



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 state-wide 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 affect 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

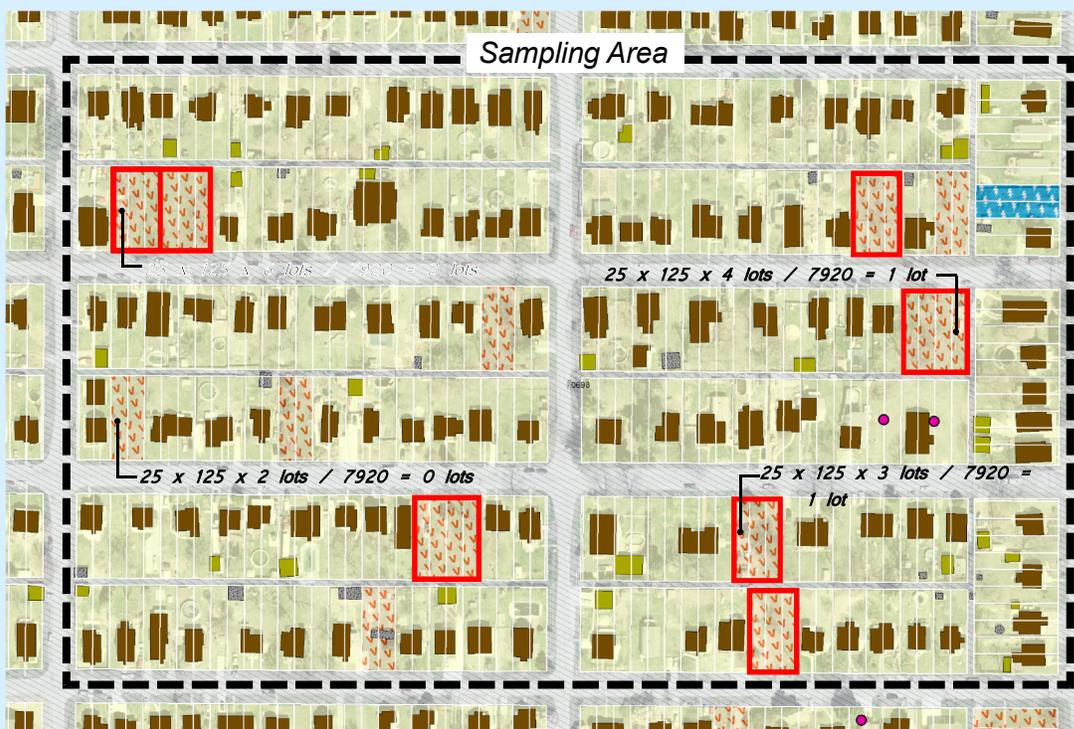
2000. The acreages of vacant parcels were multiplied by this factor to determine a second, more moderate development estimate (see Appendix C, page 52).

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 a 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.

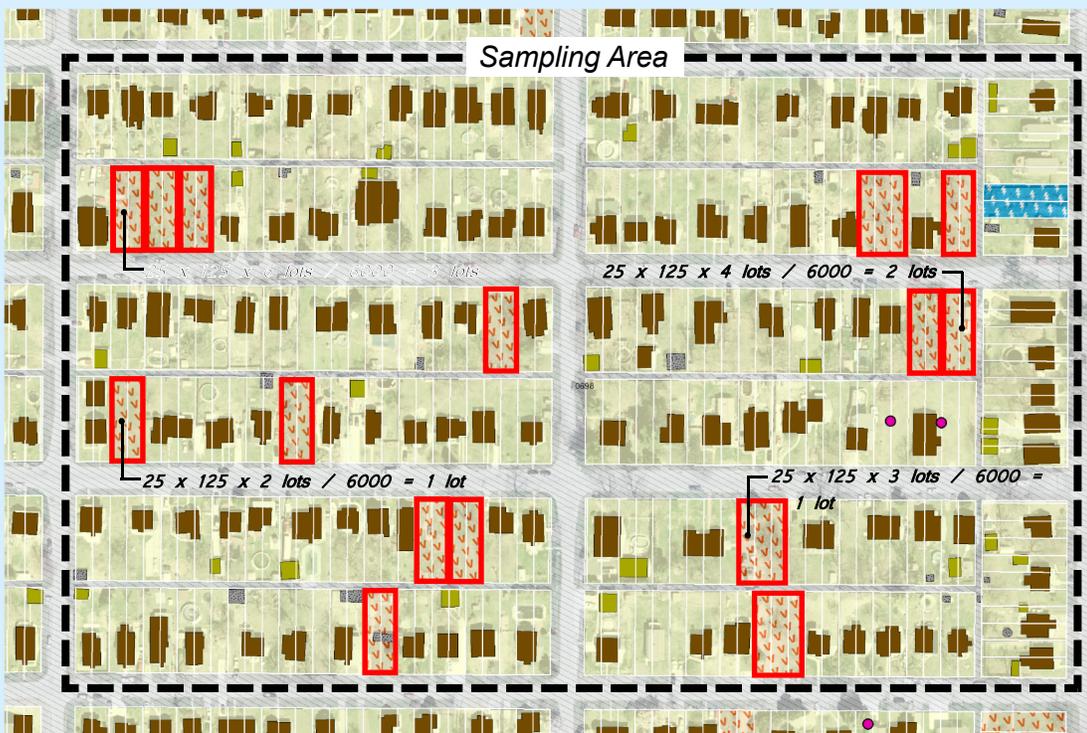


Figure 3: Effect of Zoning Merger Doctrine

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.