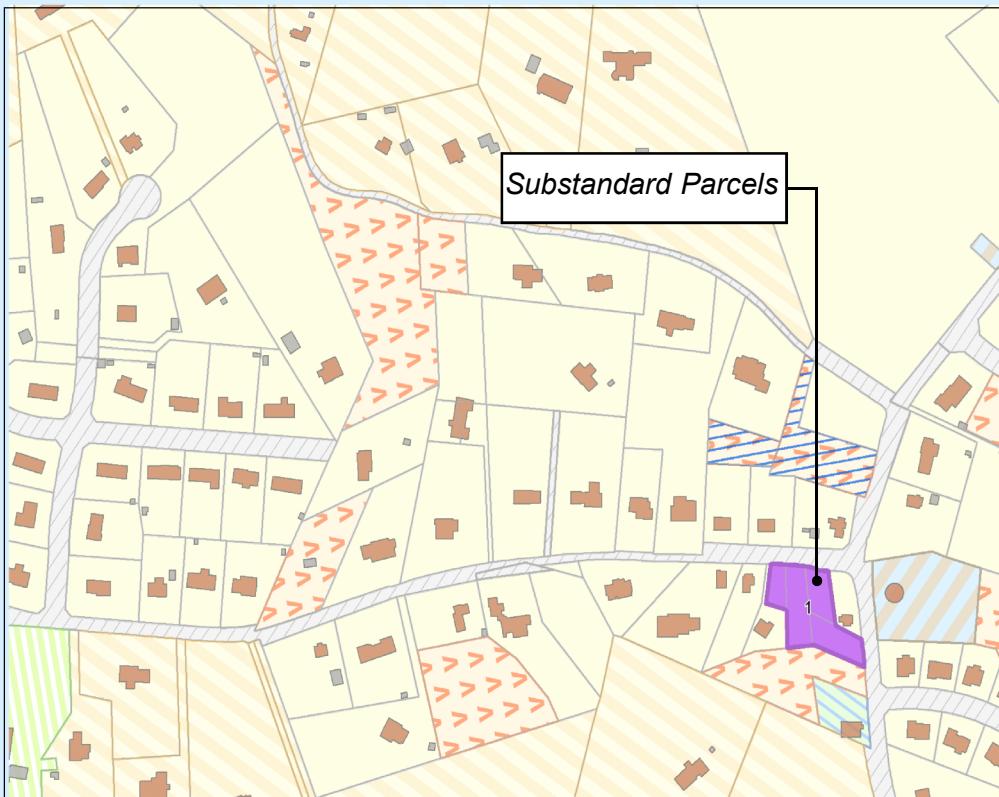
STEP 4. IDENTIFY AND CALCULATE YIELD FOR UNDERSIZED LOTS

The second class of lot sizes are those that were too small to accommodate a unit by zoning density, but large enough to accommodate one unit by using the Small Lot Table. In DR 1, for example, the Small Lot Table requires a minimum lot size of 6,000 s.f. Thus, for this zone, lots greater or equal to 6,000 s.f., but less than 43,560 s.f. (one acre) were selected.

The one unit count is the maximum that these lots can achieve and so is called the high estimate. Assuming that only 50% of these small parcels would be developed provides the moderate estimate.

Figure 5.5

*Step 5:
Substandard Lots
assembled with
yield calculated
using the Small
Lot Table.*



STEP 5. IDENTIFY AND CALCULATE YIELD FOR SUBSTANDARD LOTS

A calculation was performed for the third lot size class. These lots are those that are too small to accommodate a unit by using the Small Lot Table, but could accommodate units if adjacent parcels were combined. This is the only time parcels were assembled to produce potential residential units. Calculations were based on the Small Lot Table, and the number of units generated were considered to be the high estimate. The moderate estimate was derived by assuming that only 50% of these assembled substandard lots would actually be developed.

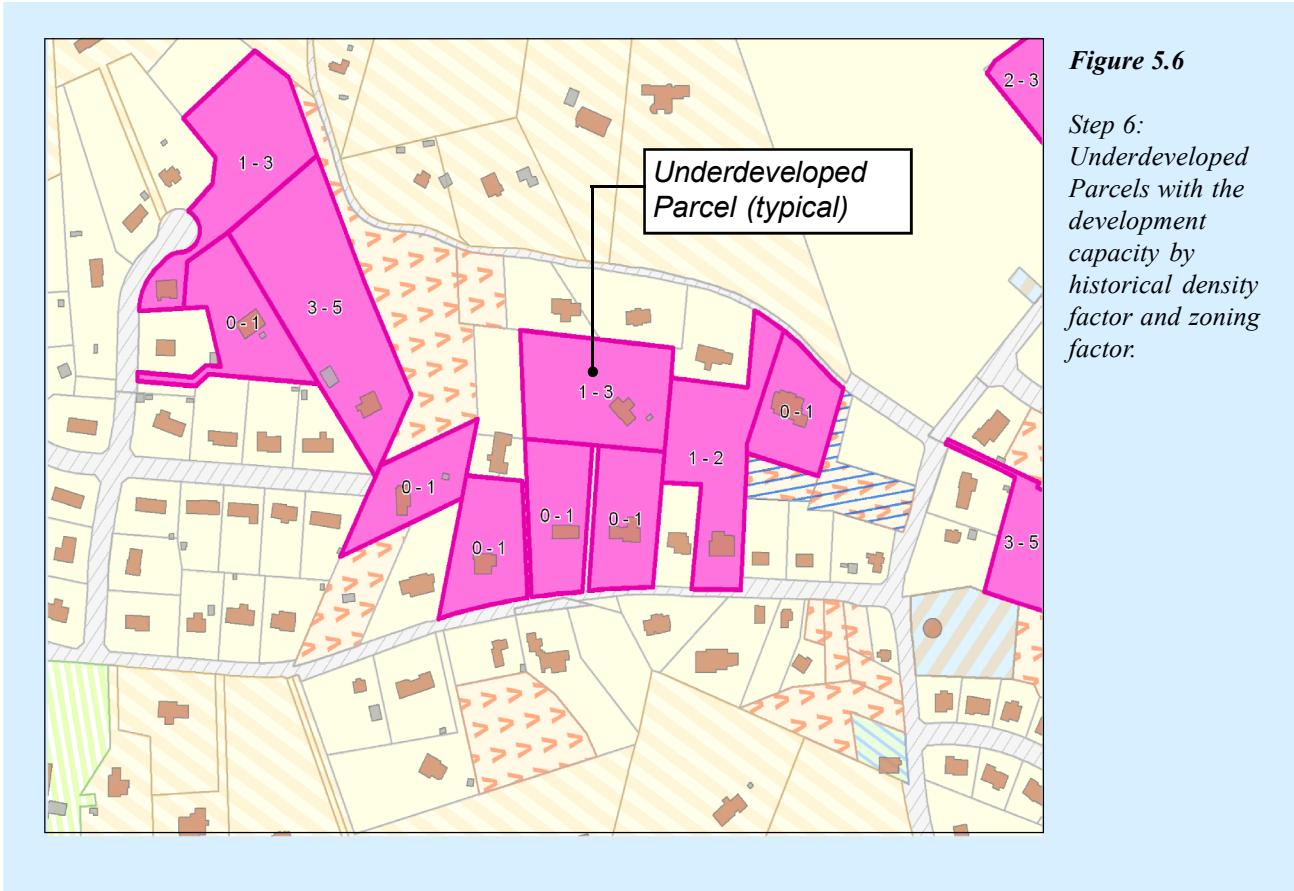


Figure 5.6

*Step 6:
Underdeveloped
Parcels with the
development
capacity by
historical density
factor and zoning
factor.*

STEP 6. YIELD FOR ADDITIONAL DEVELOPMENT ON UNDERDEVELOPED LAND

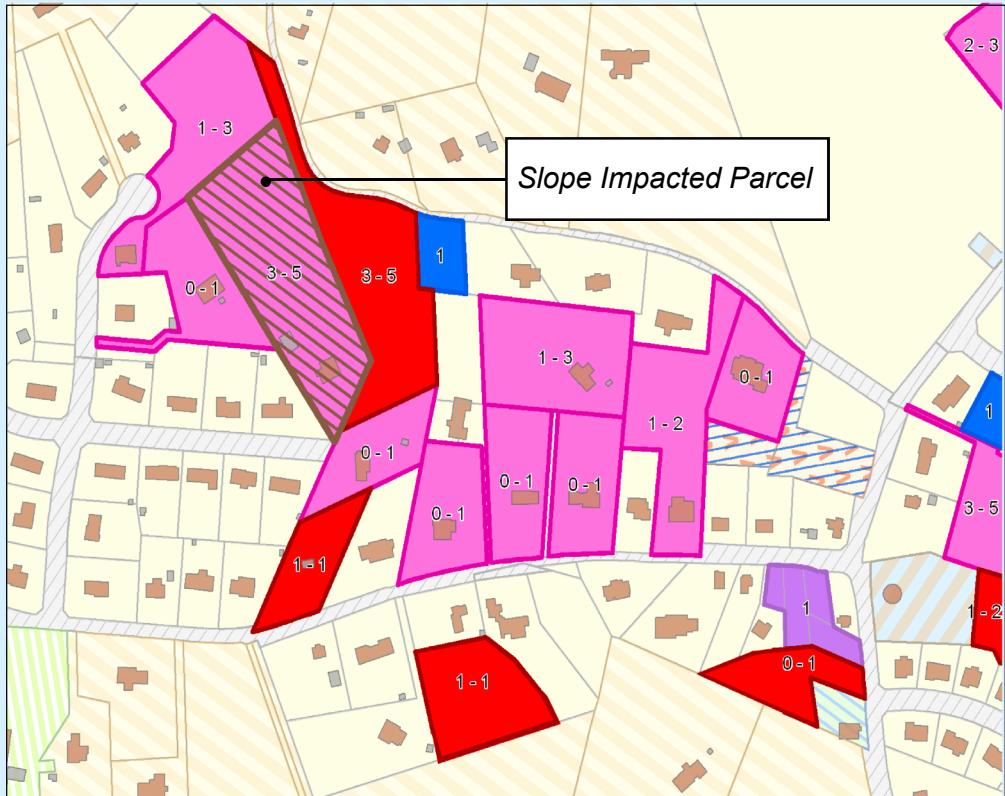
The next step in the analysis was to identify developed single family detached parcels that have spare capacity. These are parcels that may be subdivided to permit the construction of additional units. To determine the maximum potential number of additional units that could be accommodated, the area of each residential parcel containing a single family detached unit was multiplied by the zoning density factor, and the outcome was reduced by one. For simplicity, it was assumed that all parcels contained

only one existing dwelling. The result reflects the maximum potential for additional development on underdeveloped land. The calculations were repeated using the historical density factor to determine the moderate estimate.

For other types of residential units—semi-detached, attached and multifamily—it was assumed that the maximum development capacity was achieved at the time of development, and no further analysis was warranted.

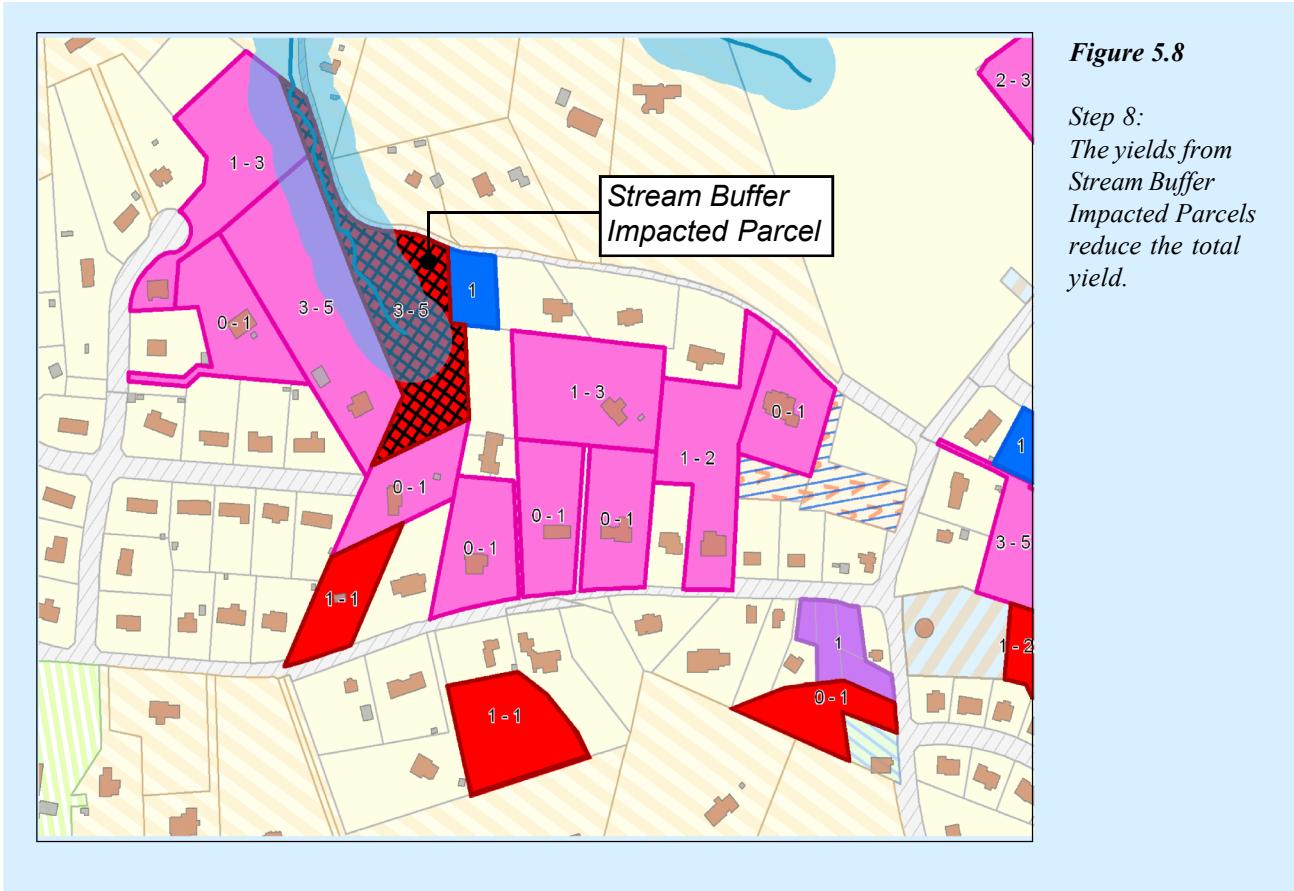
Figure 5.7

*Step 7:
The yields from
Slope Impacted,
Underdeveloped
Parcels reduce the
total yield.*



STEP 7. SLOPE IMPACTS ON UNDERDEVELOPED LAND

An analysis was performed to remove potential units where the underdeveloped parcels were severely impacted by steep slopes. Parcels that were characterized by slopes equal or greater than 25% covering more than 50% of its area were identified. If an underdeveloped parcel had been identified in the previous analyses as having development potential, those units were subtracted from the total.



STEP 8. STREAM BUFFER IMPACTS

An analysis was performed to remove potential units where the parcel was severely impacted by the presence of a stream. A stream buffer of 100' was used. Parcels where a stream buffer covered more than 50% of its area were identified. If the parcel had been identified in the previous analyses as having development potential, those units were subtracted from the total.

Example Test of the Model

An area was selected that demonstrates the complexities of how parcels can be subdivided under current zoning laws. A site design was prepared to illustrate how further subdivision could yield additional residential units. The site design example was then compared to the results of the model.

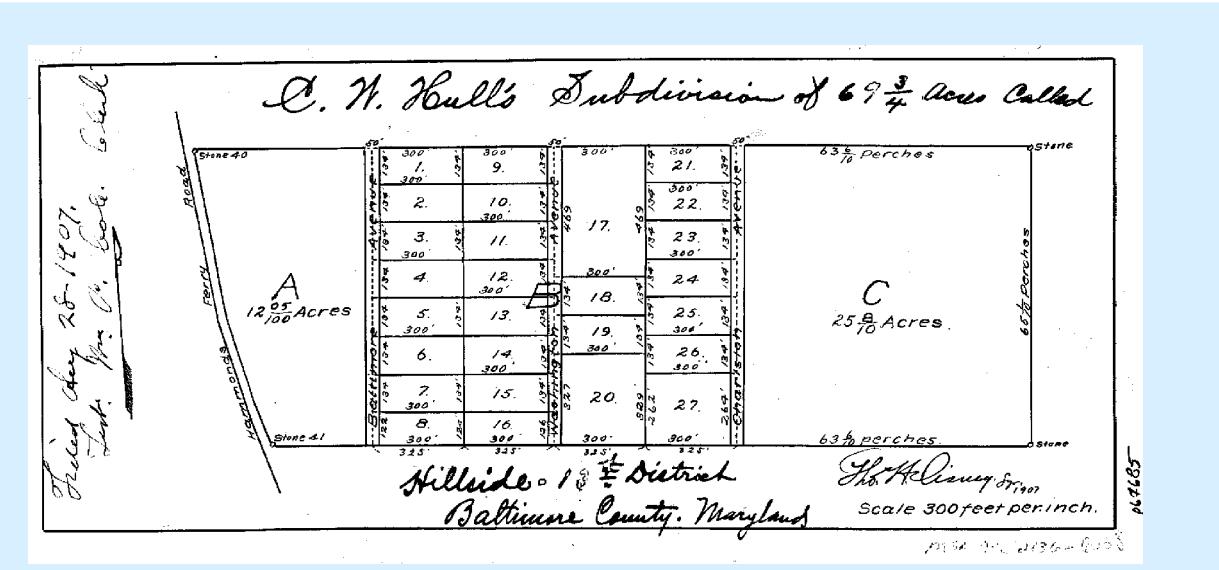
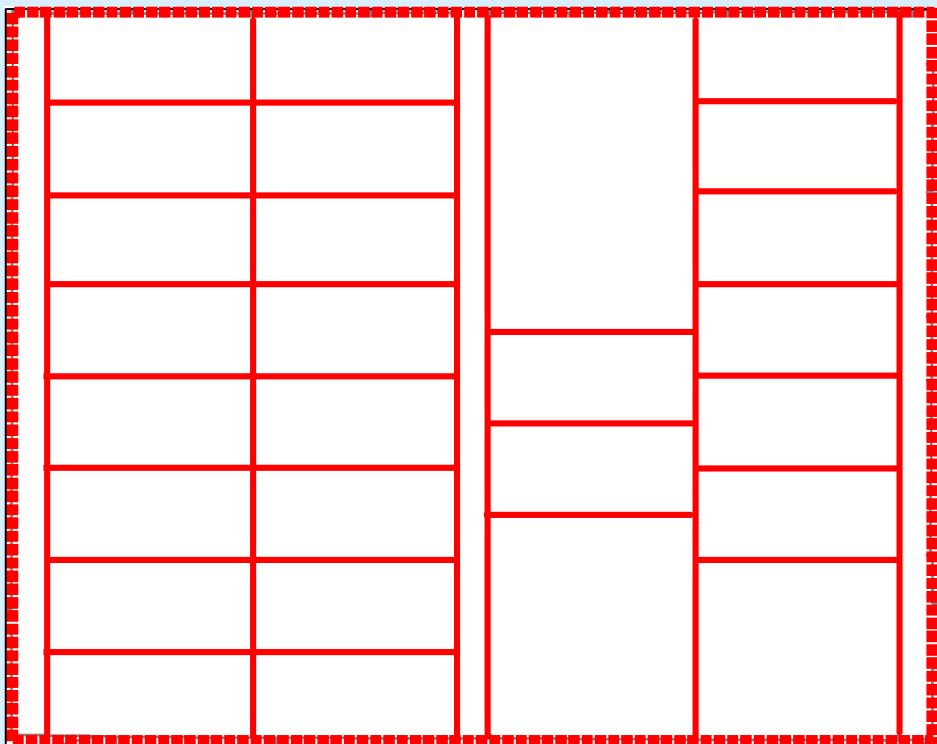
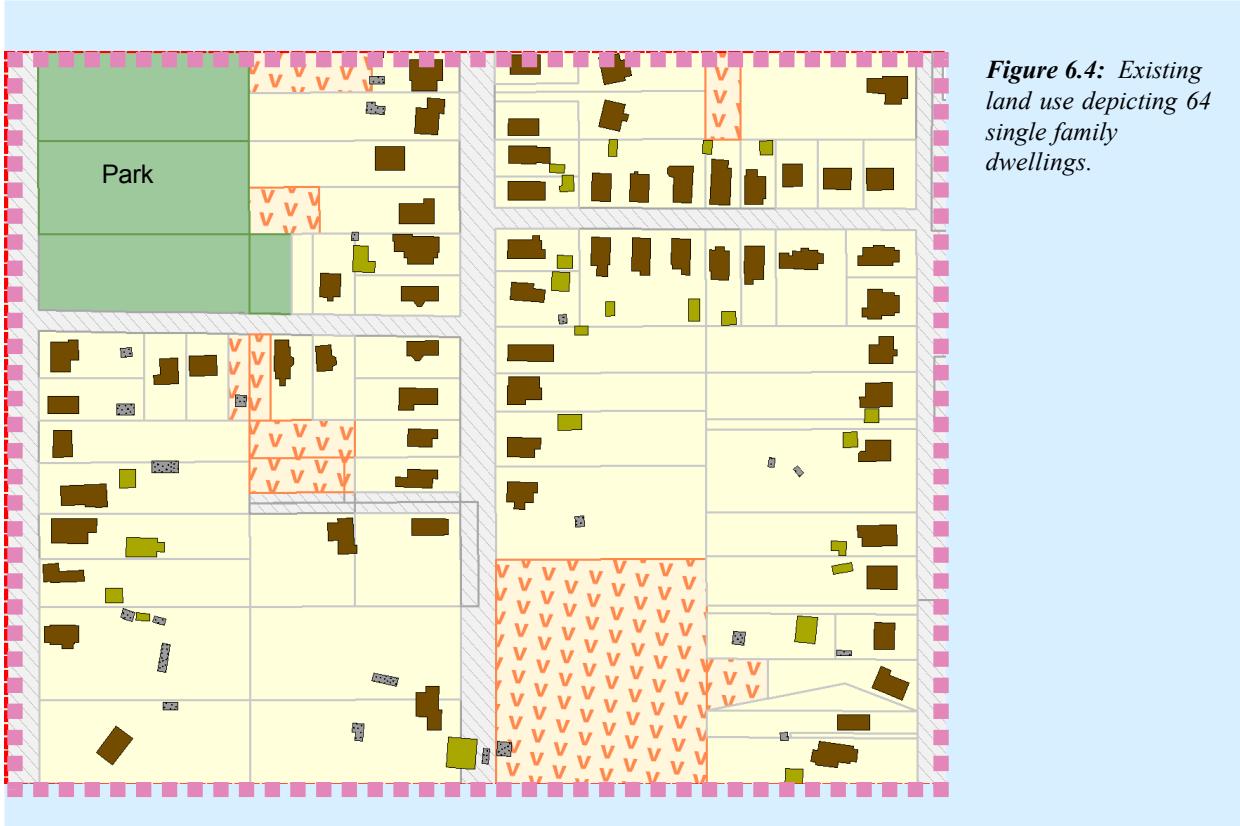
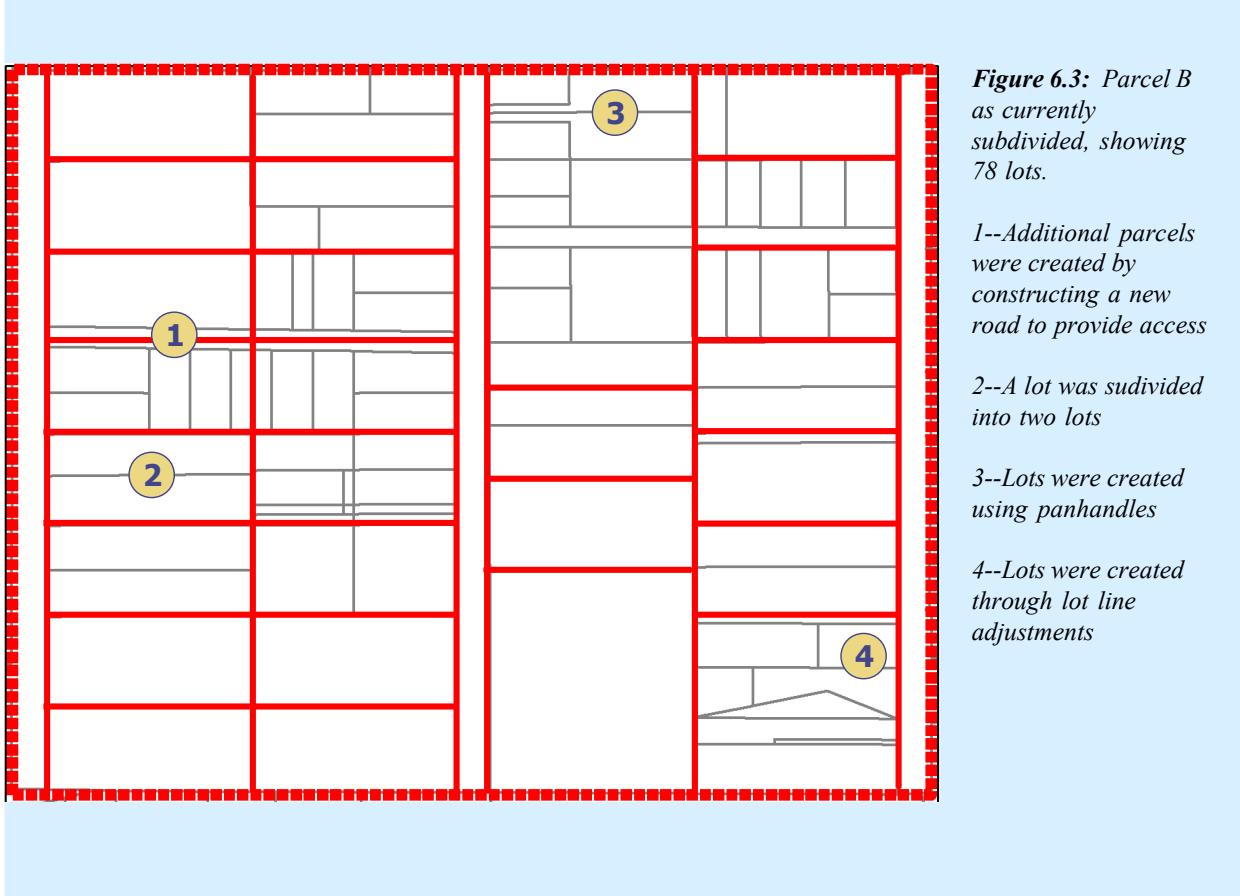


Figure 6.1: The original plat for Hillside in Lansdowne. The examples focuses on Parcel B.

Figure 6.2: Parcel B as originally subdivided, showing 27 lots.





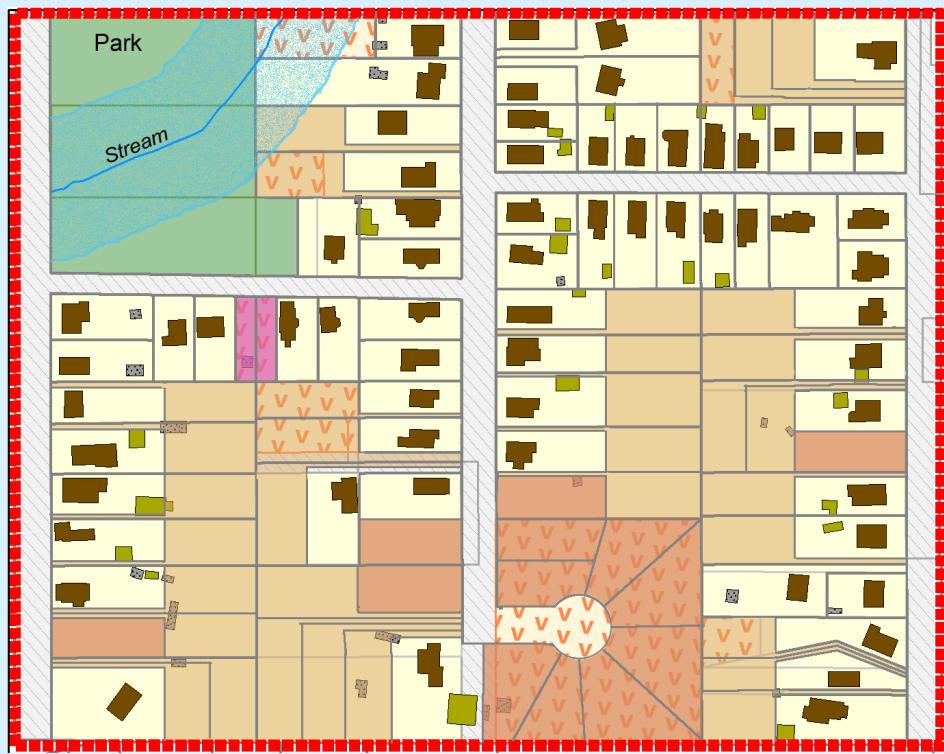
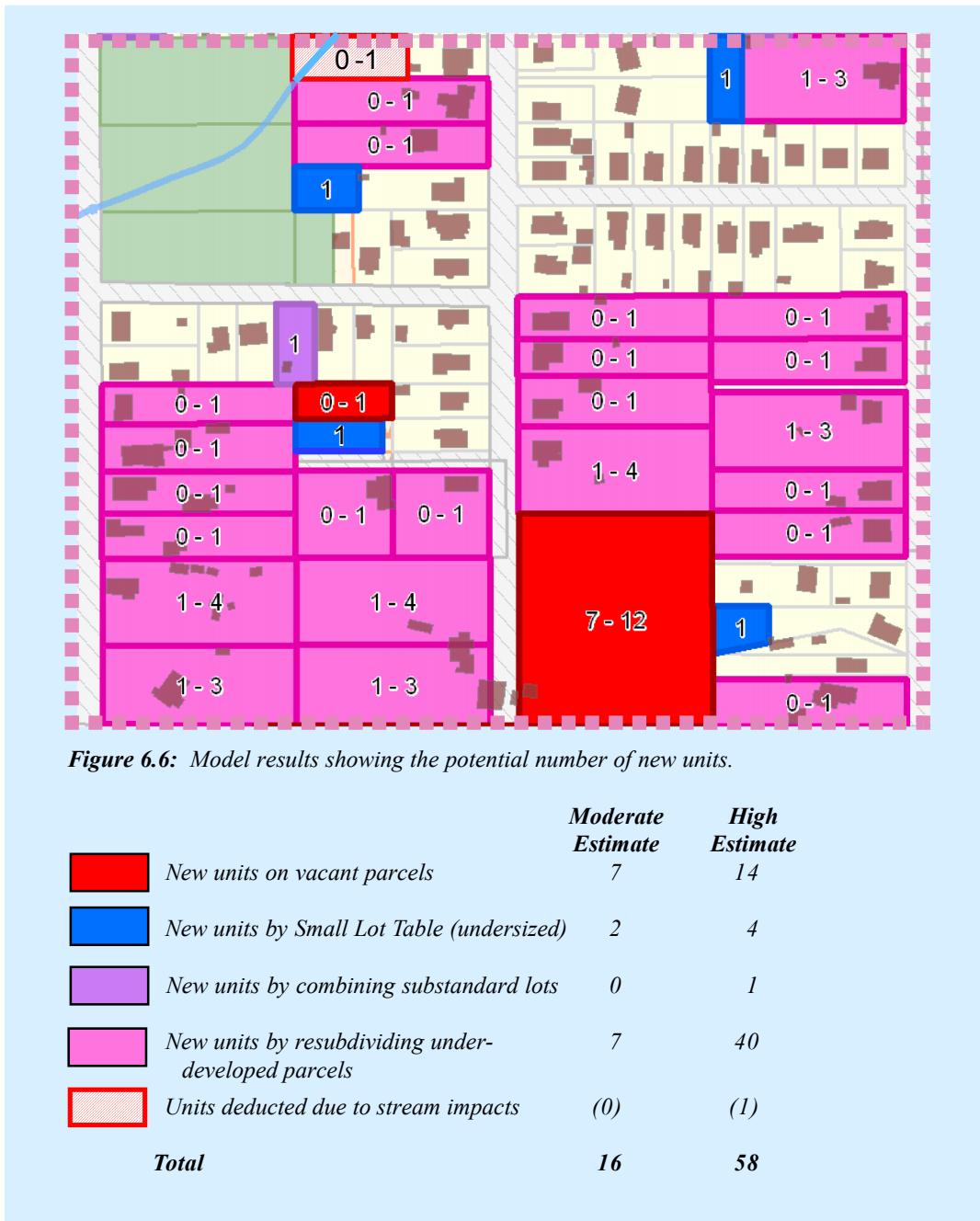


Figure 6.5: A site plan illustration how Parcel B could continue to be subdivided to produce 48 additional lots.

- [Orange Box] Potential lots by conventional subdivision = 13
- [Pink Box] Potential lots by combining substandard lots = 1
- [Yellow Box] Potential lots by panhandle on underdeveloped lots = 34



In this example, the site design illustrates that the tract can be further subdivided to produce a maximum of 48 additional units. The model accurately identified the parcels that had development potential, with the exception of one parcel that was created by a lot line adjustment. The model calculated a maximum of 58 additional residential units by zoning factor. While somewhat higher than the maximum shown by the site design illustration, it is an acceptable upper range. The moderate estimate of 16, however, is significantly below the potential demon-

strated by the site design, and is a very conservative appraisal of potential development capacity. The historical density factor does not adequately reflect the potential for resubdividing existing lots. In fact, the wide range between the high and moderate estimates is largely the result of new units derived from underdeveloped lots. It is highly unlikely that every identified underdeveloped lot will be resubdivided to achieve its maximum potential. Thus, the most realistic appraisal of development potential lies between these two estimates.

Model Results

The model was run in the summer of 2010. The results are provided on the following pages for the entire urban area of the county, followed by individual Water Quality Planning Areas.

An estimate of the number of units that are “in the pipeline” or for which plans have been submitted for approval to the county, but have not yet been built, is shown in Figure 13 on page 33.

From the totals, there are roughly between 13,000 and 30,000 potential residential units that can be constructed under the present zoning regulations, with an average of 21,500 units. An additional 10,000 units are currently in the pipeline for construction. It may be reasonable to say that the county can expect that a total of 31,500 residential units to be constructed in the future. With an average household size of 2.4 people, the future population capacity is 75,600. This is more than double the 30,000 increase in population expected by 2030.

Figure 7:

The rate of residential occupancy permits approved over the last ten years has been decreasing.

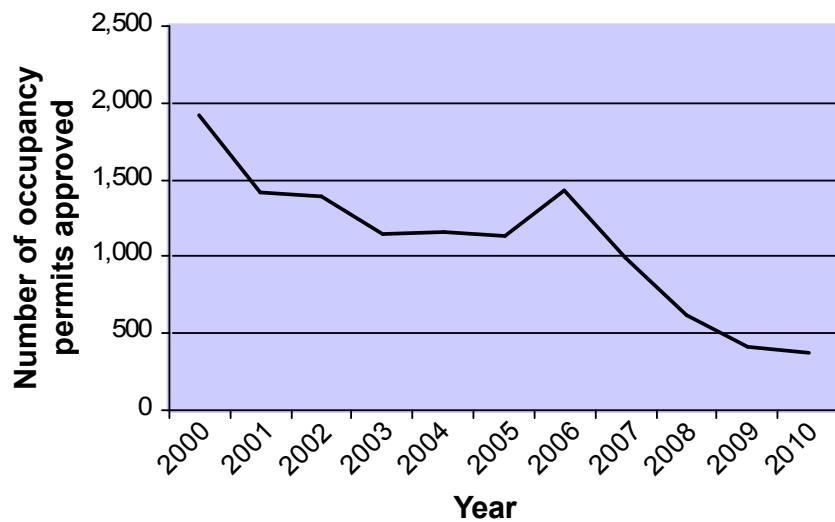


Figure 7 below shows the number and rate of new residential units that have been constructed in the county over the past 10 years. Since 2000, when there were nearly 2000 occupancy permits approved, the rate at which new residential permits have been approved has been steadily declining, with the exception of the period from 2004-2006, during the housing boom. In this period, the number of permits held steady, with a slight uptick in 2006. After 2006, the rate declines more steeply, reflecting the economic downturn.

A comparison between vacant parcels and underdeveloped parcels as depicted in Figure 8 shows that almost half of the potential units come from resubdividing underdeveloped parcels. In terms of land area, however, Figure 9 shows that underdeveloped parcels account for only about a third of the total acreage available for residential development.

In a comparison by parcel size, it was found that the size of the of vacant parcels ranged from less than a tenth of an acre to slightly more than 60 acres. The

Figure 8: Potential number of units by development type

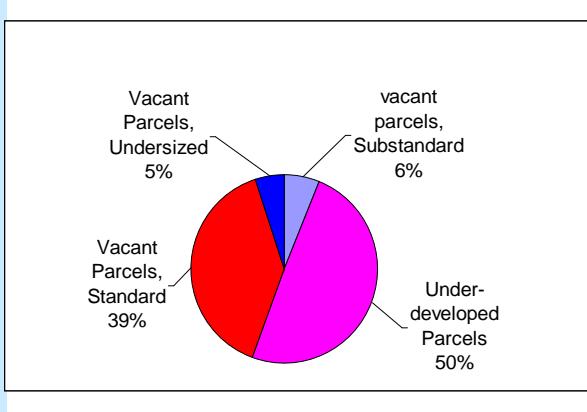


Figure 9: Potential number of units by land area

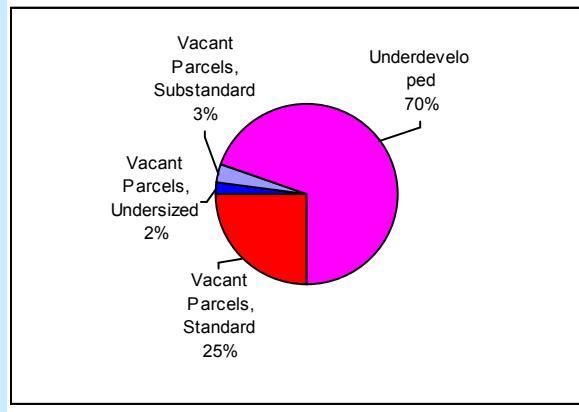


Figure 10: Number of parcels by parcel size--Vacant Parcels

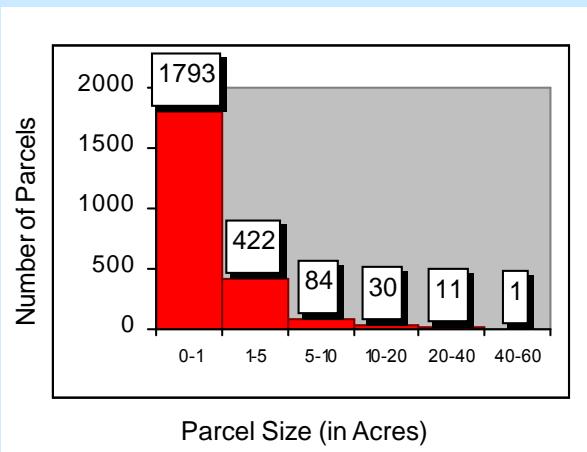
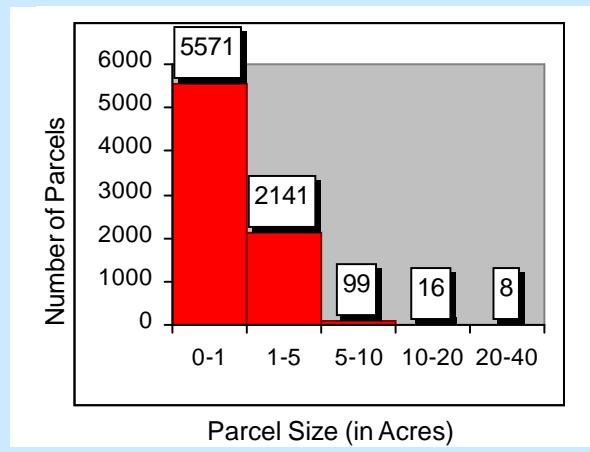


Figure 11: Number of parcels by parcel size--Underdeveloped Parcels



largest underdeveloped parcel is approximately 40 acres. Figures 10 and 11 show that most of the parcels with development capacity are less than one acre in size, and only a limited number of parcels are greater than 5 acres. The scarcity of large, developable parcels contributes to the sense that the county is “built-out.”

It must be kept in mind that the potential capacity figures are based on existing zoning and conventional development processes. However, zoning classifications and designations are not stagnant. Zoning

designations can change every four years. New zoning classifications can be created and existing ones can be modified.

Alternative development processes, in particular the Planned Unit Development process, have been, and will continue to be, a major factor in the development of residential units. The PUD process and its effect on the development, and more importantly, the redevelopment, of residential units is discussed in the following section, beginning on page 34.

Figure 12.1 Development Capacity Model Results

Urban County Total

TABLE 1: Total Development Capacity

09/15/10	Total Urban County			
	Acres	No. of Parcels	Moderate Estimate	High Estimate
Vacant Parcels, Standard	3253	2783	6124	12015
Vacant Parcels, Undersized	290	1400	700	1400
Vacant Parcels, Substandard	411	912	992	1984
Subtotal	3955	5095	7816	15399
Underdeveloped	8927	8485	7846	21937
Subtotal	12882	13580	15662	37336
Less Environmentally Impacted (see Table 2)	1412	1372	1859	4096
TOTAL	11470	12208	13804	33240

TABLE 2: Environmentally Impacted Parcels

09/15/10	Total Urban County			
	Acres	No. of Parcels	Moderate Estimate	High Estimate
Vacant Parcels, Standard, Stream	386	438	700	1453
Vacant Parcels, Undersized, Stream	35	172	86	172
Vacant Parcels, Substandard, Stream	70	112	171	341
Underdeveloped, Stream	662	534	775	1845
Underdeveloped, Slope	259	116	127	285
TOTAL ENVIRONMENTALLY IMPACTED	1412	1372	1859	4096

Figure 12.2: Development Capacity Model Results

Back River Watershed

TABLE 1: Total Development Capacity

Model Run 8/7/2010	Back River Watershed			
	Acres	No. of Parcels	Moderate Estimate	High Estimate
Vacant Parcels, Standard	536	711	1181	2598
Vacant Parcels, Undersized	67	399	200	399
Vacant Parcels, Substandard	80	200	227	453
Subtotal	683	1310	1607	3450
Underdeveloped	1347	1818	1601	4811
Subtotal	2030	3128	3208	8261
Less Environmentally Impacted (see Table 2)	239	344	478	1073
TOTAL	1791	2784	2730	7188

TABLE 2: Environmentally Impacted Parcels

Model Run 8/7/2010	Back River Watershed			
	Acres	No. of Parcels	Moderate Estimate	High Estimate
Vacant Parcels, Standard, Stream	79	110	189	394
Vacant Parcels, Undersized, Stream	10	62	31	62
Vacant Parcels, Substandard, Stream	15	33	39	78
Underdeveloped, Stream	132	135	216	529
Underdeveloped, Slope	3	4	3	10
TOTAL ENVIRONMENTALLY IMPACTED	239	344	478	1073

Figure 12.3: Development Capacity Model Results

Baltimore Harbor

Model Run 8/17/2010	Baltimore Harbor Watershed			
	Acres	No. of Parcels	Moderate Estimate	High Estimate
Vacant Parcels, Standard	86	241	136	406
Vacant Parcels, Undersized	23	146	73	146
Vacant Parcels, Substandard	21	82	60	120
Subtotal	131	469	269	672
Underdeveloped	276	450	273	969
Subtotal	407	919	542	1641
Less Environmentally Impacted (see Table 2)	8	20	8	25
TOTAL	399	899	535	1616

TABLE 2: Environmentally Impacted Parcels

Model Run 8/17/2010	Baltimore Harbor Watershed			
	Acres	No. of Parcels	Moderate Estimate	High Estimate
Vacant Parcels, Standard, Stream	2	5	3	7
Vacant Parcels, Undersized, Stream	1	4	2	4
Vacant Parcels, Substandard, Stream	0	1	1	1
Underdeveloped, Stream	5	10	2	13
Underdeveloped, Slope	0	0	0	0
TOTAL ENVIRONMENTALLY IMPACTED	8	20	8	25

Figure 12.4: Development Capacity Model Results

Bird River Watershed

TABLE 1: Total Development Capacity

Model Run 9/29/2010	Bird River Watershed			
	Acres	No. of Parcels	Moderate Estimate	High Estimate
Vacant Parcels, Standard	797	291	1702	2910
Vacant Parcels, Undersized	19	88	44	88
Vacant Parcels, Substandard	23	49	55	110
Subtotal	839	428	1801	3108
Underdeveloped	1103	1159	1157	3236
Subtotal	1942	1587	2958	6344
Less Environmentally Impacted (see Table 2)	175	133	271	537
TOTAL	1767	1454	2688	5807

TABLE 2: Environmentally Impacted Parcels

Model Run 9/29/2010	Bird River Watershed			
	Acres	No. of Parcels	Moderate Estimate	High Estimate
Vacant Parcels, Standard, Stream	74	43	126	211
Vacant Parcels, Undersized, Stream	0	3	2	3
Vacant Parcels, Substandard, Stream	5	7	9	18
Underdeveloped, Stream	96	80	134	305
Underdeveloped, Slope	0	0	0	0
TOTAL ENVIRONMENTALLY IMPACTED	175	133	271	537

**Figure 12.5: Development Capacity Model Results
Gunpowder River Watershed**

TABLE 1: Total Development Capacity

Model Run 9/29/2010	Gunpowder River Watershed			
	Acres	No. of Parcels	Moderate Estimate	High Estimate
Vacant Parcels, Standard	97	102	203	413
Vacant Parcels, Undersized	3	17	9	17
Vacant Parcels, Substandard	2	9	6	12
Subtotal	103	128	218	442
Underdeveloped	210	210	268	661
Subtotal	312	338	486	1103
Less Environmentally Impacted (see Table 2)	21	26	30	74
TOTAL	291	312	456	1029

TABLE 2: Environmentally Impacted Parcels

Model Run 8/17/2010	Gunpowder River Watershed			
	Acres	No. of Parcels	Moderate Estimate	High Estimate
Vacant Parcels, Standard, Stream	10	12	17	37
Vacant Parcels, Undersized, Stream	0	1	1	1
Vacant Parcels, Substandard, Stream	0	0	0	0
Underdeveloped, Stream	11	13	12	36
Underdeveloped, Slope	0	0	0	0
TOTAL ENVIRONMENTALLY IMPACTED	21	26	30	74

Figure 12.6: Development Capacity Model Results

Gwynns Falls Watershed

TABLE 1: Total Development Capacity

Model Run 8/17/2010	Gwynns Falls Watershed			
	Acres	No. of Parcels	Moderate Estimate	High Estimate
Vacant Parcels, Standard	338	396	860	1871
Vacant Parcels, Undersized	40	218	109	218
Vacant Parcels, Substandard	88	205	236	472
Subtotal	465	819	1205	2561
Underdeveloped	1301	1456	1144	3611
Subtotal	1766	2275	2349	6172
Less Environmentally Impacted (see Table 2)	150	182	300	672
TOTAL	1616	2093	2049	5500

TABLE 2: Environmentally Impacted Parcels

Model Run 8/17/2010	Gwynns Falls Watershed			
	Acres	No. of Parcels	Moderate Estimate	High Estimate
Vacant Parcels, Standard, Stream	51	57	142	301
Vacant Parcels, Undersized, Stream	4	25	13	25
Vacant Parcels, Substandard, Stream	9	22	26	51
Underdeveloped, Stream	84	73	118	287
Underdeveloped, Slope	3	5	2	8
TOTAL ENVIRONMENTALLY IMPACTED	150	182	300	672

Figure 12.7: Development Capacity Model Results

Jones Falls Watershed

TABLE 1: Total Development Capacity

Model Run 8/26/2010	Jones Falls Watershed			
	Acres	No. of Parcels	Moderate Estimate	High Estimate
Vacant Parcels, Standard	320	182	291	533
Vacant Parcels, Undersized	41	137	69	137
Vacant Parcels, Substandard	21	38	24	47
Subtotal	383	357	383	717
Underdeveloped	1357	714	648	1566
Subtotal	1740	1071	1031	2283
Less Environmentally Impacted (see Table 2)	257	158	162	338
TOTAL	1483	913	869	1945

TABLE 2: Environmentally Impacted Parcels

Model Run 8/26/2010	Jones Falls Watershed			
	Acres	No. of Parcels	Moderate Estimate	High Estimate
Vacant Parcels, Standard, Stream	24	24	19	39
Vacant Parcels, Undersized, Stream	7	31	16	31
Vacant Parcels, Substandard, Stream	2	2	2	3
Underdeveloped, Stream	126	68	82	179
Underdeveloped, Slope	99	33	44	86
TOTAL ENVIRONMENTALLY IMPACTED	257	158	162	338

Figure 12.7: Development Capacity Model Results

Liberty Reservoir Watershed

TABLE 1: Total Development Capacity

Model Run 8/25/2010	Liberty Reservoir Watershed			
	Acres	No. of Parcels	Moderate Estimate	High Estimate
Vacant Parcels, Standard	6	5	4	10
Vacant Parcels, Undersized	1	3	2	3
Vacant Parcels, Substandard	2	2	1	2
Subtotal	8	10	7	15
Underdeveloped	45	38	36	94
Subtotal	54	48	43	109
Less Environmentally Impacted (see Table 2)	1	1	1	3
TOTAL	53	47	42	106

TABLE 2: Environmentally Impacted Parcels

Model Run 8/25/2010	Liberty Reservoir Watershed			
	Acres	No. of Parcels	Moderate Estimate	High Estimate
Vacant Parcels, Standard, Stream	0	0	0	0
Vacant Parcels, Undersized, Stream	0	0	0	0
Vacant Parcels, Substandard, Stream	0	0	0	0
Underdeveloped, Stream	1	1	1	3
Underdeveloped, Slope	0	0	0	0
TOTAL ENVIRONMENTALLY IMPACTED	1	1	1	3

Figure 12.8: Development Capacity Model Results
Loch Raven Reservoir Watershed

TABLE 1: Total Development Capacity

	Loch Raven Reservoir Watershed			
	Acres	No. of Parcels	Moderate Estimate	High Estimate
Model Run 8/26/2010				
Vacant Parcels, Standard	162	75	185	307
Vacant Parcels, Undersized	14	32	16	32
Vacant Parcels, Substandard	30	46	45	89
Subtotal	206	153	246	428
Underdeveloped	765	434	409	1021
Subtotal	971	587	655	1449
Less Environmentally Impacted (see Table 2)	151	85	99	218
TOTAL	820	502	556	1231

TABLE 2: Environmentally Impacted Parcels

	Loch Raven Reservoir Watershed			
	Acres	No. of Parcels	Moderate Estimate	High Estimate
Model Run 8/26/2010				
Vacant Parcels, Standard, Stream	32	14	25	40
Vacant Parcels, Undersized, Stream	4	6	3	6
Vacant Parcels, Substandard, Stream	2	2	4	8
Underdeveloped, Stream	44	32	32	87
Underdeveloped, Slope	69	31	35	77
TOTAL ENVIRONMENTALLY IMPACTED	151	85	99	218

Figure 12.9: Development Capacity Model Results

Lower Gunpowder Falls Watershed

TABLE 1: Total Development Capacity

Model Run 8/20/2010	Lower Gunpowder Falls Watershed			
	Acres	No. of Parcels	Moderate Estimate	High Estimate
Vacant Parcels, Standard	359	153	576	937
Vacant Parcels, Undersized	13	42	21	42
Vacant Parcels, Substandard	20	22	51	101
Subtotal	391	217	648	1080
Underdeveloped	969	746	758	1838
Subtotal	1361	963	1406	2918
Less Environmentally Impacted (see Table 2)	166	114	176	365
TOTAL	1195	849	1230	2553

TABLE 2: Environmentally Impacted Parcels

Model Run 8/20/2010	Lower Gunpowder Falls Watershed			
	Acres	No. of Parcels	Moderate Estimate	High Estimate
Vacant Parcels, Standard, Stream	40	33	57	102
Vacant Parcels, Undersized, Stream	1	3	2	3
Vacant Parcels, Substandard, Stream	11	8	31	61
Underdeveloped, Stream	69	46	68	148
Underdeveloped, Slope	46	24	19	51
TOTAL ENVIRONMENTALLY IMPACTED	166	114	176	365

**Figure 12.10: Development Capacity Model Results
Middle River Watershed**

TABLE 1: Total Development Capacity

Model Run 8/20/2010	Middle River Watershed			
	Acres	No. of Parcels	Moderate Estimate	High Estimate
Vacant Parcels, Standard	263	252	489	981
Vacant Parcels, Undersized	32	143	72	143
Vacant Parcels, Substandard	38	55	72	144
Subtotal	332	450	633	1268
Underdeveloped	569	562	620	1723
Subtotal	901	1012	1253	2991
Less Environmentally Impacted (see Table 2)	36	64	74	189
TOTAL	865	948	1179	2802

TABLE 2: Environmentally Impacted Parcels

Model Run 8/20/2010	Middle River Watershed			
	Acres	No. of Parcels	Moderate Estimate	High Estimate
Vacant Parcels, Standard, Stream	11	20	31	89
Vacant Parcels, Undersized, Stream	4	22	11	22
Vacant Parcels, Substandard, Stream	4	6	7	13
Underdeveloped, Stream	17	16	25	65
Underdeveloped, Slope	0	0	0	0
TOTAL ENVIRONMENTALLY IMPACTED	36	64	74	189

Figure 12.11: Development Capacity Model Results

Patapsco River Watershed

TABLE 1: Total Development Capacity

Model Run 8/23/2010	Patapsco River Watershed			
	Acres	No. of Parcels	Moderate Estimate	High Estimate
Vacant Parcels, Standard	290	375	497	1049
Vacant Parcels, Undersized	36	175	88	175
Vacant Parcels, Substandard	87	204	217	434
Subtotal	413	754	802	1658
Underdeveloped	984	898	932	2407
Subtotal	1397	1652	1734	4065
Less Environmentally Impacted (see Table 2)	207	245	262	602
TOTAL	1191	1407	1472	3463

TABLE 2: Environmentally Impacted Parcels

Model Run 8/23/2010	Patapsco River Watershed			
	Acres	No. of Parcels	Moderate Estimate	High Estimate
Vacant Parcels, Standard, Stream	64	120	91	233
Vacant Parcels, Undersized, Stream	3	15	8	15
Vacant Parcels, Substandard, Stream	22	31	54	108
Underdeveloped, Stream	77	60	85	193
Underdeveloped, Slope	40	19	24	53
TOTAL ENVIRONMENTALLY IMPACTED	207	245	262	602

Figure 13: Current Number of Units in the Development “Pipeline”

WATERSHED	NO. OF PROJECTS	UNITS IN PIPELINE
BACK RIVER	51	672
BALTIMORE HARBOR	14	637
BIRD RIVER	63	1474
GUNPOWDER RIVER	8	30
GWYNNS FALLS	90	4136
JONES FALLS	33	751
LIBERTY RESERVOIR	2	5
LOCH RAVEN RESERVOIR	13	1189
LOWER GUNPOWDER FALLS	42	224
MIDDLE RIVER	18	177
PATAPSCO RIVER	47	818
TOTAL	382	10,262

Planned Unit Development

The PUD is an alternative development process. Regulations governing PUDs have varied over the years. Originally, PUDs could only be proposed on DR-zoned land, but the setbacks and other zoning restrictions of the underlying zone could be modified. Later, a PUD-C was introduced where any type of commercial or residential use at any density could be constructed within certain business and industrial zones as long as a community benefit was provided.

These older forms of PUD were replaced with a version that allowed PUDs on any parcel, without regard to the existing zoning or the proposed use, but the density of the underlying zone still applied.

Currently, the PUD legislation allows this process to be used on any land within the urban-rural demarcation line, in any zone, and with no density restrictions, as long as a community benefit is provided.

Because the nature of the PUD has been variable, and the latest version has only been in existence for a few years, it is difficult to predict the number of residential units that might be built in the future through the PUD Process.

Figure 14: Over the past 10 years, PUD projects have resulted in approximately double the number of units than would have been allowed by the underlying zoning.

PROJECT NAME	AREA (Acres)	PUD Units	PUD Units/Acre	Units by Zoning	Zoning Units/Acre	Diff. in Density (U./Ac.)	Buildable Area Zoning
SANDY VILLAGE PUD	1.65	11	6.66	17	10.51	-4	DR 5.5
KENWOOD	13.00	76	5.85	125	9.58	-4	O-2
CEDAR LANE FARMS	58.90	107	1.82	241	4.08	-2	DR 3.5
WOODHOLME RESERVE	10.34	22	2.13	36	3.49	-1	DR 3.5
HIDDEN BLUFF	26.42	58	2.20	92	3.50	-1	DR 3.5
PARKSIDE	35.98	41	1.14	78	2.16	-1	DR 2H
SALTPETER MANOR NEW SUBMITTAL	13.58	5	0.37	18	1.30	-1	RC 5
THE PRESERVE	15.00	47	3.13	56	3.70	-1	DR 2
SHAWS DISCOVERY	193.50	145	0.75	204	1.05	0	DR 5.5
THE BEACH HOUSES AT FORT HOWARD	0.95	5	5.27	5	5.50	0	DR 5.5
YORKWAY REDEVELOPMENT	12.38	66	5.33	68	5.50	0	DR 5.5
GLYNDON TRACE	36.62	126	3.44	129	3.53	0	DR 3.5
WILSON FARM	95.60	139	1.45	140	1.46	0	DR 2
THE VILLAS AT EDEN TERRACE	6.46	23	3.56	23	3.56	0	DR 3.5
THE PRESERVE AT WINDLASS RUN	120.94	424	3.51	417	3.45	0	DR 3.5
BRISTOL GREEN ALTERNATIVE	8.54	60	7.02	59	6.88	0	DR 5.5
CUB HILL VILLAGE	5.65	29	5.13	23	4.11	1	BL
GALLOWAY CREEK	14.53	36	2.48	14	0.97	2	RC 5
PLINLIMMON FARMS	105.06	762	7.25	432	4.11	3	DR 3.5
THE LAKES AT STANSBURY SHORES	62.80	224	3.57	1	0.01	4	ML-IM
BRANDYWINE	7.44	72	9.68	36	4.79	5	BL
2801 BAY DRIVE	1.30	14	10.77	7	5.50	5	BL-CCC
TOWSON MANOR	9.46	210	22.20	151	16.00	6	DR 16
MILL RUN	56.11	649	11.57	19	0.33	11	ML-IM
NOTTINGHAM RIDGE	87.79	1519	17.30	0	0.00	17	ML-IM
SHELTERED HARBOR	11.70	340	29.06	0	0.00	29	ML-IM
GLOBAL VIEW	6.42	215	33.49	0	0.00	33	MR
TOTAL	1018	5425		2389	105		
AVERAGE				8		4	

Looking at the PUD projects that have been proposed over the last 10 years (Figure 14), it is evident that most of the projects did not produce substantially more units than the underlying zoning. The majority of projects that did result in a much higher density occurred on industrially-zoned land. Taken on the whole, the PUD process resulted in approximate twice as many units.

In the future, the PUD process is likely to remain an attractive development alternative. In fact, since the PUD allows for mixed use, it would be reasonable to expect even greater use of the PUD process as a redevelopment tool for commercial and industrial properties.

Mixed Use Redevelopment Opportunities

As the structures of the urban county age, and the number of large “greenfield” sites is diminishes, redevelopment projects are becoming more prevalent. Sometimes redevelopment merely replaces the existing development with more modern buildings, without changing the existing land use. When aging housing developments are replaced, it usually results in more dense housing, such as “Miramar Landing” in Middle River, and “The Quarter” in Towson, but not always. A number of county-supported projects have produced less dense development such as “Renaissance Square,” and in some instances, the housing has been replaced with parks.



Figure 15: *Redevelopment replacing residential uses at a higher density in Towson.*



Figure 16: *The PUD named “Global View” is proposed to replace an aging manufacturing structure with a mixed use of housing, office and retail.*

Figure 17: The County's low-density commercial corridors could be redeveloped as mixed use centers that would include new residential development.



Since redevelopment is generally more costly than greenfield development, redevelopment often occurs on very low value properties, such as vacant shopping centers, frequently referred to as “greyfield” development. Or, the proposed use must be more intensive than the existing one to make the project economically feasible. In some cases, the existing use of a parcel has been intensified without replacement, such as the development of housing units on an unused portion of the Owings Mills Mall parking lot. The Metro Center at Owings Mills is also being redeveloped as a mixed use Transit-Oriented Development. In general, mixed use, walkable projects are gaining momentum as the market for these types of communities expands.

As part of the Baltimore County Master Plan 2020, the Office of Planning identified locations within the county that seemed “ripe” for redevelopment as

mixed use centers. These are areas that have been identified as town or village centers, or are aging shopping or business centers well-served by the existing transportation network that could become redevelopment projects. Also included are the county’s commercial corridors. These low-density business corridors have great potential for redevelopment as higher-density, transit and pedestrian-oriented mixed use environments.

Estimating Potential Units from PUDs

Looking back at the number of units that have been developed by PUD, and projecting that into the future, will not provide a good estimate of the number of units possible through redevelopment of parcels using the PUD process. The county is no



Figure 18: The 17-story Palisades high-rise in Towson contains nearly 380 units as well as office and retail uses. The structure replaces a group of former residences that had been converted to offices.

longer a developing county, but is a re-developing county. Other than infill opportunities, the greenfields are mostly gone, but development pressures are likely to remain strong given the county's location within the Washington-New York region. In concept, the number of potential residential units by PUD is unlimited. In practice, the number of units will be limited by a proposal's impact on the surrounding community, including the ability of the underlying infrastructure to support the project and the amount of community support the project generates.



Summary and Recommendations

The model has shown that there is a great deal of development potential left in the county--13,000 to 30,000 new units that can be constructed under present zoning regulations, in addition to the 10,000 units that are currently in the development pipeline. Growth will continue to occur not only through the development of the vacant and underdeveloped parcels in the urban area, but also through redevelopment.

Some growth will occur in the rural area as well, but this is not addressed by the model. It is a long-standing county policy to maintain the urban-rural demarcation line, and there is no reason to deviate from that policy. As the number of larger vacant tracts have diminished, some have the perception is that the county is approaching “buildout.” While the opportunity for conventional large-tract subdivisions is not what it once was, the potential of the urban area to accommodate growth is still quite high.

Standard, greenfield subdivision is still possible throughout the urban area but on smaller vacant tracts. Many of these could be termed “infill” development where they occur within existing communities. Opportunities to construct residences on vacant, individual lots that are part of an existing subdivision, but were not built on, are also numerous.

The greatest opportunity for new building construction comes from resubdividing underdeveloped lots. A few of these resubdivisions will involve large parcels. But most will involve small infill development, where lots in existing subdivisions are split, sometimes into panhandle lots or other meandering configurations to accommodate new units.

The redevelopment that is occurring in the county is a relatively new phenomenon. Because of the ability of developers to use the PUD process, the number of future residential units is not predictable. However, the model can be used as a tool in planning for redevelopment, as discussed further below.

How Should the County Grow?

The state’s Smart Growth policies encourage infill development because it takes advantage of the existing supportive infrastructure--roads, schools, libraries, parks, etc. For developing jurisdictions, it is an alternative to expanding suburban sprawl.

For Baltimore County, as a maturing jurisdiction, encouraging continued non-selective infill development may not be the best way to accommodate new growth in some areas. If the county’s growth were to continue to its ultimate limit as regulated by current zoning, it is very likely that the growth will exceed the capacity of the county’s supportive infrastructure. Many communities are already being subjected to congested roads, crowded schools and lack of open space. Further, infill development that is out of scale or character with the existing neighborhood can negatively affect its cohesiveness and visual identity.

Alternatively, redevelopment provides the opportunity to replace antiquated structures with modern buildings providing more amenities and a higher level of design. While redevelopment is more costly than greenfield development, it can be planned at a higher density, providing an economic incentive for the developer and greater tax benefit for the county. For the developer, the economic incentive should be paired with a requirement for a higher quality of design accompanied with a range of attractive amenities to ensure a positive impact on the community. Redevelopment areas can be planned for locations where the existing infrastructure can either accommodate it, or can be upgraded as part of the redevelopment. The county government may find it advantageous to provide incentives for redevelopment, or build the necessary infrastructure upgrades.

Planned redevelopment may offer the best solution for accommodating new growth. As the county ages, buildings and other facilities need to be renovated, modernized and upgraded to maintain the county as a place where people want to live and

work. Redevelopment provides an opportunity to “retool,” providing development that meets the emergent goal for improved sustainability, including better environmental quality, more efficient land use patterns through mixed use and more transportation opportunities including walking, bicycling and transit.

The following recommendations are suggested as ways to direct growth to ensure the county remains a desirable, sustainable place for its citizens to live and work.

Maintaining Established Communities--Community Conservation Areas

As part of the community planning process, identify areas where new growth through greenfield development, infill and redevelopment is desired, as well as where the character of the existing community should be maintained. Pursue appropriate actions to achieve the desired results, which could include:

1. Apply zoning classifications that match the existing or desired density of the neighborhood.
2. Prohibit resubdivision that involves panhandle and meandering lot lines.
3. Adopt appropriate compatibility standards (height, setbacks, parking, building style, etc.) that blend new development into existing neighborhoods.
4. Formalize existing privately-owned open space by converting vacant parcels into public passive open spaces using the NeighborSpace program or other mechanisms.
5. Clarify the legislation regarding the zoning merger doctrine, undersized lots, and building setbacks so that the development of small lots located within existing neighborhoods demonstrates a high level of compatibility.

Promoting Redevelopment Areas--Community Enhancement Areas

As part of the community plan adoption process, establish an overlay district with zoning and development standards. Consideration should be given to the following:

1. Identify areas where additional density can be accommodated without straining the existing infrastructure, or where upgrades to the infrastructure are feasible as part of the redevelopment activity. Streamlined development review through limited exemptions could be applied.
2. Select redevelopment areas based on their ability to be multi-modal. As the county’s road system is reaching its operational limits, use of alternative forms of transportation to support higher density, mixed use, compact and walkable redevelopment will be essential.
3. Where intensive growth is desired, apply a special zoning district that would require a mixture of residential, commercial and employment uses, as well as a mix of housing types. Include mandatory design standards in order to assure a high quality design and an adequate level of amenities.
4. Provide developer incentives that are appropriate to the redevelopment area. For example, if a sewer upgrade is needed, the county could participate in the construction cost.
5. Apply a sustainability index (criteria) in order to evaluate and rank projects using software such as Criterion.

Next Steps

The development capacity model has been a useful tool in projecting the potential for new residential development in the urban county. The model should be run annually to monitor the county’s growth. The current model results can be compared to future results on a parcel by parcel basis to analyze whether the growth pattern is consistent with the county’s goals as identified in the Master Plan.

The model can be adjusted to provide results for any area, not just watersheds. Other parameters can be adjusted as well, such as the zoning density, or the percentage of environmental constraint coverage. A new model step can be added to apply an additional factor for analysis, or deleted if one is found to be unnecessary.

By focussing the model on specific communities, it can assist in developing community plans to guide

rezoning and creation of community-specific zoning, design or compatibility standards.

The model can also be used in creating county-wide growth scenarios by adjusting the densities at various localities. Used in concert with population projections, the results can assist in analyzing the impact of alternative growth scenarios on public infrastructure, and inform decisions for amending zoning and other legislation.

Appendices

- A. Local Government Memorandum of Understanding
Regarding Residential Development Capacity
Inventories**
- B. Existing Land Use Definitions**
- C. Zoning and Historical Density Factors**

Appendix A

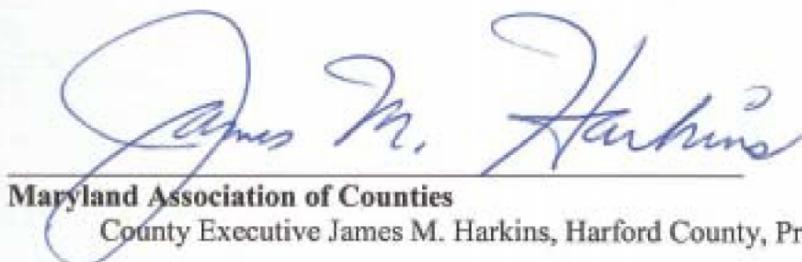
Local Government Memorandum of Understanding Regarding Residential Development Capacity Inventories

August 19, 2004

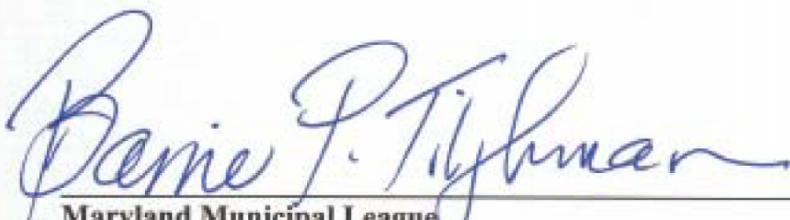
- 1) The Maryland Department of Planning (MDP) and local governments, (county and municipal), including their respective representative organizations the Maryland Association of Counties (MACo) and the Maryland Municipal League (MML), and the other members of the Development Capacity Task Force understand the importance and usefulness of land capacity inventories as a beneficial land-use planning tool. Recent efforts by MDP and selected local governments to establish capacity inventories have resulted in a renewed State and local government planning partnership to address this complex land-use planning tool. MDP's continued support, including technical assistance, is essential to maintaining this partnership and to further the interest of county and municipal governments to implement the capacity inventory planning tool.
- 2) MDP, MACo, and MML shall continue to work with county and municipal governments to encourage the creation of land capacity inventories and their inclusion in comprehensive plans and for Priority Funding Area changes. County and municipal governments will also further the other recommendations of the Governor's Development Capacity Task Force (DCTF). MACo and MML will continue to encourage local governments to share needed land-use information and work with MDP in creating capacity inventory inventories.
- 3) The commitment to the creation of land capacity inventories and their inclusion in comprehensive plans and for Priority Funding Area changes by local governments is contingent on MDP providing support as needed, including technical assistance, which is consistent with a recommendation of the Maryland Smart Growth Policy Collaborative that instructed "the Administration to provide funding to State and local governments to develop land capacity inventories."
- 4) In developing the capacity inventories, MACo and MML will encourage local planning departments to use the analysis developed by MDP and used throughout the work of the DCTF that estimates development capacity in and out of Priority Funding Areas. However, it is expected that the inventory will be customized and enhanced according to best practices by local jurisdictions to the extent feasible, based on the availability of resources. Jurisdictions that currently have their own capacity inventories will share them with MDP.

- (5) For the purpose of reporting key development trends and to aid in the production and tracking of development capacity, local governments will develop annual development reports. As recommended in the Task Force Report, these annual reports should provide information on zoning yields, rates of infill and redevelopment, environmental constraints, and development trends.
- (6) MDP shall consult with the Maryland State Builders Association, MACo, and MML to develop a proposed schedule for conducting its capacity analysis with the local governments. Key considerations in the development of this schedule include a jurisdiction's comprehensive planning cycle and its growth pressure. A local jurisdiction shall be notified of the estimated date of the commencement of the inventory analysis in collaboration with MDP.
- (7) Two years after the execution of this MOU, MDP will survey the progress of local government land capacity analyses for consistency with the Governor's Development Capacity Task Force recommendations and the Governor's Executive Order. This time period anticipates the uncertain fiscal realities facing both the State and local governments and also provides them sufficient time to demonstrate commitment towards developing this land-use planning tool. If this survey of progress is determined to be unacceptable, MML and MACo will work with the Administration and the members of the original Development Capacity Task Force to draft mutually agreeable legislation to remedy this lack of progress. Members of the Task Force will not introduce legislation related to development capacity until this time.
- (8) For the purpose of continuing progress in developing capacity analyses, representatives of MML and MACo will meet quarterly with MDP, the Homebuilders, and other members of the Task Force to track progress, exchange information, and share lessons learned. These meetings will also help to track the progress of creating the capacity inventories per paragraph (7) above.
- (9) This MOU is contingent on the Governor signing the corresponding Executive Order that was also drafted by the Task Force, or a version that closely resembles this draft. The Draft Executive Order is intended to insure that State and local resources are deployed in a cooperative and coordinated way to implement the recommendations of the Task Force. It specifies that MDP shall provide technical assistance (e.g., data, analysis, examples, guidance) to local governments for the purpose of including the results of development capacity analysis in comprehensive plan updates and for Priority Funding Area changes.

Local Government Organization Signatories



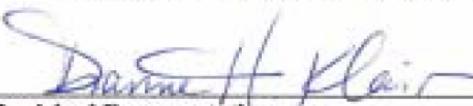
Maryland Association of Counties
County Executive James M. Harkins, Harford County, President



Maryland Municipal League
Mayor Barrie P. Tilghman, City of Salisbury, President

Development Capacity Task Force Members


State of Maryland, Task Force Chair
Secretary Audrey E. Scott – Maryland Department of Planning


Municipal Representative

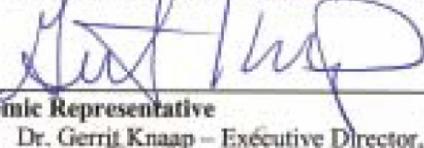
Ms. Dianne Klair – Manager, Community Development and Planning, City of Havre de Grace


County Representative

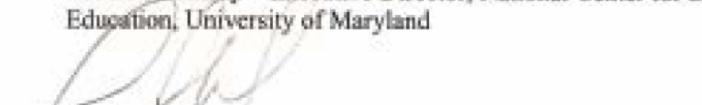
Mr. Arnold "Pat" Keller – Planning Director, Baltimore County


Homebuilders Representative

Mr. Frank Hersch – President, Morris & Ritchie Associates, Inc.


Academic Representative

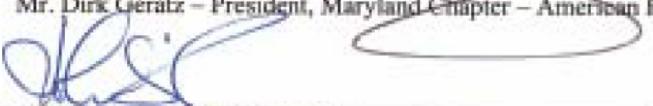
Dr. Gerrit Knaap – Executive Director, National Center for Smart Growth Research and Education, University of Maryland


Environmental Representative

Mr. George Maurer - Senior Planner, Chesapeake Bay Foundation


Planning Community Representative

Mr. Dirk Geratz – President, Maryland Chapter – American Planning Association


Economic Development Representative

Mr. John Savich – Director of Economic Development, St. Mary's County


Historic Preservation Representative

Mr. Tyler Gearhart – Executive Director, Preservation Maryland

Appendix B. Definitions for Existing Land Use Codes

Code	Description	Definition	Notes/Examples	Source
	FOR ALL PARCELS		No splitting parcels; code the predominant use (more than 50% in land coverage) except the following takes precedence in the following order: 1) State and county parks and open space 2) Permanent Ag/RC Easements and 3) Agriculture.	Note: Zoning can be used to provide an indication of land use; however, newer developments that occurred as PUDs can have different uses than what is allowed by zoning.
	Residential			
101	SFD	Single family detached housing	One dwelling per parcel	Ortho, Buildings, Tax account data
102	SFSD	Single family semi-detached housing	Includes linear and vertical (duplex) two-family dwellings	Ortho, Buildings, Tax account data
103	SFA	Single family attached housing, three or more single units attached at a building wall, including back to back units	Code any open space or road parcels separately. If the development is all in one ownership (rental units) code entire development as SFA.	Ortho, Buildings, Tax account data
104	Multifamily	Structure containing three or more apartments or condos; includes SFDs or other types of housing that has been converted to apartments when source information is available.	Usually multifamily developments are contained in a single parcel, but some developments may contain many parcels. If there are many parcels, code the predominant use.	Ortho, Buildings, tax account data, Facilities
105	Multi SFD	A parcel that contains more than one single family detached dwelling	A mobile home park	Ortho, Buildings
	Commercial/Industrial		Can include floodplain and swm areas when not county-owned (usually not a separate parcel).	
201	Commercial	Structure containing retail and service uses, but excluding stand-alone office uses. If it can't be determined whether the use is predominantly retail/service or office, code as commercial. Includes parking lots.	A strip center with predominantly retail/service uses, private recreational facilities that are substantially enclosed such as bowling alleys, health clubs, hair salon, service garage, hotel/motel, restaurant, commercial swimming pool facility, public storage facilities, storage facilities associated with retail/service use, funeral parlor, day care center	Ortho, Buildings, Tax account data (has a C land use code), Facilities, Zoning (has a Business zone)

Code	Description	Definition	Notes/Examples	Source
202	Office	Building constructed for office use; converted residential	includes a commercial building or strip center with predominantly office uses, medical office, private clinic	Ortho, Buildings, Tax account data (has a C land use code), Facilities, Zoning (Office usually occurs in Business, Office, or ML zones; RO, ROA zones may indicate converted residential structures)
203	Industrial	Buildings and land mostly industrial in nature, but may contain ancillary office, retail uses.	Manufacturing, assembly, warehouse, laboratory, equipment and material storage yard, junkyard, quarry, wholesale business, B to B uses.	Ortho, Buildings, Tax account data (has a I land use code), Facilities, Zoning (has a Manufacturing zone)
	Mixed Use	Building constructed for mixed use or parcel containing several buildings of different uses.	Can include parking or floodplain and swm areas when not county owned (usually not a separate parcel).	
301	Mixed Office/Retail		A strip center with a second floor of office	Ortho, Buildings (commercial), Tax account data (has a C land use code), Facilities, Zoning (Business or Office zone)
302	Mixed Residential with Office or Retail		A residential building with non-res. on first floor	Facilities, Zoning (usually RAE or Office-Residential zone)
303	Mixed Office/Industrial		A flex office/warehouse building	Ortho, tax account data (has a I land use code), Facilities, Zoning (has a Manufacturing or SE zone)
304	Mixed Office/Industrial/Retail		A flex office/warehouse/retail building (as above but with retail uses)	Ortho, tax account data (has a I land use code), Facilities, Zoning (has a Manufacturing zone)
	Institutional		Can include floodplain and swm areas when not county-owned (usually not a separate parcel).	
401	Places of Worship		Includes school facilities if on the same parcel, but occupying less than 50% of the land area; parsonages associated with the place of worship	Ortho, ADC map, tax ownership records
402	Hospital		Includes all parcels owned by the hospital	Ortho, ADC map, tax ownership records

Code	Description	Definition	Notes/Examples	Source
403	College		Includes all parcels owned by the college, dormitories, etc.	Ortho, ADC map, tax ownership records
404	Private school		includes Trade School, Nursing School; religious schools and ancillary facilities; parsonages when associated with the school.	Ortho, ADC map, tax ownership records
405	Public school and school sites		Schools sites owned by Balto Co.; all Board of Ed -owned properties including R&P School Recreation Centers and adjoining lands, vacant schools and vacant school sites	Ortho, ADC map, tax ownership records
406	Cemetery without place of worship			Ortho, ADC map
407	Police facility		State and local police, crime labs, police and K-9 training facility	County facilities layer
408	Fire facility		Fire station, fire training facility	County facilities layer
409	Library	Public library		County facilities layer
410	Assisted Living Facility	Facility that provides housing and supportive services, medical care, etc, for people who need assistance in performing the activities of daily life.	Assisted senior living facility, convalescent home, nursing home, include active adult and independent living if part of the complex, but not age restricted developments that have no medical care.	Facilities, tax ownership records.
411	Misc. Government--Public	Government facilities not included in other categories.	Rec. maintenance shops, health center, courthouses, community ctrs w/o parkland, public recreation facilities that are substantially enclosed such as sports arena, detention centers, post office, salt domes	Facilities, ortho, tax ownership records.
412	Misc. Institution--Private	Private institutional uses not included in other categories.	YMCA, VFW, Elks, Moose, American Legion, orphanage, group home	Facilities, tax ownership records.
413	County Senior Center			County facilities layer
	Recreational/Environmental Open Space			
501	Publicly Owned Golf Course		Includes ancillary facilities	R&P Govt. Lands, tax ownership records
502	Privately Owned Golf Course		Includes ancillary facilities	R&P Govt. Lands, tax ownership records

Code	Description	Definition	Notes/Examples	Source
503	Reservoir Property	Open space that contains surface or underground water storage and also provides open space/recreational amenity; owned by Baltimore City	Loch Raven Reservoir, Fullerton Reservoir	Tax ownership records
504	County Open Space and DEPRM owned lands and Greenways	Unimproved open space transferred to the County through the development process or acquired by other means	Could include public floodplain, forest buffers, wetlands	R&P Govt. Lands "Undeveloped LOS" and "DEPRM Land", tax records (may be coded as 12 or 21 in the tax record address field (eg, 12--RW-73-244), plats.
505	HOA / COA/ Developer / Multifamily management co.	Open space, SWM, forest buffers, floodplains and wetland reservations owned by HOA/COA/Developer or Management Company.	If parcels contain parking, traffic islands, walkways, etc. rather than open space, code as roads or residential as appropriate.	R&P Gov't Lands designated "Private Open Space", tax ownership records
506	Other Private Open Space	Recreational open space in private ownership.	Campgrounds, community-oriented swim club, driving range	Tax ownership records, ADC map
507	County Park	County owned and maintained open space containing a permanent recreational improvement.		R&P Govt. designated "..Park" or "Community Center" when accompanied by parkland
508	State Park	State owned and maintained park		Tax ownership records
509	Other Public Park	City owned and maintained park	Robert E. Lee Park, city Board of Ed park.	Tax ownership records
510	Other gov't open space	Vacant, gov't owned, usually assoc. w/ road r/w.	Reserved for future road widening, state highway administration, state roads commission	Ortho, plats, tax ownership records
Rural				
601	Agriculture	Parcels with a land use designation of "A" in the tax records, but without a preservation easement	Can include forest lands; does not include land that looks like it is being farmed in the ortho, but does not have the "A" designation in the tax records--this would be coded as vacant if there are no structures.	Ortho, tax records
602	Permanent Easement	Parcels with permanent agriculture, resource conservation, or other preservation easement	Also includes preservation easements in urban areas	"Restriction" layer "Easement", "Purchased in Fee" and "In Fee with Easement"
604	Rural Residential SFD	Single family detached dwellings located outside the Urban-Rural Demarcation Line.	Residential parcels with permanent easements should be coded 602.	Ortho, tax records

Code	Description	Definition	Notes/Examples	Source
	Transportation/Utility			
701	Airport	Commercial airport	Can have paved or grass air strips	Ortho, tax records
702	Roads	Public and private roads and right-of-ways	Includes adjacent parking owned by HOA/ROA when it comprises at least 50% of the land area, paper streets, alleys	Orthos, plats, tax records (may be coded as 05 in the address field (eg, 05--RW-73-244))
703	Rail	Active rail facilities	ROW, Transit Station (code abandoned R/W as vacant)	Rail layer
704	Park and Ride	State owned park and ride facilities		Ortho, tax records
705	Electric, Gas, Telecommunications Utilities	Parcels owned by electric, gas, telecommunications companies and used for these facilities.	Electric, Gas Transmission R/W, substations, microwave towers (do not code easements over land used for other purposes).	Ortho, tax ownership records
706	Storm Drainage	County SWM and Drainage Areas		R&P Gov't Lands "Public Works Land"; may be coded as 04 in the tax record address field (eg, 04--RW-73-244)
707	Water and Sewer Utilities	Any lands exclusively used for water and sewer facilities.	Pumping stations, water tanks, sewage treatment plants	May be coded as 31 in the tax record address field (eg, 31--RW-73-244)
708	Landfill	Active and inactive landfills that have not been converted to another use.	Includes collection site, reclamation center	May be coded as 08 in the tax record address field (eg, 08--RW-73-244)
	Vacant/ Pipeline			
801	Vacant	Residentially zoned: Parcel that does not have a principal building, has been at least 10 years since the parcel was created thru the subdivision process, is not predominantly covered with accessory uses such as garages and swimming pools, and is at least 55' wide, or can be combined with adjoining vacant parcels to create a parcel at least 55' wide. The 55' width constraint can vary if typical building lot widths in the neighborhood are narrower than 55', but no smaller than 40'. Code with the adjoining residential land use code if these criteria are not met, and the parcel does not meet any other code criteria (eg, some parcels are county-owned).	Other zones: If a parcel does not have a principal building, has been at least 10 years since it was created thru the subdivision process, does not appear to be in use (eg, no parking, storage, quarrying activity, etc.,) and does not fall into another category (eg, open space, public drainage), code as vacant, unless, because of its small size or odd shape, it does not appear to be developable. In this case, code the same as the adjoining parcel in the same ownership.	Ortho, Buildings layer (to check for principal building), tax record (no or very small improvement value)

Code	Description	Definition	Notes/Examples	Source
802	Pipeline NO LONGER USED, see Pipeline Code below	Parcels for which a plan has been approved, or occupancy permit has been submitted, but not yet approved. The previous existing land use has been removed, but the new use is not yet final. Once this code is applied, it stays in place until an occupancy permit is approved, or if it has been 10 years since the code was applied.	This code illustrates land uses that are in transition. Code roads, utility areas and open space parcels as units become occupied, and the areas are constructed or transferred to the county or HOA. When the last unit is occupied, make sure all parcels have been recoded to their new uses.	Permits, ortho
803	Unbuildable/Environmentally Constrained	Vacant parcels known to have floodplains, wetlands, streams, steep slopes, etc., and considered unbuildable.		OP will code these, based on environmental study or professional knowledge
888	Non-county Parcel	Complete parcels laying outside county boundaries	If the parcel is split in two at the county boundary, code both parcels the same.	County boundary
	Misc			
901	Water	Water body with no ownership record	Chesapeake Bay	
999	Further Study	Planning use only.		
	PIPELINE = YES	Parcels for which a plan has been submitted or an occupancy permit has been issued. If the previous existing land use has been removed, but the new use is not yet final, code as Vacant, Pipeline = Yes. Once this code is applied, it stays in place until an occupancy permit is approved, the plan expires or becomes invalid, or if it has been 10 years since there has been any plan review or development activity.	This code illustrates land uses that are in the development pipeline. Code roads, utility areas and open space parcels as units become occupied, and the areas are constructed or transferred to the county or HOA. When the last unit is occupied, make sure all parcels have been recoded to their new uses.	

Appendix C: Zoning and Historical Density Factors

ZONE	ZONING DENSITY	HISTORIC DENSITY	MINIMUM LOT SIZE (s.f.)*	MINIMUM LOT SIZE SMALL LOT TABLE (s.f.)
DR 1	1.0 Unit/Acre	0.8 Unit/Acre	43,560	40,000
DR 2	2.0 Units/Acre	1.4 Units/Acre	21,780	20,000
DR 3.5	3.5 Units/Acre	2.2 Units/Acre	12,446	10,000
DR 5.5	5.5 Units/Acre	3.2 Units/Acre	7,920	6,000
DR 10.5	10.5 Units/Acre	9.7 Units/Acre	4,149	3,000
DR 16	16.0 Units/Acre	13.2 Units/Acre	2,723	2,500

*A minimum lot size is not required other than for lots that use the Small Lot Table. However, a minimum lot area was used in the model to distinguish between the vacant parcels that would be developed using a zoning/historic density factor from those using the Small Lot Table to construct one unit on a single lot of record.



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