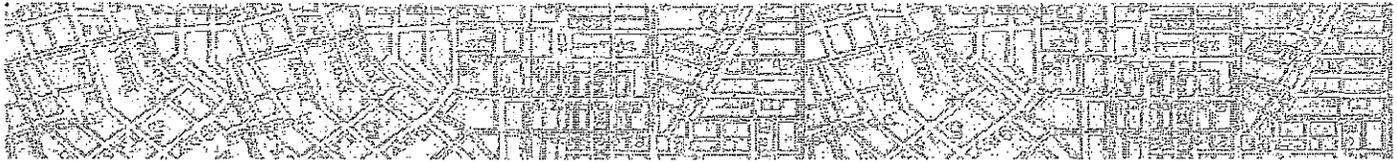


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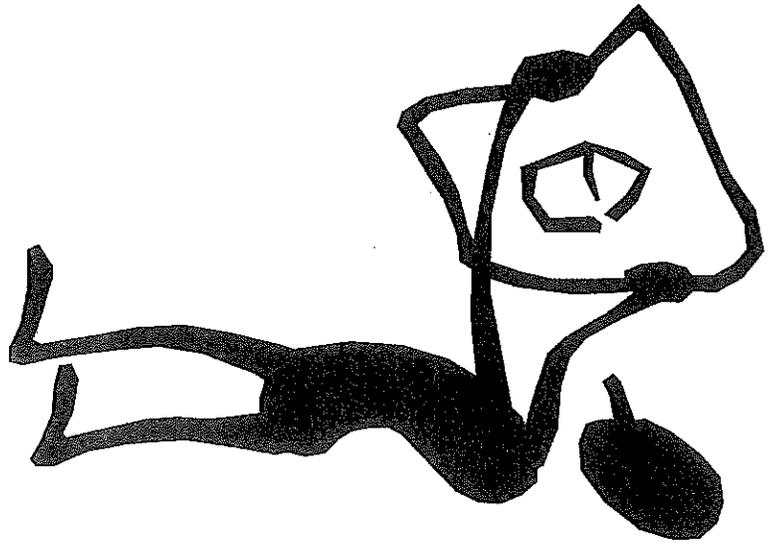


Buildable Land Inventory

Carroll County, Maryland

*Prepared by
Carroll County Bureau of Planning*

January 2012 Edition



Carroll County Buildable Land Inventory

Copies of the Carroll County Buildable Land Inventory are available...

In hardcopy or on CD at:

Carroll County Planning Bureau
225 North Center Street, Suite 204
Westminster, Maryland 21157

Online (text and maps) at:

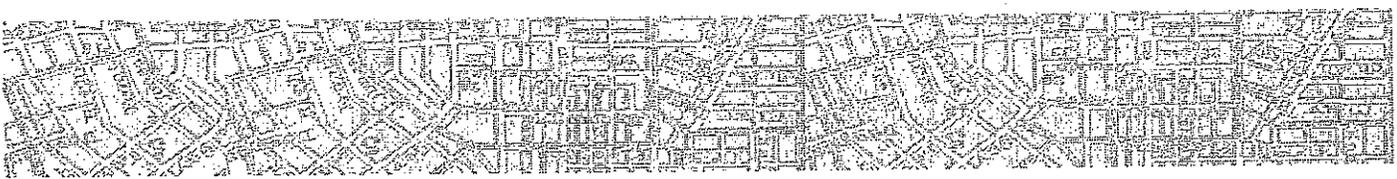
<http://cogovernment.carroll.org/cccg/compplan/bli/default.asp>

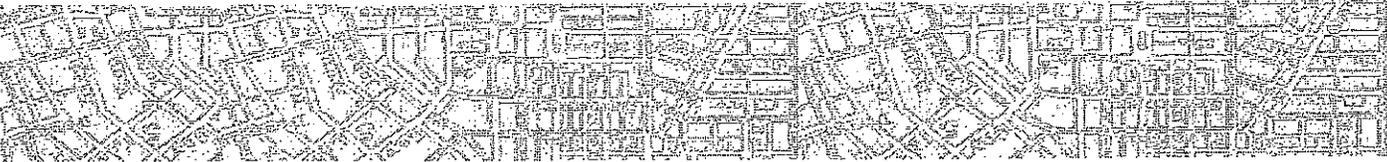
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By phone: 410-386-2145

By e-mail: ccplanning@cccg.carroll.org

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Carroll County Buildable Land Inventory

Table of Contents

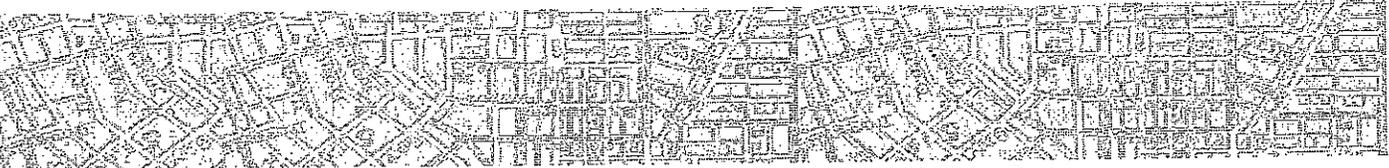
Introduction & Background	1
Key Terms.....	2
Organization of Report.....	2
Changes Since Original 2005 Report.....	3
Article 66B Requirements	3

Residential

Residential Lot Yield Methodology.....	4
Process	4
Range.....	7
Limitations and Assumptions.....	8
Countywide Totals of Residential Potential.....	9
Municipal Estimates	9
Designated Growth Area Estimates.....	10
Priority Funding Area Estimates.....	11
Unincorporated Residential Potential.....	12
Unincorporated Area Based on Zoning.....	12
Unincorporated Area Based on Land Use Designations	14
Municipal and Designated Growth Area Residential Potential.....	16
Freedom/Sykesville	16
Hampstead,.....	20
Manchester	24
Mount Aly.....	28
Taneytown	36
Union Bridge.....	40
Westminster	44

Commercial & Industrial

Commercial & Industrial Methodology	48
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Carroll County Buildable Land Inventory

Process	48
Assumptions & Limitations.....	49
Commercial & Industrial Estimates	50
Municipal Estimates	50
Designated Growth Area Estimates	54
Priority Funding Area Estimates.....	57

Appendices

Appendix A: Residential Multipliers	65
Appendix B: Residential Constraints (Detailed)	67
Appendix C: Residential Assumptions & Limitations	71
Appendix D: Low and High-Range Estimates	75



Carroll County Buildable Land Inventory

Introduction & Background

Introduction

What is a buildable land inventory?

The buildable land inventory (BLI) is an analysis of land that is considered to have development potential. It estimates where, how much, and what type of additional development could occur. Estimates of the number of residential lots that could be created or units constructed are based on a jurisdiction's current zoning and/or proposed future zoning, called "land use designation." The BLI also uses land zoned for commercial and industrial development to estimate the potential acres available for this type of development.

The BLI is a planning tool for evaluating the potential impacts of planning policies and recommendations, and measuring the effectiveness of previous actions. The BLI could influence decisions on such issues as land use and zoning, subdivision regulations, watershed management, public facilities, and preservation measures. The BLI does not address the capacity of natural systems, infrastructure or other limitations to handle the projected growth.

How did the Carroll County Bureau of Planning perform these calculations?

In Carroll County, the BLI was completed using calculations processed in ArcGIS, the geographic information system (GIS) used by the County. The model generates an estimate

based on the methodology used to manipulate data. Many different variables may, or may not, affect lot yield.

The only way to get an exact number of buildable lots would be to research every deed for every parcel in the county (66,181 parcels including the municipalities as of July 1, 2011) to determine covenants and restrictions and other provisions that might affect lot yield. A certified engineer or land surveyor would then have to prepare an environmental resource inventory for each parcel to delineate the exact presence and location of environmental resources. Each potential lot in an area not served or planned to be served with public water and sewer service would have to have percolation tests performed and a well drilled to see whether a lot could actually be created. In addition, every subdivision plan would have to be reviewed to determine which lots are remainders or off-conveyances and to determine if additional lot yield exists. Finally, a subdivision plan would have to actually be created to lay out the lots to then determine the ultimate lot yield.

As this is time and cost prohibitive, GIS becomes the best tool available to develop estimates of buildable land. GIS is a powerful tool that can be used to examine spatial problems but is only as powerful and accurate as the data used for analysis. The best data available was used to perform this analysis; however, not all data that could be used for this study is available digitally. Therefore, we

Carroll County Buildable Land Inventory

believe that this is the best information that can be provided with the data we have. Certain assumptions must be made to provide timely calculations that are accurate enough that they can be used to make decisions.

It is important to note that the lot yield calculations were performed on each individual parcel. Calculating yields on an individual parcel basis provides more accurate results than calculating lot yield on the sum of the acreage of all parcels in each zoning district or land use designation

because it accounts for some of the characteristics of individual properties that may affect total potential lot yield. Therefore, if the total acreages of buildable land shown in the tables in this report were divided by the minimum acreage shown for each zoning district or land use designation, different numbers would result than those shown in the tables.

Key Terms

The Buildable Land Inventory Report presents data by several specific geographies. The following definitions of these geographies were used to generate the estimates:

- Municipality – the current corporate boundaries of a municipality as of December 2011
- Designated Growth Area (DGA) – an area, generally organized around a municipality, for which a detailed

comprehensive plan has been prepared. DGAs typically correspond to the municipality's defined future municipal growth area.

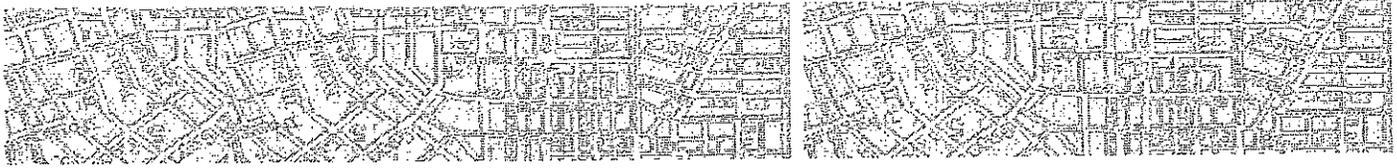
- Priority Funding Area (PFA) – areas designated by the State and local jurisdictions that are targeted for growth and economic development. These areas must meet the minimum PFA criteria defined under State law.

Organization of Report

The Buildable Land Inventory Report is divided into two main parts: a Residential Buildable Land Inventory, and a Commercial/Industrial Buildable Land Inventory. Each part is further divided into:

- a methodology section that describes how the estimates of potential buildable residential lots or potential buildable commercial and industrial acreage were derived;

- a countywide totals section that provides a breakdown of the estimates by municipality, Designated Growth Area (DGA), and Priority Funding Area (PFA); and,
- for the residential BLI only, a detailed analysis of potential buildable residential lots by municipality and their DGAs.



Carroll County Buildable Land Inventory

The detailed municipal/DGA portion of the residential BLI uses current zoning to estimate how many lots presently could be built within the corporate limits. The land use designations (proposed future zoning) and DGA boundaries (proposed municipal growth area) that are defined in each municipality's comprehensive plan were used to estimate how many residential lots potentially could be built according to the plan. Each of the eight municipalities in the county has an adopted comprehensive plan with a defined DGA. Because the Town of Sykesville's growth area falls within the Freedom DGA, those two areas are presented together. Although there is a Finksburg DGA, the Finksburg community is not incorporated.

Changes Since Original 2005 Report

Since the last report was completed in June of 2005 the county has many new and updated data layers which should improve the accuracy of the BLI estimates. The county's parcel layer was updated in 2010; the parcel layer is the base layer for the BLI calculations. As a result of the new parcel layer the zoning, land used designations, growth area boundaries, corporate limits, agricultural easements and most of the absolute constraints were updated to match the new parcel lines and incorporated any updates since 2005. The county also has a new address point's layer; this layer

The commercial and industrial BLI is presented in multiple tables according to various geographies. Buildable acreage is provided within each geographic category for both vacant parcels and partially-developed parcels, in recognition of the fact that in many cases further development of an improved parcel could occur. Each table also shows the number of parcels within set acreage size ranges.

Maps are included in the detailed municipal/DGA portion of the residential BLI. Potential residential lots are depicted by a red dot. These same maps also depict potential buildable commercial and industrial parcels with a green (commercial) or yellow (industrial) triangle.

was used to determine if a parcel is improved or vacant. In the 2005 report the property's improvement value was used for this determination. The BLI estimates also incorporates a new data layer that contains Forest Conservation, Floodplain and Water Resource Protection easements that were used as absolute constraints. The floodplains and steep slopes layers have been updated and were derived from more precise data than the original layers. The 2005 report assumed a 100-foot stream buffer, while this update assumes a 50-foot stream buffer, as this is the county's minimum stream buffer width.

Article 66B Requirements

Article 66B of the Annotated Code of Maryland requires local jurisdictions to prepare an annual report of planning activity. One of the required components of this report is a set of "measures and indicators" designed to analyze development patterns and potential. Included in these

measures and indicators is a development capacity analysis, which must be updated once every three years or when there is a significant change in zoning or land use patterns. The Buildable Land Inventory is Carroll County's development capacity analysis tool.

Carroll County Buildable Land Inventory

Residential

Residential Lot Yield Methodology

Process

The following process outlines the steps taken to calculate the medium range potential lot yield on residential land by parcel based on the underlying zoning and land use designations. The zoning BLI is calculated separately for each of the eight municipalities within their corporate limits and is also calculated for the "County Unincorporated" regions. The land use designation BLI estimates are calculated separately within each of the DGA's and for the County outside the DGA's. The calculations are done separately as each town has unique zoning and land use designations and associated code.

Step 1: Identify Constraints to Development: This includes both absolute constraints and partial constraints. Absolute constraints usually encompass the entire parcel and include:

- Municipal-owned lands-lands owned by county, state, city or towns
- Agricultural Land Preservation Easements
- Agricultural Remaining Portions without further subdivision rights

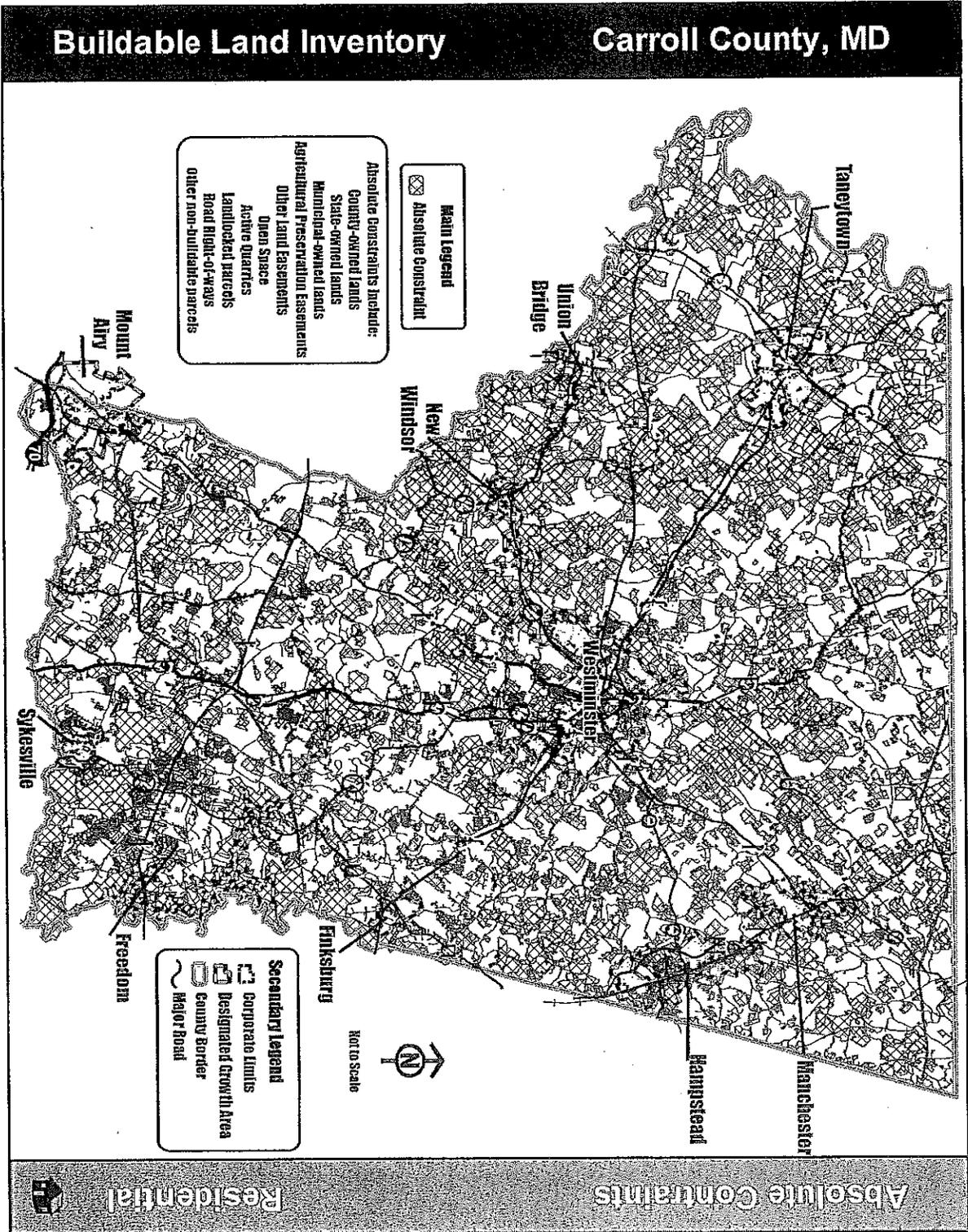
Road Right-of-ways
Open Space
Quarries
Land-locked parcels
Public Use
Forest Conservation Easements
Floodplain Easements
Water Resource Protection Easements
Other non-buildable parcels

Partial Constraints generally only impact a portion of a given parcel and include:

- Streams and stream buffers
- FEMA 100-year floodplains
- Steep Slopes
- Wetlands
- Wellhead Buffers
- Communication Towers

See Appendix B for a more detailed description of the absolute and partial constraints.

Carroll County Buildable Land Inventory



Carroll County Buildable Land Inventory

Step 2: Subtract Absolute Constraints from the Parcel Data-
After merging all absolute constraints into a single file; these absolute constraints are erased from the parcel layer as they have no future development potential.

Step 3: Union the Parcel Data with the Zoning or Land Use Designation Data, this will allow you to relate each parcel with a zoning or land use designation district. If a given parcel is split by multiple districts, the union process will create multiple parcels.

Step 4: Identification of All Parcels that are Zoned Agriculture, Residential and Conservation. All parcels zoned for commercial or industrial are deleted from the data, the remaining parcels are used to calculate the residential buildable land.

Step 5: Apply Multipliers to each Zoning or LUD District to populate a buildable acreage field. See Appendix A for detailed information regarding how the multipliers were determined and used for each zoning category.

Range

- High – These figures are derived from a straight density calculation applied to land identified as buildable after absolute constraints are removed.
- Medium – These figures are derived from calculations after absolute constraints are removed and then a multiplier is applied to the land identified as buildable. See Appendix A, Residential Multipliers, which describes how multipliers were determined and used.

Step 6: Identify Improved Parcels-The county's address points data were used to determine if each individual parcel is improved or unimproved. Created a new field in the database and assigned the value of 1 to improved and 0 to unimproved parcels.

Step 7: Calculate Potential Lot Yields based on the parcels zoning and lud's district for each buildable parcel in the county and adjust for improved parcels and those within the Viable Recovery Area. Each developable parcel within the a VRA that is zoned residential or agriculture receives twice the amount

Step 8: Repeat-Steps 3-7 for each Municipality using their specific zoning and land use designations.

Step 9: Repeat Process for the Low and High estimates.
Generally the high estimates do not use the multipliers while calculating the buildable acreages and the low estimates remove the partial constraints from the buildable acreages (along with the absolute constraints). Mt. Airy and Sykesville are calculated differently; see these sections for a further explanation.

- Low – These figures are derived from calculations after the absolute and partial constraints are removed and the multiplier is applied to the buildable lands. Thus if a parcel does not contain any partial constraints, the low range BLI estimate would be identical to the Medium range estimate. All estimates shown in the main report are the Medium range calculations. The High and Low range estimates can be found in Appendix D.

Carroll County Buildable Land Inventory

As part of the BLI update, the County compared 2005 BLI estimates with actual lots approved by our Bureau of Development Review during the subdivision process. We compared the total number of lots created by 44 new subdivisions that had been approved since 2005 to the medium-range BLI estimates (based on LUD) that correlate to the parcels that were subdivided. The actual number of lots approved for these 44 developments is 1,579, while the medium-range potential lot yield estimated by the 2005 BLI was 1,550. Thus overall the BLI medium range estimate is slightly low, but underestimated by only 29 lots, which is less than a 2% difference.

Even though the 2005 medium range BLI estimates were slightly low, it was concluded that the medium range estimate based on designated land uses is the most accurate estimate to use.

When comparing the numbers, most of the time the medium range estimates were too high. Of the 44 subdivisions

Reviewed, BLI estimates were too high on 29, too low on 12 and identical on 3 of the subdivisions. If you remove the highest and lowest values, the two outliers, then approved lots would equal 1,130 and the 2005 BLI estimate was 1290 for the remaining 42 subdivisions. Thus shows a medium-range BLI overestimate of 160 lots after removing the highest and lowest points.

The subdivisions that had lot yields much higher or lower than the estimated BLI occurred because of issues discussed in the Limitations and Assumptions in Appendix C. BLI underestimates can occur if the property is rezoned, approved variances or zoning regulations were changed to allow retirement housing at higher densities, property eligible for multiple off-conveyances... While over estimates can occur if the property is: developed without annexation into one of the municipalities, rezoned or if site specific constraints are encountered.

Limitations and Assumptions

A number of assumptions and limitations were factored into the BLI estimates. See appendix B for a detailed description of each. The estimates presented in this report draw from the best available data and refer to the adopted zoning and comprehensive plan land use designations as of October 2011.

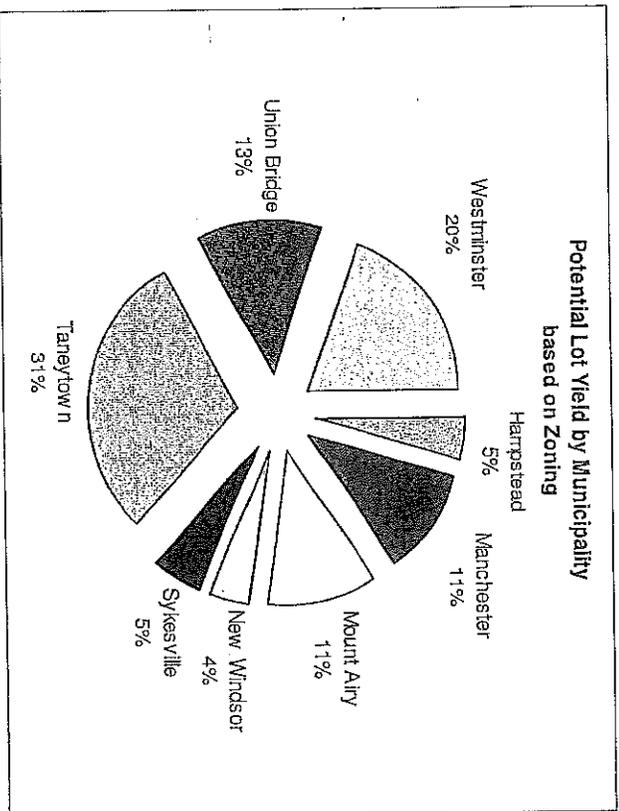
Carroll County Buildable Land Inventory

Countywide Totals of Residential Potential

This chapter includes a summary of the potential residential lot estimates for by municipality, DGA, and PFA. Municipal lot estimates are based on zoning, while DGA estimates are based on land use designations (proposed future zoning from current comprehensive plans). PFA estimates are given using both zoning and land use designations.

Municipal Estimates

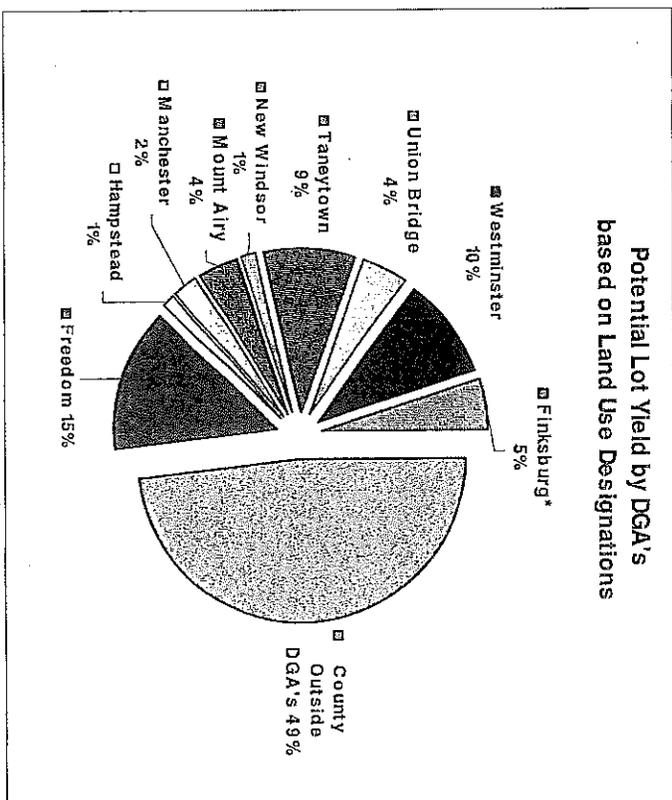
Potential Residential Lots by Municipality and County Unincorporated Area Based on Zoning	
Area	Potential Lots
Hampstead	235
Manchester	581
Mount Airy	598
New Windsor	223
Sykesville	275
Taneytown	1,584
Union Bridge	676
Westminster	1,030
Municipal Total	5,202
County Unincorporated	24,133
Total	29,335



Carroll County Buildable Land Inventory

Designated Growth Area Estimates

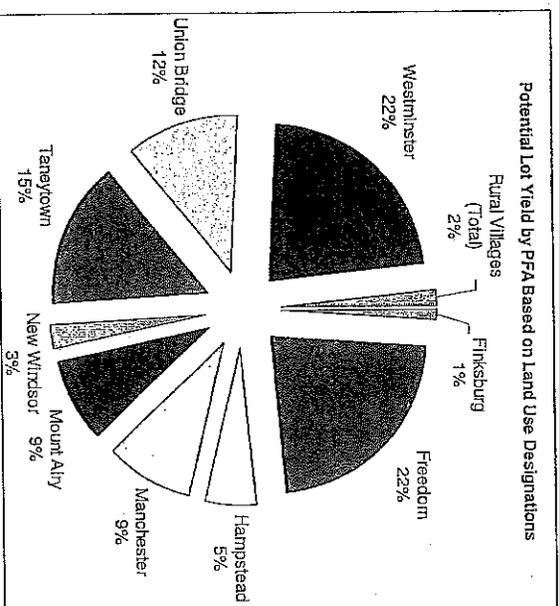
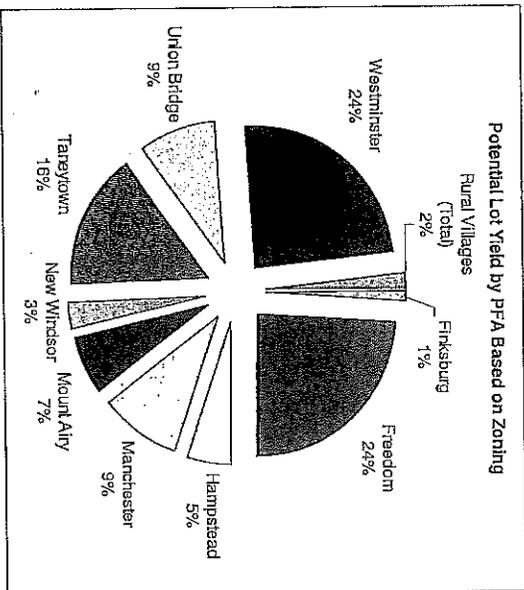
Potential Residential Lots by Designated Growth Area Based on Land Use Designations	
Area	Potential Lots
Freedom	4,263
Hampstead	414
Manchester	713
Mount Airy	1,167
New Windsor	434
Taneytown	2,752
Union Bridge	1,313
Westminster	2,996
Finksburg*	1,515
DGA Total	15,567
County Non-DGA	14,447
Total	30,014



Carroll County Buildable Land Inventory

Priority Funding Area Estimates

Potential Residential Lots by Priority Funding Area Based on Zoning and Land Use Designations		Potential Lots by Zoning	Potential Lots by Land Use Designations
Finksburg	122	120	
Freedom	2,703	2,522	
Hampstead	577	573	
Manchester	1,041	1,047	
Mount Airy	764	958	
New Windsor	341	283	
Taneytown	1,739	1,675	
Union Bridge	969	1,285	
Westminster	2,750	2,520	
Rural Villages (Total)	186	186	
PFA Total	11,192	11,169	
County Non-PFA	18,143	18,845	
Total	29,335	30,014	



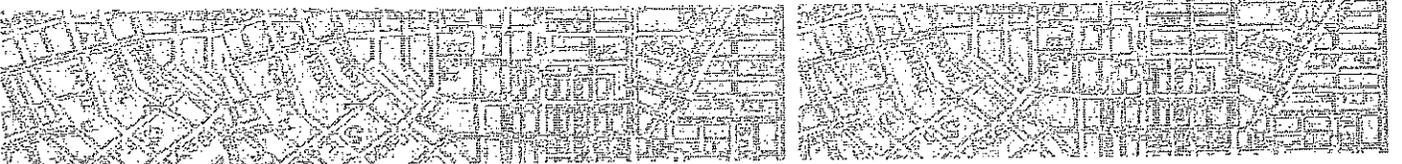
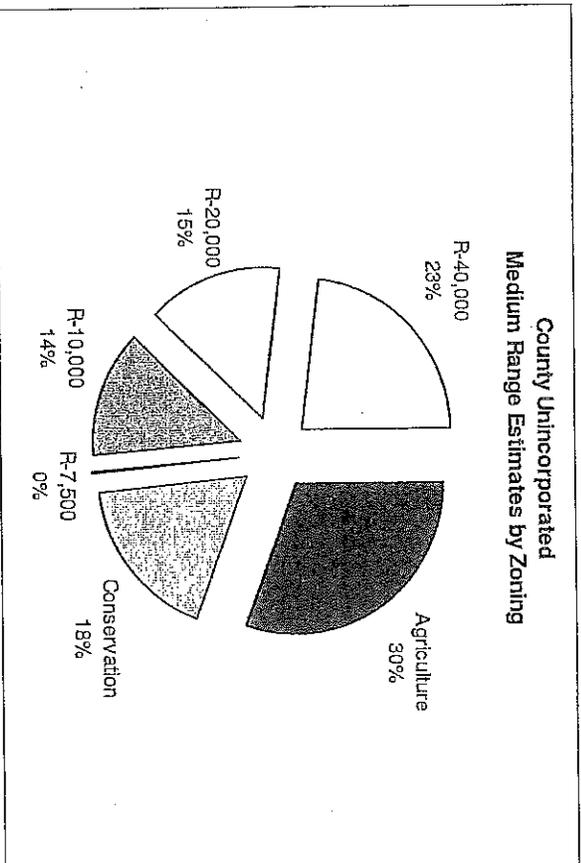
Carroll County Buildable Land Inventory

Unincorporated Residential Potential

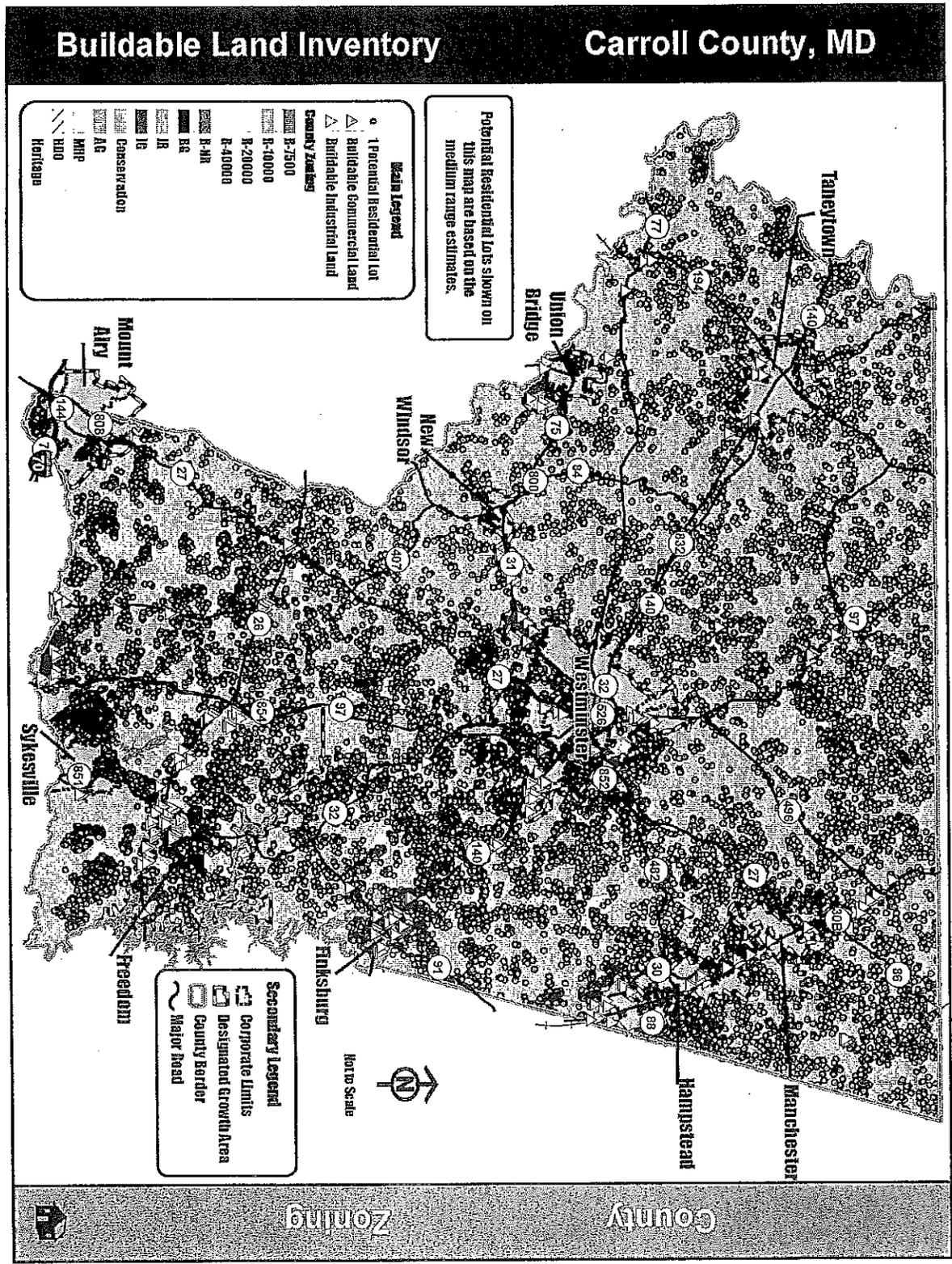
Unincorporated Area Based on Zoning

The estimates below were derived using the current county zoning, and excludes all incorporated lands within the towns.

Potential Residential Lots by Unincorporated Area Based on Zoning		
Zoning District	Buildable Acreage	Potential Lots
Agriculture	77,807	7,360
Conservation	15,704	4,282
R-7,500	21	90
R-10,000	967	3,300
R-20,000	2,233	3,555
R-40,000	6,217	5,546
Total	102,949	24,133



Carroll County Buildable Land Inventory

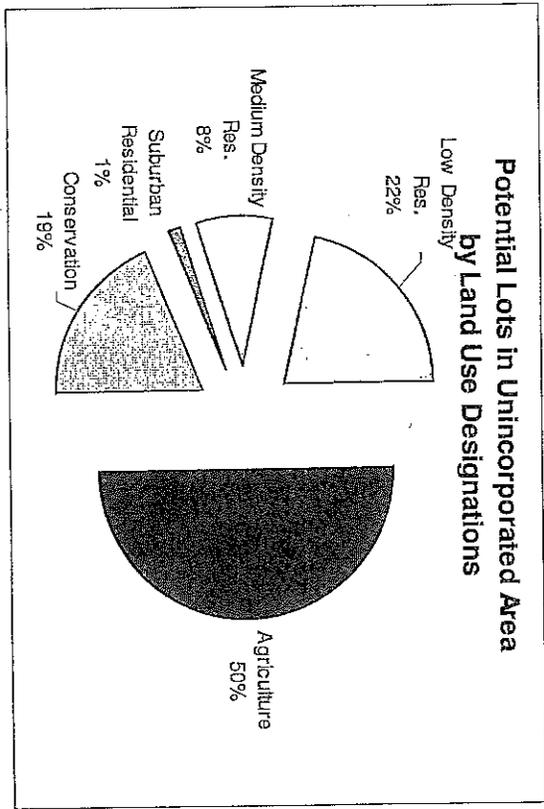


Carroll County Buildable Land Inventory

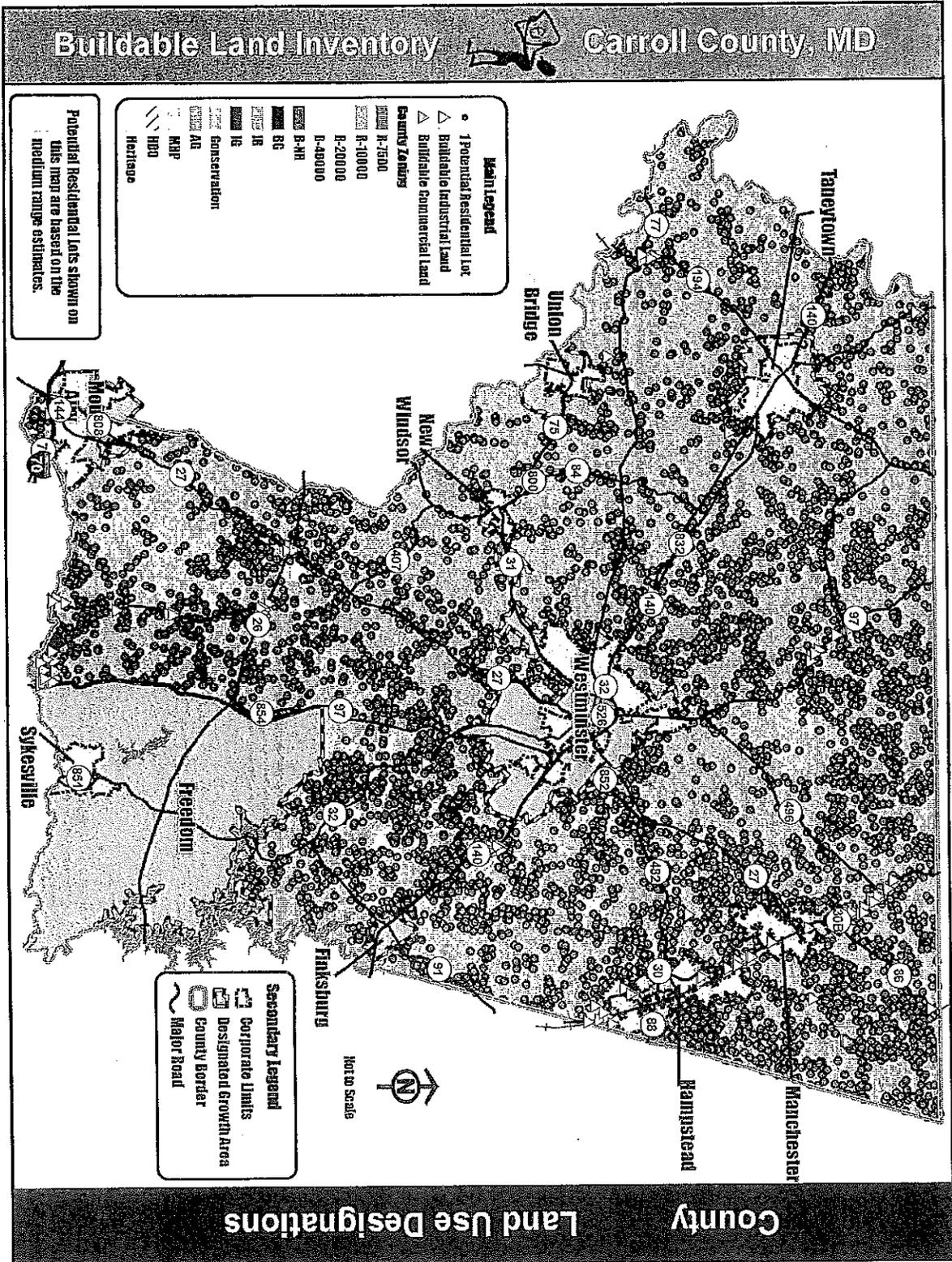
Unincorporated Area Based on Land Use Designations

The estimates below were derived using the current land use designations, and excludes all lands within Designated Growth Areas.

Potential Residential Lots by Unincorporated Area based on Land use Designations		
Land Use Designation	Total Buildable Acreage	Total Potential Lots
Agriculture	75,826	7,167
Conservation	10,018	2,742
Suburban Residential	55	205
Medium Density Residential	712	1,187
Low Density Residential	3,838	3,146
Total	90,448	14,447



Carroll County Buildable Land Inventory



Carroll County Buildable Land Inventory

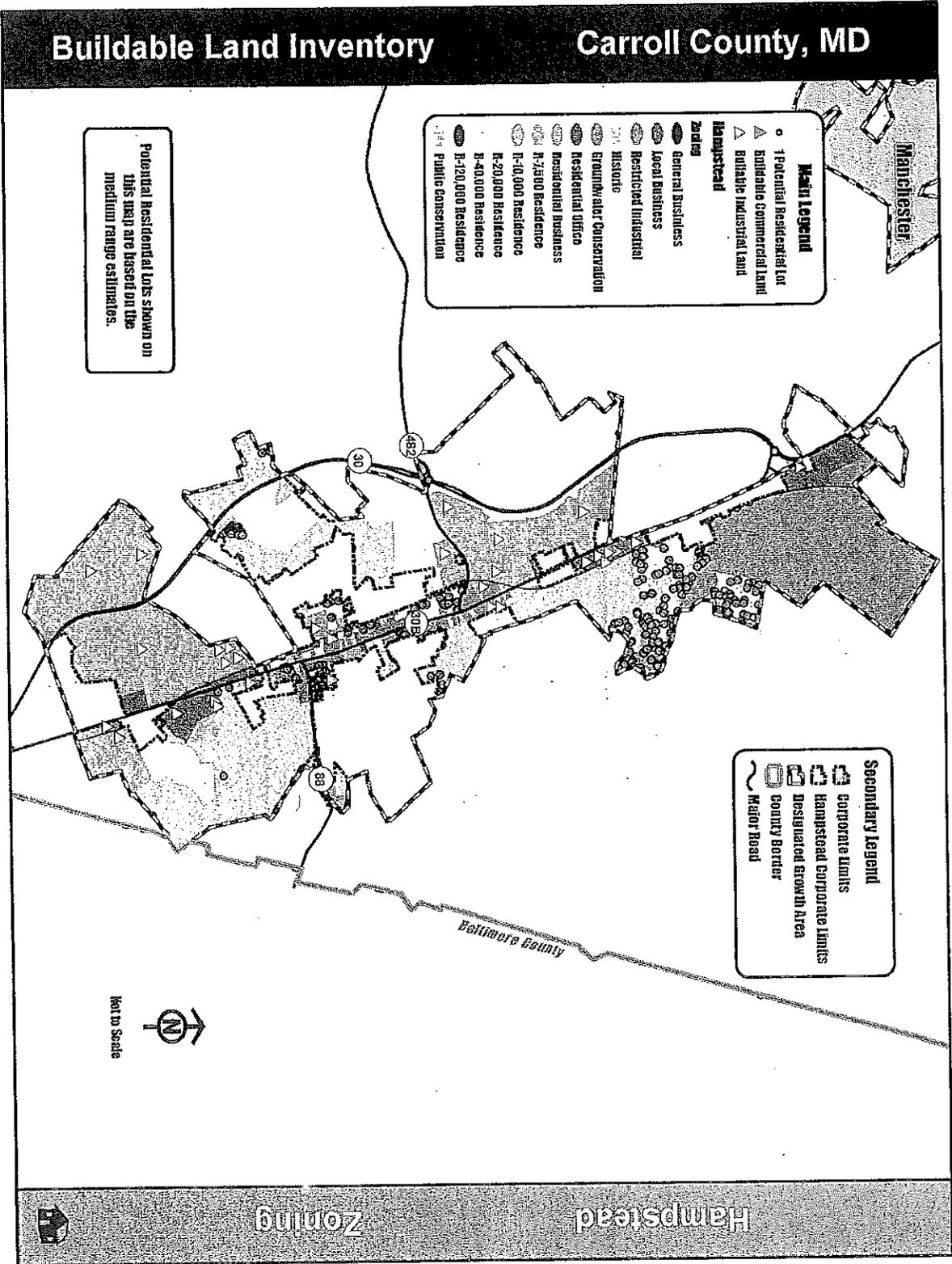
Hampstead

Zoning

The table below is based on the Town of Hampstead's current zoning, which is shown on the corresponding map. The Town of Hampstead is comprised of approximately 2,034 acres.

Potential Residential Lots in the Town of Hampstead Based on Zoning		
Zoning District	Total Buildable Acreage	Total Potential Additional Lots
Incorporated		
R-7,500	12.69	54
R-10,000	39.17	123
R-40,000	41.49	45
Residential Business	4.02	13
Incorporated Totals	97.4	235

Carroll County Buildable Land Inventory



Potential Residential Lots shown on this map are based on the medium range estimates.

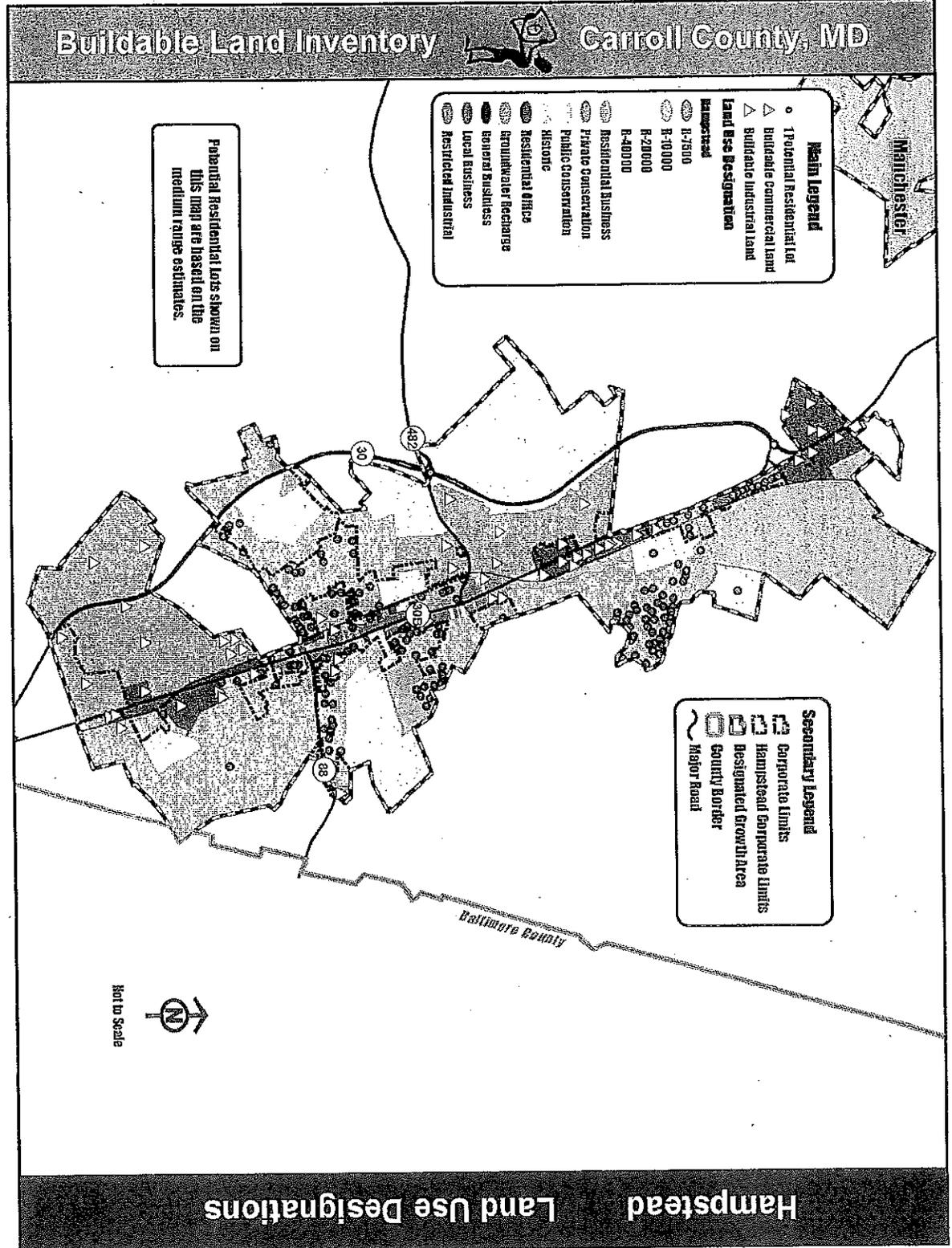
Carroll County Buildable Land Inventory

Land Use Designations

The estimates below are based on the current land use designations within the Hampstead DGA, which are shown on the corresponding map. Hampstead's DGA is comprised of approximately 2,579 acres.

Potential Residential Lots in the Hampstead DGA Based on Land Use Designations		
Land Use Designation	Total Buildable Acreage	Total Potential Additional Lots
Incorporated		
R-7,500	12.49	51
R-10,000	38.81	124
R-40,000	41.49	45
Residential Business	5.26	19
Unincorporated		
R-7,500	11.27	51
R-10,000	45.76	122
Residential Business	0.58	2
Incorporated Totals	98.1	239
Unincorporated Totals	57.6	175
DGA Totals	155.7	414

Carroll County Buildable Land Inventory



Carroll County Buildable Land Inventory

Manchester

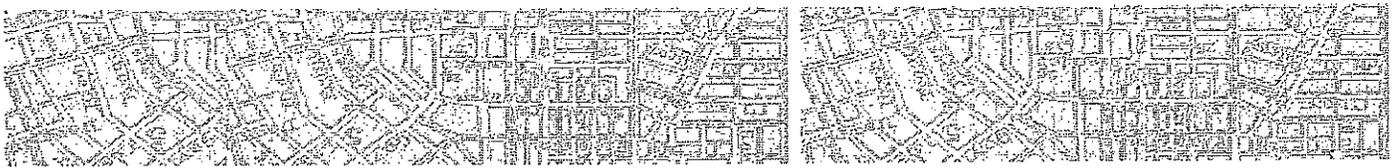
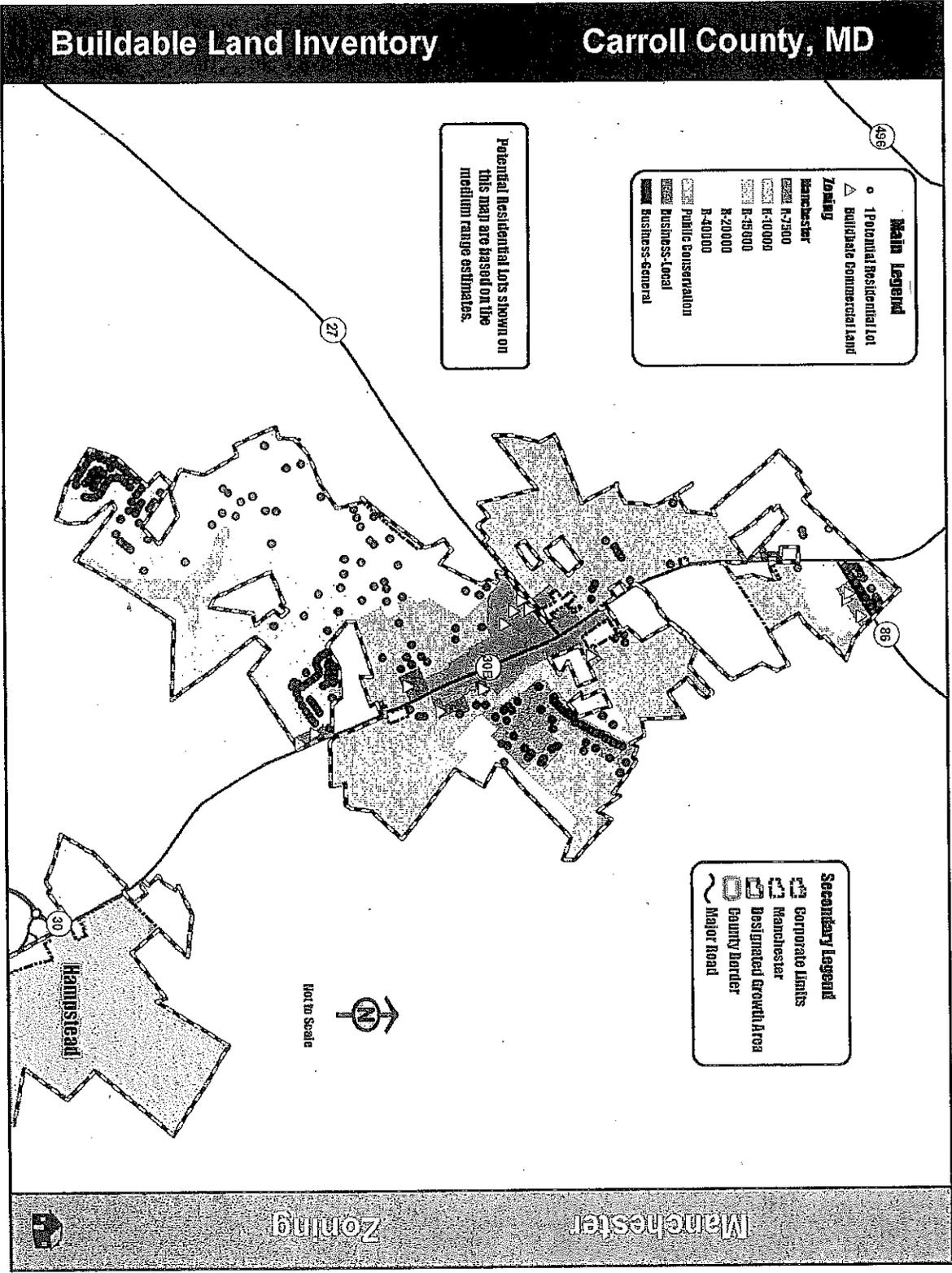
Zoning

The table below is based on the Town of Manchester's current zoning, which is shown on the corresponding map. The Town of Manchester is comprised of approximately 1,486 acres.

Potential Residential Lots in the Town of Manchester Based on Zoning		
Zoning District	Total Buildable Acreage	Total Potential Additional Lots
Incorporated		
R-7,500	21.68	69
R-10,000	62.19	188
R-15,000	64.6	126
R-20,000	88.01	155
R-40,000	45.35	43
Incorporated Totals	281.8	581



Carroll County Buildable Land Inventory



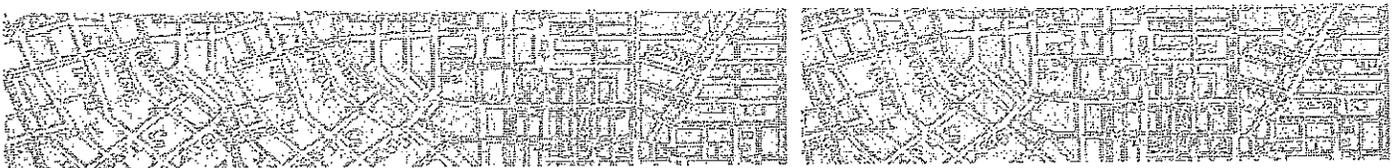
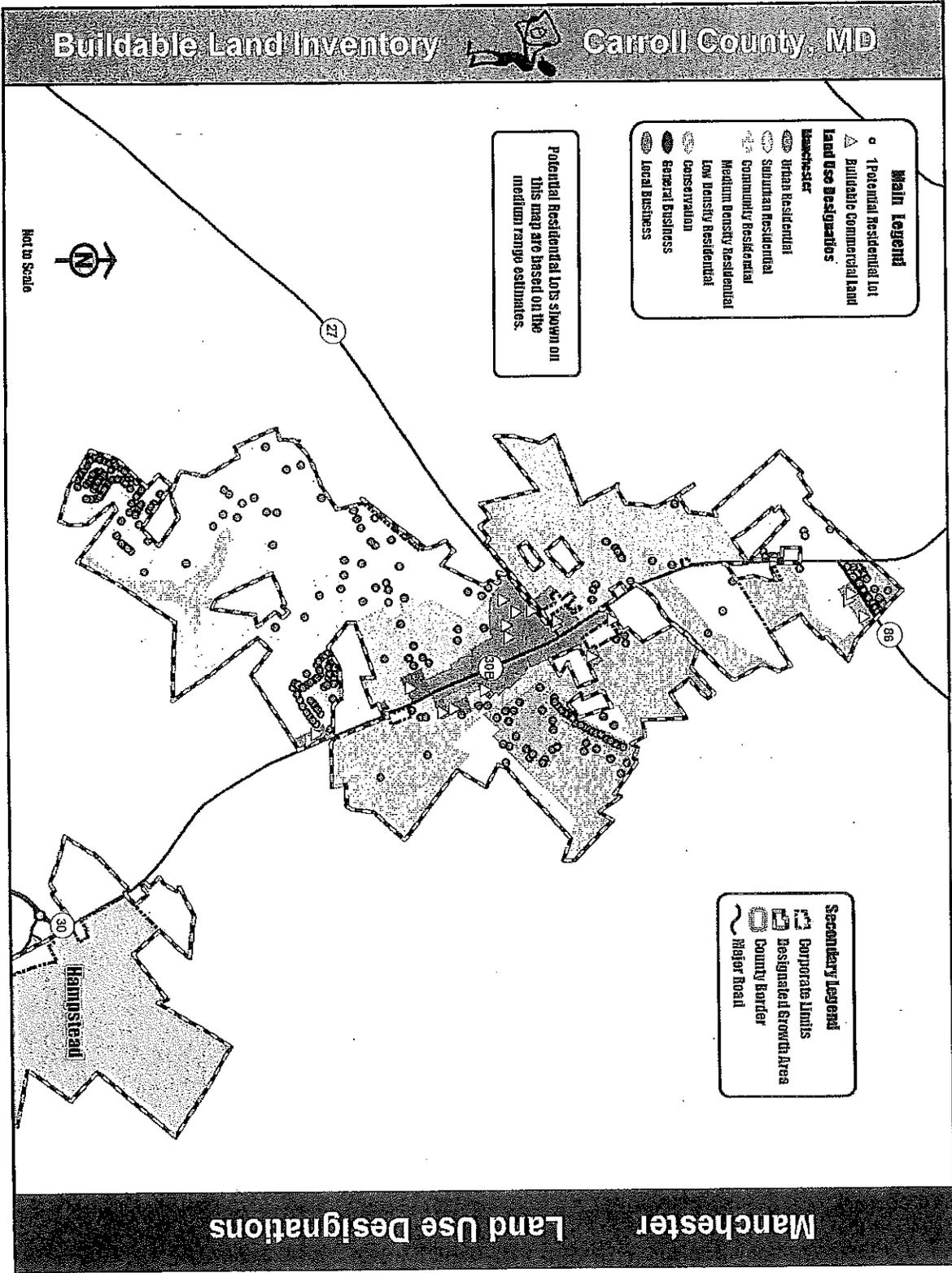
Carroll County Buildable Land Inventory

Land Use Designations

The estimates below are based on the current land use designations within the Manchester DGA, which are shown on the corresponding map. Manchester's DGA is comprised of approximately 1,585 acres.

Potential Residential Lots in the Manchester DGA Based on Land Use Designations		
Land Use Designation	Total Buildable Acreage	Total Potential Additional Lots
Incorporated		
Urban	21.2	68
Suburban	61	183
Community	49.78	118
Medium Density	88.02	155
Low Density	45.76	43
Conservation	97.04	30
Unincorporated		
Medium Residential	51.41	109
Conservation	25.56	7
Incorporated Totals	362.8	597
Unincorporated Totals	76.97	116
DGA Totals	439.8	713

Carroll County Buildable Land Inventory





Carroll County Buildable Land Inventory

Appendices

Appendix A: Multipliers

Appendix B: Absolute and Partial Constraint Details

Appendix C: Assumptions and Limitations of Data

Appendix D: Low and High-range Residential Estimates

Carroll County Buildable Land Inventory



Carroll County Buildable Land Inventory

Appendix A: Residential Multipliers

These multipliers were derived for the original report in 2005 and were accepted unchanged for this latest report.

To determine lot yield in Carroll County when a subdivision is proposed, a straight density calculation on the gross acreage is not used. Rather, certain factors are considered and certain acreage removed from the gross acreage before lot yield can be calculated. Therefore, using a straight density calculation on gross acreage produces an inflated potential lot yield. To try to account for some of the factors that almost always affect lot yield, the absolute constraint data was used to remove parcels from consideration that weren't likely to have a lot yield. The remaining parcels would be considered developable. However, in calculating the potential number of lots that could be created, infrastructure – in this case, new roads and stormwater management (SWM) – needed to serve the new lots also needs to be considered. In most cases, needed infrastructure will reduce the overall lot potential.

Since the actual acreage needed for roads and SWM on each undeveloped parcel cannot be determined before a development plan is submitted, a percentage of gross acreage that would likely be taken by roads and SWM was developed to help provide a more accurate picture of potential lot yield.

Various Carroll County data was reviewed to identify the lot yield historically attained for property in each of the residential zoning/land use designation categories. A multiplier, representing the percentage of land remaining

after accounting for infrastructure, was estimated for each residential zoning/land use designation categories. Since the data was not easy to aggregate, the numbers were modified to reflect a more realistic and logical figure for Carroll County.

The following steps were taken to identify these initial multipliers:

1. The Development Review Tracking System, which was created in 1990, was queried to create a list of all of the subdivisions in the C and R Districts that have been recorded since 1995. The query identified 76 plans in the C District, 37 plans in the R-40,000 District, 34 plans in the R-20,000 District, 26 plans in the R-10,000 District, and 3 plans (since 1990) in the R-7,500 District.
2. In each of these districts, it was determined that a minimum of 15 plans should be reviewed for acreage figures to calculate an average percentage of gross acreage dedicated to new roads and SWM. In reality, all of the plans were reviewed in the R-7,500 District because there were only a total of 3 plans recorded since 1990. In the other districts, more than 15 plans were actually reviewed. Although every other plan on the list (listed chronologically by recording date) was reviewed to provide a random review, additional plans that yielded large numbers of lots were also reviewed to try to increase the level of representative accuracy. Most of the smaller subdivisions – 10 or less lots – did not require an appreciable amount of acreage for new roads or SWM. A total of 27 plans were reviewed in the C District, 20 plans in the R-40,000 District,

Carroll County Buildable Land Inventory

21 plans in the R-20,000 District, and 16 plans in the R-10,000 District.

3. The scanned plats for the above plans were reviewed to identify gross acreage, actual lot yield, acreage in new roads, and acreage in SWM. Some plans had to be eliminated from the calculations because acreage figures were either not provided on the plat or were not readable. Those eliminated were not counted in the total number of plans reviewed.

4. For each plan reviewed, the total acreage in new roads was divided by the gross acreage to determine a percentage of the total plat area devoted to new roads. In each district, the percentage of the gross acreage of each of the plans was averaged to identify an overall percentage of the parcel that should represent new roads when lot yield is estimated for purposes of this study.

5. Task 4 above was repeated using the total acreage in SWM to determine an overall percentage of the parcel that should represent SWM facilities when lot yield is estimated for purposes of this study.

6. The total identified percentage for each district for both new roads and SWM were added together to produce one overall percentage for new Infrastructure to be applied for the buildable land calculations on potential lot yield. Because there was insufficient data for the R-7,500 District, the percentage and multiplier to be used for R-10,000 was identified for the R-7,500 District as well.

The original multipliers developed using this method were approximated as .99 for the Conservation zone, .95 for the R-40,000 zone, .89 for the R-20,000 zone, .93 for the R-10,000 zone, .93 for the R-7,500 zone, and .89 for the Heritage zone. The table below identifies the modified

multipliers, the multipliers actually used for this report. Many jurisdictions around the country that have done a buildable land inventory use multipliers within the .75 to .85 range. However, for Carroll County, the numbers tend to be correspondingly higher. Therefore, a graduated range was developed that closely approximated the initial multipliers, but that were more practical and logical. These multipliers are the best representation for Carroll County at this time.

Modified Multipliers Used in This Report:

Multiplier for Gross Acreage of Buildable Residential Land To Calculate Buildable Land Remaining After Accounting for New Roads and SWM Facilities	
Zoning District	Multiplier
Conservation	0.950
R-40,000	0.925
R-20,000	0.900
R-10,000	0.875
R-7,500	0.850
Heritage**	0.900

* A multiplier was not identified for the A District because the formula used to calculate lot yield in that District can accommodate needs for new Infrastructure without reducing lot yield.

** The minimum lot size in the Heritage District is the same as for the R-20,000 District. Therefore, the same multiplier was used for both.

Source: Carroll County Bureau of Planning - For Use w/ Buildable Land Inventory Only

To identify multipliers for the municipalities, the multiplier for the County zoning district that was roughly closest to the municipality's zoning district was used.

Carroll County Buildable Land Inventory

Appendix B: Residential Constraints (Detailed)

1. Absolute constraints: Factors known to affect lot yield were identified. These factors were considered constraints that absolutely would reduce the lot yield or development potential for any given parcel. In most cases, absolute constraints are also factors that apply to an entire parcel rather than just part of a parcel. Note that existing roads are not part of the parcel layer. Therefore, they are automatically not included in the acreage. The absolute constraints are as follows:

- Carroll County-owned land
- Land owned by other government jurisdictions (i.e., land owned by municipalities within Carroll County, State of Maryland, Baltimore City, federal government, other counties)
- Existing reservoirs
- Agricultural Zoning District remaining portions – This is the Agricultural parcel from which other residential lots were subdivided.
- Agricultural Land Preservation Easements – This data includes property permanently preserved through Maryland Agricultural Land Preservation Foundation (MALPF) or the County program.
- Rural Legacy Easements – This data includes property permanently preserved as part of the State's Rural Legacy program.
- Other easements (MET, CCLT, etc.)
- Road Rights-of-Way – The right-of-way (ROW) for roads is considered to be 30 feet on either side from the centerline of the road, for a total width of 60 feet. While roads are automatically excluded from the calculations because they are not part of the parcel data, some ROW goes beyond the actual roadway. Therefore, ROW was removed as an absolute constraint. ROW does not reduce lot yield in the Agricultural Zone. Therefore, this constraint was not applied to parcels in that district.
- Parks – All publicly owned County and municipal parks were included.
- Open space – This is land that resulted from residential subdivision, usually with clustering, and was dedicated and platted as open space. Some of it is publicly owned, and some of it is owned by a homeowners' association.
- Quarry-owned Properties – These are properties owned by quarry companies. These include the entire parcels containing the Lehigh quarry in Union Bridge, the Lehigh quarry in New Windsor, and the Arundel and Genstar/LaFarge quarries in Westminster.
- Landlocked parcels – Parcels that do not have County-maintained road frontage generally cannot be developed. Exceptions, such as granting of an access easement or a landlocked parcel owned by the same person as an adjoining parcel with road frontage, whereby that parcel could be developed, were included in the calculations. (The acreage figures for this data were included in "Miscellaneous Parcels Not Buildable").

Carroll County Buildable Land Inventory

- Power lines – This includes either properties identified in the database as owned by a utility company or parcels that are obvious on viewing the mapped parcels that those parcels exist for the purpose of running power lines across them.
- School property – All property owned by the Carroll County Board of Education was included, as well as McDaniel College and Carroll Community College.
- Public use – Any land, either publicly or privately owned, that is generally open to the public, the public is invited to use, or is somehow used for recreational purposes, and is not developed for residential uses. This includes such things as schools, churches, parks, golf courses, libraries, fire stations etc.
- Other miscellaneous parcels identified as not buildable – These are lands which after a brief review of orthophotographs, were determined to be either not buildable or not further subdividable. This includes parcels that were twice the minimum lot size, but the location on that parcel of an existing house would preclude further subdivision. A complete database of open space parcels was not available. However, to the extent possible, known open space parcels were also reviewed and removed for the buildable land data.

The following table shows the total acreage in each constraint for which the data could be calculated.

Constraint	Acreage
Carroll County-owned land	5,102.8
Land owned by other government jurisdictions (i.e., land owned by municipalities within Carroll County, State of Maryland, Baltimore City, federal government, other counties)	14,398.0
Agricultural Remaining Portions	14,065.6
▪ Preservation Easements (Agricultural Land Preservation easements, Rural Legacy easements, Other easements (MET, CCLT, etc.)	60,090.0
Parks	9,994.7
Quarry Company Owned	2,935.3
Power lines	985.1
School property	1430.0
Public use	13022.0
Misc parcels not buildable	13,283.6
Total Acreage of Absolute Constraints	135,307.1

Source: CC Bureau of Planning, 2011

Carroll County Buildable Land Inventory

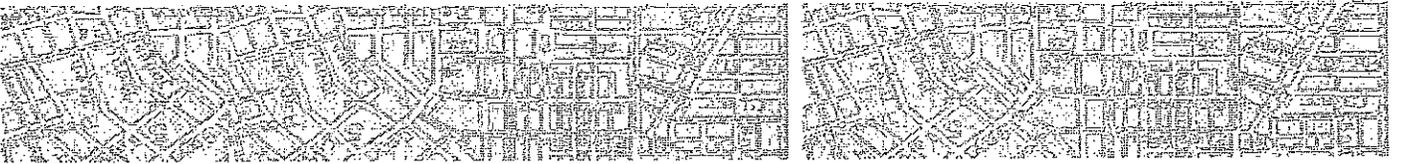
Partial constraints: Factors that have the potential to affect lot yield but for which this is not always the case were considered partial constraints. In many cases, while areas with these constraints cannot be developed, those areas may be able to be included in a buildable lot rather than excluded from lot yield determination. Some partial constraints affect lot yield on a case by case basis, depending on such things as amount and quality in the case of certain environmental resources. Because of the nature of most of the partial constraints, partial constraints are generally not limited within parcel lines and may cover only part of a parcel. These partial constraints were identified as follows:

- Streams and stream buffers – For purposes of this analysis, buffers are calculated at 100 feet from either side of the center of the stream. In reality, buffer widths vary.
- 100-year floodplains – Floodplains are those that are mapped on the Federal Emergency Management Agency's (FEMA) floodplain maps.
- Steep slopes soils – Steep slopes are considered to be those slopes over 25 percent.
- Wetlands – Wetlands are those that have been identified by Maryland Department of Natural Resources.
- Wellhead buffers – Buffers are on existing and planned community water supply wellheads and extend a distance of 100 feet from the wellhead.
- Communications towers – The fall line of the tower was used as a buffer area. The fall line is determined by tower height. Where no fall line was set, a 250-foot buffer was used.

The following table shows the total acreage of land in each partial constraint for which the data could be calculated. A map of each of the partial constraints follows this table.

Acreage of Land in Each Partial Constraint	
Streams and stream buffers	16,128.0
100-year floodplains	16,547.0
Steep slopes soils	22,518.6
Wetlands	12,346.0
Wellhead buffers	118.3
Communications towers	218.9
Total Acreage of Partial Constraints (Individual)*	67,876.8

* Many of the partial constraints overlap one another, so the actual acreage is much lower. The GIS partial constraints layer was too large to merge together (system constraints), which would give us an actual total acreage.
Source: CC Bureau of Planning, Apr. 2014



Carroll County Buildable Land Inventory



Carroll County Buildable Land Inventory

Appendix C: Residential Assumptions & Limitations

General:

- The figures in this report are based on the regulations and comprehensive plans that existed at the time the calculations were made. Where zoning is referenced under this section of the report, it refers to the zoning that was in place when the corresponding calculations were run. Where the land use designations are referenced, it refers to the future zoning, or land use designation, shown on the adopted comprehensive plans.
- Data used for these calculations are assumed to be accurate.
- Non-conforming uses that could be converted to other uses were not considered as part of this study.
- Potential individual piecemeal rezoning requests and potential comprehensive rezonings were not considered.
- The potential lots are county-wide and municipal estimates and should not be used on individual parcels. For actual available subdivision potential of an individual parcel confer with the Carroll County Bureau of Development Review.

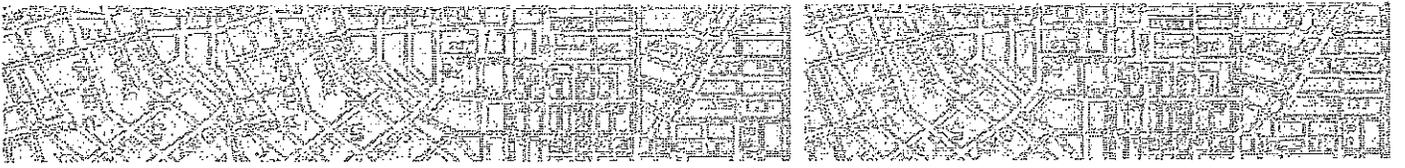
Partial & Absolute Constraints:

- For purposes of this analysis, it is assumed that the types of land/parcels identified as absolute constraints will not be developed for residential purposes:
- Agricultural Land Preservation Easements are considered absolute constraints for the purposes of these calculations. However, some of these parcels do have lots that can be subdivided (children's and owner's lots). The exact number of lots is not known but is considered to be an insignificant amount. For purposes of this study, it is assumed that all parcels under easement have no further residential development potential. MALPF Districts are no longer considered an absolute constraints due to changes in the MALPF program.
- For purposes of these calculations, the 60-foot right-of-way (ROW) used for County roads is assumed to be the same for new roads within the municipalities. However, the municipalities may have different ROW requirements than the County, which could affect potential lot yield.
- Quarries are generally long-term uses of a property. Therefore, it was assumed that any property owned by a quarry company would not be developed for other uses.

Carroll County Buildable Land Inventory

Assumptions Regarding Residential Lot Yield:

- Residential parcels that contain an address point were considered developed. Those parcels without an address point were considered to be undeveloped. The address point's database is maintained by the Carroll County Office of Public Safety.
- Parcels considered undeveloped that are not large enough to further subdivide, based on the minimum lot size for the zoning district in which the parcel is located, are each counted as one lot in potential lot yield totals.
- Parcels located outside a planned water or sewer service area that are less than ¾ acre in size are considered unbuildable. Lots existing before 1963 could potentially appeal the minimum requirements for well and septic to the Health Department, which could result in additional lots.
- This study assumes that each buildable parcel will develop as single-family units only. However, planned unit developments (PUD) are permitted in R-10,000 and R-7,500 under the County zoning ordinance as well as in some of the municipal zoning districts. PUD's provide opportunity for multi-family housing and can potentially result in a higher lot yield than would be achieved if only single-family houses were developed as part of the plan. Some zones allow two-family or multi-family housing even without being considered a PUD. Where higher-density housing is permitted, this could result in underestimating the potential lot yield for these districts.
- Residential parcels containing only one dwelling unit are considered further subdividable if the parcel size is at least twice the minimum lot size for the zoning district. It is assumed that the remainder will be equal to the minimum lot size allowable in the district, allowing the property owner to maximize the development potential.
- It is assumed that where single-family residential uses are permitted in business districts in the County or the municipalities, the land will develop with business uses rather than residential. The one exception to this is the Residential-Business zone in the Town of Hampstead, where buildable land was assumed to develop residentially.
- Public uses are defined in the Carroll County Existing Use of Land Inventory as any land that is either publicly or privately owned; that is generally open to the public, the public is invited to use, or is somehow used for recreational purposes; and that is not developed for residential uses. This category would include such things as schools, churches, parks, golf courses, libraries, etc. Many of these uses overlap with parcels that would be eliminated as absolute constraints, such as schools and parks. However, all uses in this category on the Existing Use of Land Inventory are assumed to remain in their current use and not develop residentially even if so zoned.
- It was assumed that land designated as Viable Resource Areas (VRA) in the Mineral Resource Overlay (MRO) would take advantage of the Transfer of Development Rights (TDR) program to get their maximum lot yield. The use of TDR's gives the owner a lot bonus of twice the number of lots to which they would typically be entitled. This could potentially result in an



Carroll County Buildable Land Inventory

overestimated lot yield in the VRA if not all property owners exercise their right to use the TDR program.

Limitations Potentially Affecting Residential Lot Yield:

- Calculations for the unincorporated areas were based on existing zoning at the time the calculations were run. Since the community comprehensive plans for many of the municipalities call for a change of zoning to match the land use designation on the adopted plan to occur only upon annexation, in reality the potential lot yield would be higher in most instances than would be achieved with existing zoning. Therefore, calculations were also run for the Designated Growth Areas (DGA). Calculations for the DGA's – including the incorporated areas and unincorporated areas that are covered by a more detailed comprehensive plan than the countywide Master Plan – were based on the land use designations, or proposed future zoning, shown in the adopted comprehensive plan for the community. The land use designation provides a more accurate projection of planned potential lot yield.
- At the time these calculations were run, the database for Agricultural District remaining portions did not identify the number of potential additional lots remaining to be subdivided from a remaining portion. Since some remaining portions had taken some, but not all, of their residential development rights, all remaining portions with subdivision potential were eliminated from the Agricultural remaining portions constraint data layer and considered buildable. Therefore, remaining lots to be subdivided were based on the full acreage of the remainder. The total number of additional lots resulting from this land is, therefore, likely to be overestimated.
- Data is not available to identify parcels that still have off-conveyances remaining to be taken. Therefore, dwelling units resulting from off-conveyances are not reflected in the figures for potential lot yield.
- The lot yield calculations and resulting potential units do not take into account accessory dwelling units, which are permitted in the A, C, and all R Districts. While accessory dwelling units do not increase lot yield, they could increase potential dwelling units and population. This study, however, only analyzes buildable land for principal dwelling units.
- The text of the Mineral Resources Overlay District only addresses TDR's in the VRA. Therefore, no lot rights were assigned to parcels identified within the MRO for Mineral Resource.
- For the purposes of this study, it is assumed that land zoned for commercial or industrial use will not develop residentially. Therefore, these calculations do not account for nursing homes and other residential-type facilities that are considered a commercial use and are allowed in a commercial zone.
- The same multipliers used to account for infrastructure needs on buildable land in the county were used for each similar zoning district within the municipalities. Some of the towns do not have enough development history to develop a multiplier based on what has typically resulted from development in that municipality. While others do, since each individual municipality has regulations that might vary slightly from the County,



Carroll County Buildable Land Inventory

these differences were not considered where minimum lot sizes apply.

- ❑ Rather than requiring minimum lot sizes, some of the municipalities use a number of units per acre that are permitted in each district. Some are based on gross acreage, and others are based on net acreage. Wherever possible, net was defined as it applies to each applicable municipality. Where number of permitted units is based on gross acreage, only high-end and low-end estimates were provided, as a straight density calculation is not applicable in these districts.

- ❑ Landlocked parcels, which are parcels that do not have County-maintained road frontage, generally cannot be

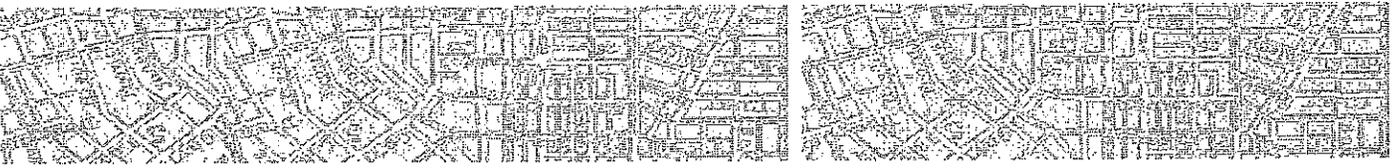
developed. There are exceptions, such as granting of an access easement or a landlocked parcel owned by the same person as an adjoining parcel with road frontage, whereby that parcel could be developed. Since a countywide database of landlocked parcels was not available, these parcels were reviewed, and to the extent possible, were removed from the buildable land data as an absolute constraint. Where possible, landlocked parcels owned by the same person as an adjoining parcel with road frontage were included in the buildable land data.

Carroll County Buildable Land Inventory

Appendix D: Low and High-Range Estimates

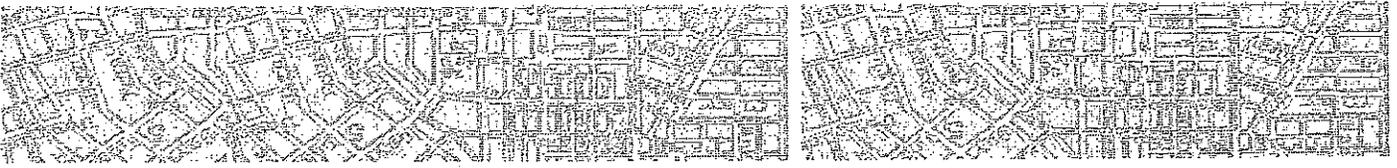
Countywide

Zoning District	Potential Additional Residential Lots Countywide for Unincorporated Areas Based on Zoning			
	High		Low	
	Total Parcels	Total Buildable Acreage	Total Potential Lots	Total Potential Lots
Agriculture	4,192	77,807	7,360	7,360
Conservation	1,000	16,705	4,648	2,822
R-7,500	26	24	106	79
R-10,000	586	1,089	3,738	2,976
R-20,000	894	2,469	3,922	3,168
R-40,000	1,163	6,782	6,130	4,860
Countywide Totals	7,861	104,876	25,904	21,255



Carroll County Buildable Land Inventory

Hampstead

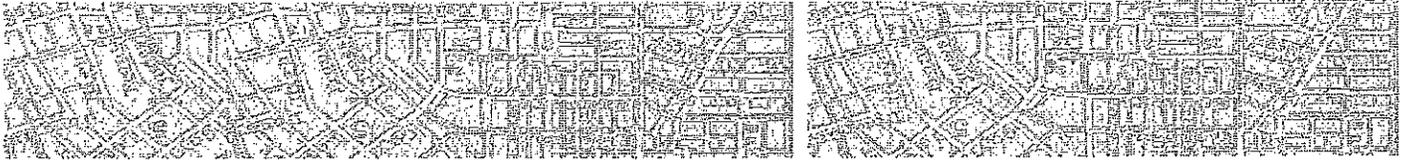


Potential Additional Residential Lots in the Town of Hampstead									
Based on Zoning									
Zoning District	Total Parcels	High			Low			Total Potential Lots	
		Total Buildable Acreage	Total Potential Lots	Total Parcels	Total Buildable Acreage	Total Potential Lots	Total Parcels		
Incorporated									
R-7,500	17	14.93	67	17	12.5		51		
R-10,000	56	44.76	129	53	37.07		106		
R-40,000	2	44.85	48	2	37.46		40		
Residential Business	9	4.44	13	9	4.02		13		
Incorporated Totals	84	108.98	257	81	91.05		210		

Potential Additional Residential Lots in Hampstead Designated Growth Area									
Based on Land Use Designations									
Land Use Designation	Total Parcels	High			Low			Total Potential Lots	
		Total Buildable Acreage	Total Potential Lots	Total Parcels	Total Buildable Acreage	Total Potential Lots	Total Parcels		
Incorporated									
R-7,500	16	14.69	59	16	12.38		50		
R-10,000	56	43.89	127	55	33.3		104		
R-40,000	2	44.85	48	2	37.46		40		
Residential Business	11	5.9	19	11	5.26		19		
Unincorporated									
R-7,500	16	13.26	58	15	9.6		41		
R-10,000	58	52.3	131	55	43.56		119		
Residential Business	2	0.58	2	2	0.58		2		
Incorporated Totals	85	109.33	253	84	88.4		213		
Unincorporated Totals	76	66.14	191	72	53.74		162		
DGA Totals	161	175.47	444	156	142.14		375		

Carroll County Buildable Land Inventory

Manchester



Potential Additional Residential Lots in the Town of Manchester									
Based on Zoning									
Zoning District	Total Parcels	High			Low			Total Potential Lots	Total Potential Lots
		Total Buildable Acreage	Total Potential Lots	Total Parcels	Total Buildable Acreage	Total Potential Lots	Total Potential Lots		
<i>Incorporated</i>									
R-7,500	45	25.5	74	44	20.75	66			
R-10,000	31	71.06	225	28	56.26	181			
R-15,000	110	65.02	127	111	64.1	125			
R-20,000	65	97.79	171	64	85.2	148			
R-40,000	5	49.03	50	5	42.42	41			
Incorporated Totals	256	308.4	647	252	268.73	561			

Potential Additional Residential Lots in Manchester Designated Growth Area									
Based on Land Use Designations									
Land Use Designation	Total Parcels	High			Low			Total Potential Lots	Total Potential Lots
		Total Buildable Acreage	Total Potential Lots	Total Parcels	Total Buildable Acreage	Total Potential Lots	Total Potential Lots		
<i>Incorporated</i>									
Urban	44	24.92	71	41	19.37	62			
Suburban	30	69.71	208	27	58.62	176			
Community	109	55.93	119	109	48.33	117			
Medium Density	65	97.8	165	62	78.47	147			
Low Density	5	49.47	47	5	42.75	41			
Conservation	4	102.15	31	3	82.56	25			
<i>Unincorporated</i>									
Medium Residential	5	57.12	121	4	48.6	103			
Conservation	1	26.9	7	1	16.82	4			
Incorporated Totals	257	399.98	641	247	330.1	568			
Unincorporated Totals	6	84.02	128	5	65.42	107			
DGA Total	263	484	769	252	395.52	675			