





3.0 Build-Out Scenario

WHAT'S INSIDE

The Build-Out Scenario section describes a potential future for Brecksville based on current trends and regulations. The scenario shows currently vacant land, how it can presently be developed, and the impacts that development would have on the City of Brecksville.

The scenario is built on three steps: identifying vacant land, analyzing what can be built on that vacant land, and showing how full build-out would affect population and the environment.

HOW DO I USE IT?

The information shown in the build-out scenario is meant to describe the City's current trends and how that would impact the City in the future. These impacts should be used to determine future service needs based on current development trends. Alternatively, the scenario can help to showcase positive or negative outcomes of current trajectories and therefore can help identify ways in which the City would like to change, alter, or expand.

Importantly, the numbers and ranges in this projection are built on a variety of assumptions such as average household size continuing to decrease and the percent of trees that are maintained in new developments. All of these assumptions are subject to change, but the analysis is intended to show a probable future state for Brecksville.

3.1 VACANT LAND ANALYSIS

To identify vacant land in Brecksville, County Planning used existing data sets available from the County Auditor as a base. This set of vacant land was compared to vacant land maps provided by the City of Brecksville to identify disparities. All potentially vacant parcels were compared to the most recent aerial images to determine whether vacant parcels had been recently constructed. The map on the following page shows the final set of vacant parcels as well as parcels where development is already in progress.

Following the process for determining vacancy, the total amount of vacant land was calculated. These details are shown in the box on the right. Of the 11,829 acres of land in Brecksville, 1,023 acres are vacant. This comprises 8.7% of the total land area in Brecksville. An additional 1.2% or 143 acres of City land is in the process of being developed.

The unique topography and environmentally sensitive areas in Brecksville often constrain development. To determine the amount of easily developable land outside of these environmental constraints, County Planning mapped steep slopes, waterways, and riparian areas to show the locations of these environmental features. This information was layered onto vacant land to show what vacant land was constrained by environmental features. Of the 1,023 acres of vacant land in Brecksville, 435 acres are constrained by environmental features while 588 acres are more easily developable land. Constrained vacant land accounts for 3.7% of the City's total land area while unconstrained vacant land accounts for 5.0% of the City's total land area.

While the vacant land analysis provides a snapshot of development potential, it specifically does not include areas of potential redevelopment. This would include well-known parcels such as the former VA hospital site, the Central School site, or other elementary school sites that may be developed in the future. Redevelopment scenarios for these sites will be included as a separate component of the Master Plan.

The analysis also does not include existing but oversized residential parcels that have the potential to be subdivided at a later date. This choice was made deliberately due to the sensitivity of showing the redevelopment of existing single-family homes and is meant to reflect the difficulties of land assembly and redevelopment within existing single-family neighborhoods.

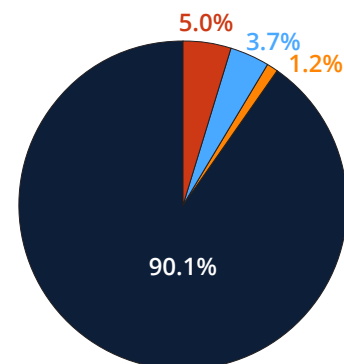
LAND AVAILABILITY

The following numbers show the land acreage that remains undeveloped and whether it is constrained by environmental features such as steep slopes or waterways.

ALL LAND IN BRECKSVILLE

11,829 Acres

All Land



- Built Land
- Vacant, Constrained
- Vacant, Unconstrained
- In-Progress Developments

VACANT LAND IN BRECKSVILLE

1,023 Acres

Vacant Land

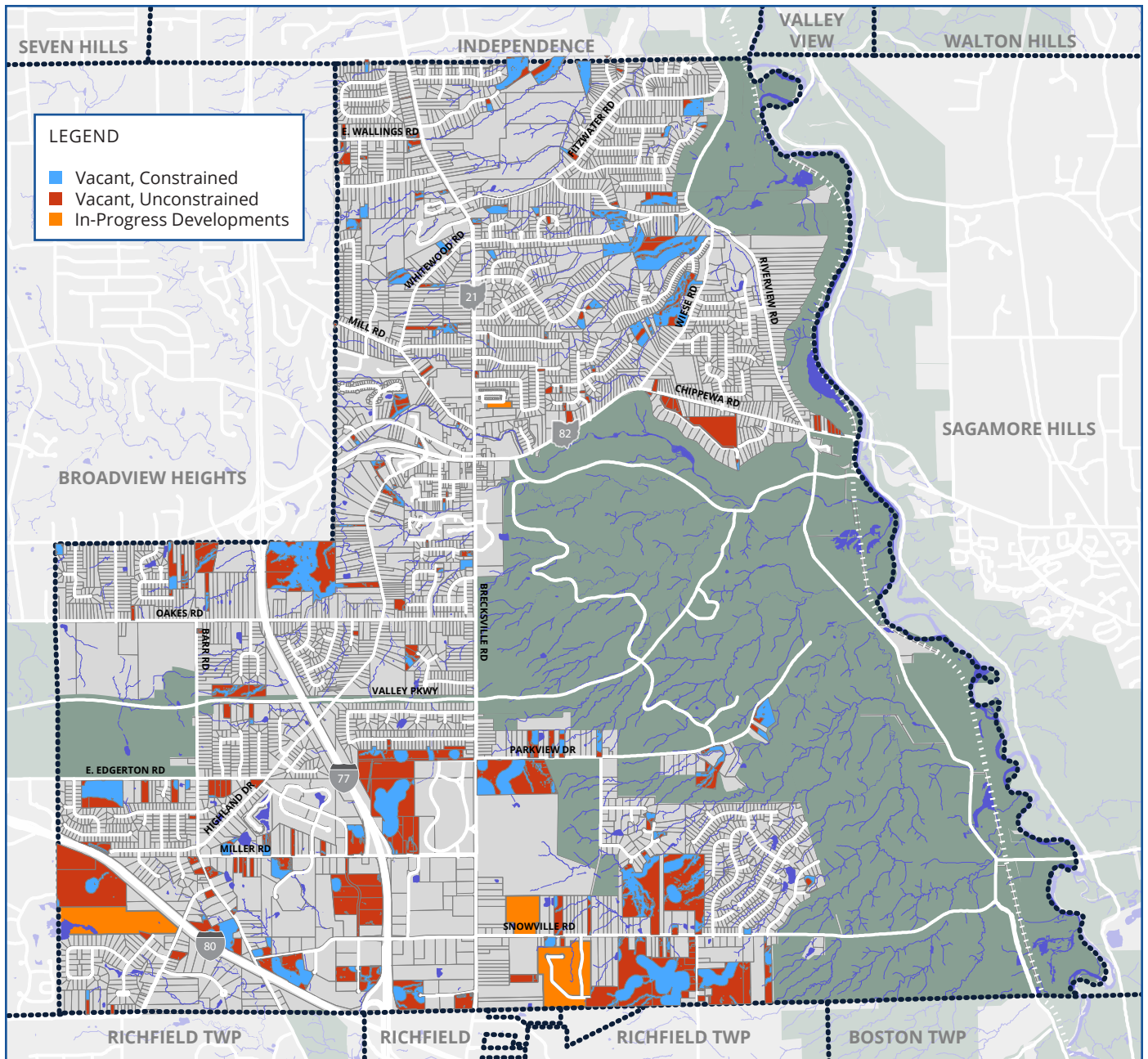
435 Acres

Constrained Vacant Land

588 Acres

Unconstrained Vacant Land

MAP 33 VACANT LAND



3.2 BUILD OUT PROJECTIONS

Following the identification of vacant land in Brecksville, County Planning digitized the most recent City Zoning Map and layered the zoning and vacant land information together. This can indicate the types of land that are available to develop and the existing regulations that determine permitted uses.

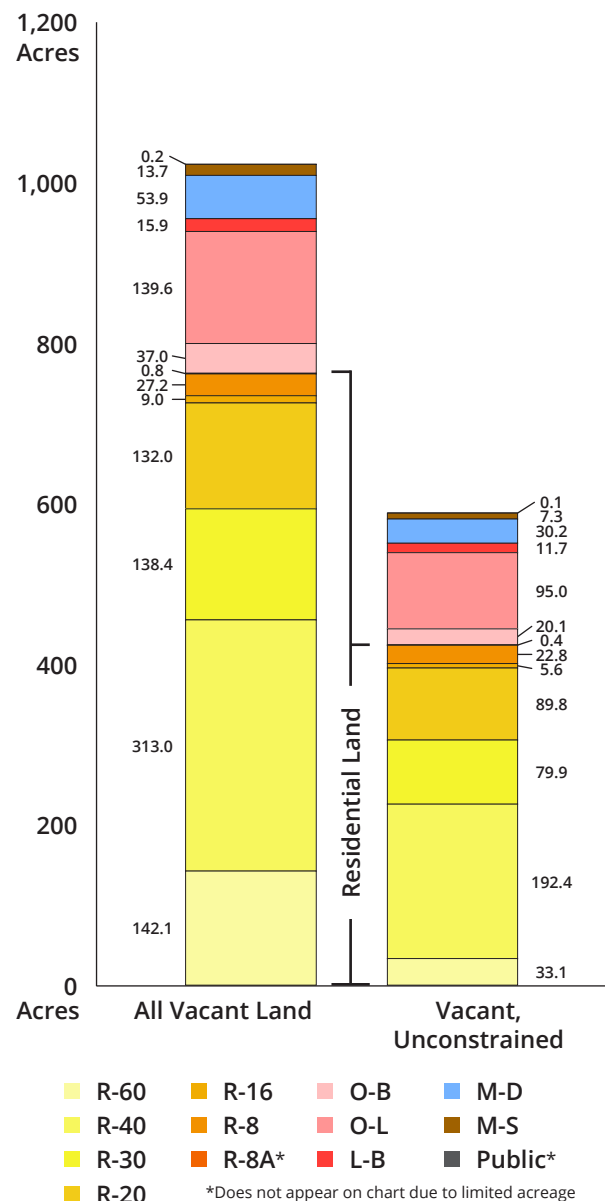
The chart on the right displays the acres of land available to develop by zoning district. The bar on the left indicates the zoning of all vacant land in Brecksville, while the bar on the right displays only the amount of vacant land that is unconstrained by steep slopes or waterways.

Those segments in yellows and orange show land zoned for residential development. In calculating the future population potential for the City of Brecksville, residential land will provide the primary areas for new housing. There are 763 acres of vacant land zoned residential, including land with environmental constraints. When subtracting environmentally constrained land, there are 423 acres of vacant land zoned for residential zoning districts. All of these areas are primarily single-family zoning districts.

While this information is helpful in gleaning a general understanding of available land, it does not indicate that every piece of land can ultimately be developed. Land that is unsewered, owned by a land trust, or inaccessible will ultimately not be developed; however the exercise can assist in giving a general understanding of development potential per the City's existing zoning.

ZONING OF LAND

The following graph shows the acres of vacant land according to their current zoning districts.



In order to determine the approximate number of homes that could be built on land in Brecksville, the size of various parts of a typical subdivision were calculated. These components included open space, roads & right-of-way, and buildable land. Open space was included as 20% of all development based on the required set-aside of the City's planned unit development district. While not all subdivisions or homes will be built with a 20% open space set-aside, the irregularities of remaining parcels, unknown environmental features, desired amenities, or needed infrastructure in other areas means that not all land will be able to be built to its maximum. This 20% open space set-aside covers those contingencies.

An additional 15% of subdivisions is reserved for roads and right-of-way. The American Planning Association says typical grid-pattern subdivisions can assume that 20% to 25% of land will be taken up by roads. An analysis of subdivisions in Brecksville shows that roads have accounted for approximately 14% of total subdivision area. To account for this range of acreage and given that Brecksville's subdivisions are typically cul-de-sac rather than grid pattern, 15% was used as a set-aside.

Subtracting open space and roads & right-of-way, the remaining 65% of land in Brecksville is considered buildable land that could be used for residential development.

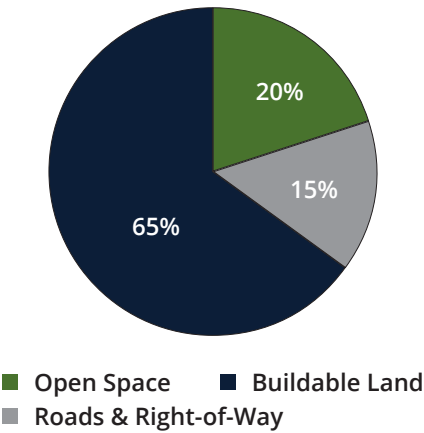
The total acreage for vacant land was converted to square feet and set-asides for open space and roads were removed. The remaining buildable land was divided by the minimum square footage required by zoning district to determine the maximum potential new homes on the remaining unconstrained vacant land.

In total, on all remaining vacant land including environmentally constrained areas, the City could accommodate a maximum of 721 homes. When eliminating environmentally sensitive areas, the City could accommodate a maximum of 446 homes on unconstrained vacant land.

RESIDENTIAL BUILD OUT

The following figures show how many homes could be built on vacant land based on zoning regulations.

TYPICAL SUBDIVISION COMPONENTS



POTENTIAL NEW HOMES BY ZONING

Zone	Min Lot (Sq. Ft.)	Unconstrained, Buildable Land (Acres)	Max Potential Homes (Unconstrained Land)
R-60	60,000	21.5	15
R-40	40,000	125.1	137
R-30	30,000	51.9	75
R-20	20,000	58.3	158
R-16	16,000	3.6	17
R-8	8,000	14.8	63
R-8A	8,000	0.2	1
TOTAL		275.5	446

TOTAL POTENTIAL NEW HOMES

Max of 446 Homes
Only on Unconstrained Vacant Land

3.3 IMPACT PROJECTIONS

To determine the future population of Brecksville based on this build-out scenario, past changes were charted. The population from 1970 to 2016 was mapped compared to the total number of households. This determined the change not only in population but in household size.

The size of households in Brecksville has fallen dramatically from 3.34 persons per household in 1970 to 2.50 persons per household in 2010. While the number of persons per household has fallen, it has slowed in recent decades. Between 1970 and 1980, the average household size fell from 3.34 to 2.86, but between 2000 and 2010, the average household size fell from 2.55 to 2.50. In projecting population in the future, the calculations use a decrease in average household size that is small and slowing, but which will still affect population growth. By 2030, the average household size in Brecksville is projected to be 2.47 persons per household.

To determine a range of potential future populations, the chart at right showcases an “Only Current Construction” option and a “Full Build Out” option. In an option with only current construction, the population is projected based on existing proposed subdivisions but with no new subdivisions. In that scenario, the population of the City will remain relatively flat between 2016 and 2030 as the average household size shrinks. The population would be projected to be 13,494 in 2030.

In the alternate scenario, a full build out of all vacant, unconstrained parcels would result in a population of 14,595 in 2030. This would be population growth of 9.6% from 2016.

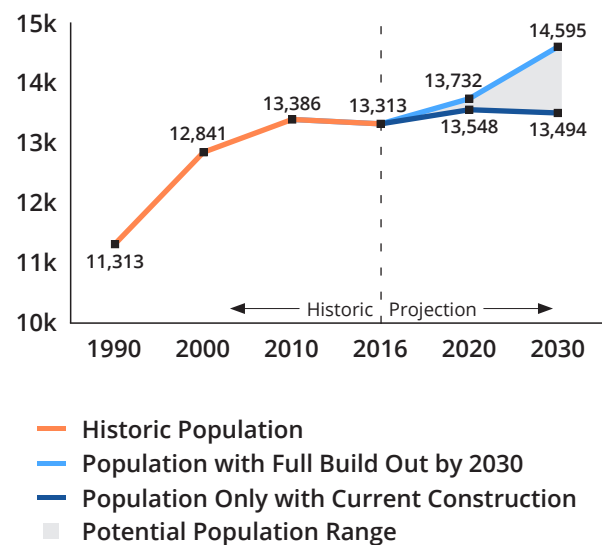
The time it would take to reach a full build out is contingent on numerous factors such as market demand, land ownership, environmental issues, and others. Should all land be available and the market demand additional units, full build out could occur between 2030 and 2043. A build out by 2030 would require approximately 37 homes built each year, which is higher than the current rate of development. If the average of 17.5 permits annually since 2013 remained, build out would occur in 2043.

Likely the ultimate population of the community will fall within the spectrum shown. Beyond this point, the entirety of new development would require the redevelopment of existing properties.

POPULATION

The graphs below show how the building of new housing in Brecksville could affect population and how long full build out could take.

PROJECTION OF POPULATION IN HOUSEHOLDS



Calculating the future tree canopy coverage in Brecksville based on current development trends can assist in describing general changes to the environment in the City. The information displayed at right is based on a number of critical assumptions that could drastically change the outcomes:

- **High Estimate:** The high estimate of tree canopy coverage assumes that 35% of unconstrained land would remain undeveloped and would retain an intact tree canopy.
- **Low Estimate:** The low estimate of tree canopy coverage assumes that all unconstrained land would be clear cut.
- **Constrained Land:** Both the high estimate and low estimate assume that all environmentally constrained land would remain undeveloped.
- **Full Build Out by 2030:** The tree canopy loss displayed at right assumes that all vacant, unconstrained land would be developed by 2030. This includes residential and non-residential parcels.
- **Redevelopment:** The projections are only based on vacant land and not on any other potential developments such as the VA Site or Blossom Hill.

Based on these assumptions, the chart at right shows the projection of tree canopy coverage. The estimate is based on a 2011 tree canopy assessment completed by County Planning. At that time, 63.5% of land in Brecksville was covered by trees. Based on development since that point, the 2018 tree canopy in Brecksville is estimated at 63.0%.

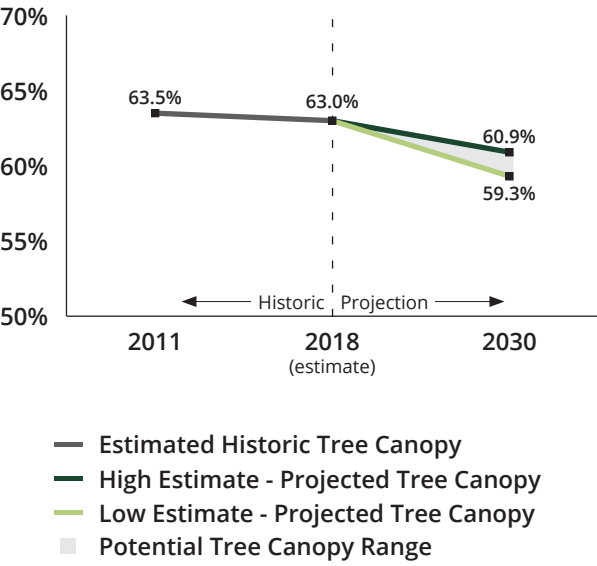
Projecting to 2030, the high estimate of tree canopy coverage would entail a loss of 260 acres of trees and would leave the City's tree canopy coverage at 60.9%. The low estimate of tree canopy coverage would entail a loss of 466 acres of trees and would leave the City's tree canopy coverage at 59.3%.

Given the locations of vacant land, certain watersheds in Brecksville would be more heavily impacted by tree canopy loss. Furnace Run would be particularly impacted by tree canopy loss. Already the lowest tree canopy coverage of any of the watersheds in Brecksville, Furnace Run would drop from 42.5% tree canopy coverage to 36.1% coverage in 2030.

TREE CANOPY

The graphs below show how the development of vacant land will affect trees canopy coverage in Brecksville.

PROJECTION OF TREE CANOPY COVERAGE



PROJECTION OF TREE CANOPY COVERAGE BY WATERSHED—HIGH ESTIMATE

	Chippewa Creek	Furnace Run	Cuyahoga River
Total Acres (in Brecksville)	4,080 acres	1,642 acres	6,545 acres
2011 Tree Canopy	2,433 acres 59.6%	699 acres 42.5%	4,664 acres 71.3%
2018 Tree Canopy (estimate)	2,396 acres 58.7%	699 acres 42.5%	4,635 acres 70.8%
2030 Tree Canopy (projection)	2,305 acres 56.5%	592 acres 36.1%	4,574 acres 69.9%