

Cape Cod Zoning for Housing Assessment

Cape Cod Commission

Utile | Outwith Studio

Acknowledgements

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Introduction

How does local zoning law enable or constrain the provision of housing, including housing options accessible to a range of incomes and meeting a range of needs? The Cape Cod Commission, as part of its Regional Housing Strategy,¹ conducted research to answer that question for the Cape, where 15 towns individually set the zoning rules for their community. This report provides a summary of that research and outputs from the analysis. Generally, this analysis deals with the way zoning interacts with (market-driven, for-profit) multifamily housing. The Commission was supported by a consultant team from urban planning firms Utile² and Outwith Studio,³ and with funding through the American Rescue Plan Act (ARPA).

What is zoning?

Zoning is a body of local law that manages the development of buildings and related infrastructure on private and public land. In Massachusetts, towns and cities are enabled to pass local zoning bylaws by M.G.L. Chapter 40A (the “Zoning Act”). The legislation codifying the Zoning Act gave several potential purposes, including (to paraphrase): encouraging housing for all income levels, facilitating adequate provision of infrastructure, preservation and increasing of amenities, and more.⁴

Across municipalities, zoning bylaws are structured in substantively similar ways, principally by dividing a jurisdiction into multiple zoning “districts.” For each district, the bylaw defines allowed land **uses** (such as housing, offices, heavy industry, etc.), the size and scale of new development (sometimes called development **intensity**), the shape of new development and how it sits on a given parcel (sometimes called **dimensional regulations**), the amount of **parking** for a given use, and other considerations such as signage. For each kind of development allowed in a given district, the zoning bylaw sets a **permitting** process.

Permitting can be “as of right/by-right,” meaning it is allowed to proceed without discretionary approval from a Town board or commission. (In these cases, Town staff

¹ <https://www.capecodcommission.org/our-work/regional-housing-strategy/>

² <https://www.utiledesign.com/>

³ <https://outwith.studio/>

⁴ <https://www.mass.gov/doc/the-zoning-act/download>

would check that the proposed development conforms to the zoning bylaw.) Permitting can otherwise be by Special Permit, through which specific development proposals may be allowed at the discretion of a Town board or commission, if it meets specified criteria. By-right permitting is, essentially, the path of least resistance for new development, and should be used when a community has a clear vision for its future and can set that vision out through the law. By comparison, Special Permit processes create a higher standard of review resolved on a case-by-case basis by a board of local volunteers (usually through a community's Planning Board or Zoning Board of Appeals). Uses that require a Special Permit are not presumed to be allowed, and they are only allowed at the satisfaction of the board or commission overseeing that process. Special Permits are best for uses that may present adverse impacts to a community but could be conditioned to minimize impacts. However, they can also create unpredictability for development, and so they can discourage proposals for new housing. If a community wants to encourage a use, allowing it by-right may do that as it is easier to permit.

Zoning and housing

Zoning impacts the development, availability, and cost of housing.⁵ Zoning changes can impact the viability of new construction and have some (market-dependent) effects on existing home prices.⁶ Market-driven, for-profit housing is particularly sensitive to zoning and its impact on the viability of development, and thus its effects on development are broadly seen in the real estate market. Particularly in more exclusive or suburban markets, zoning in the US tends to favor detached single-family homes among the housing types that can be built, and it can require relatively large lot sizes for each individual home. On the Cape (and many regions of the US), multifamily development is often subject to discretionary review by a local panel, typically called a Planning Board in Massachusetts. They can also be regulated by onerous and unrealistic dimensional requirements. Discretionary processes (regardless of their typical outcomes) can have a chilling effect on housing production, due to the time and risk involved. The net effect of this zoning regime

⁵ c.f. Glaeser and Gyourko (2002). "The Impact of Zoning on Housing Affordability." *NBER Working Paper No. 8835*. https://www.nber.org/system/files/working_papers/w8835/w8835.pdf;

⁶ Freemark, Y. (2023). Zoning Change: Upzonings, Downzonings, and Their Impacts on Residential Construction, Housing Costs, and Neighborhood Demographics. *Journal of Planning Literature*, 0(0), <https://doi.org/10.1177/08854122231166961>; Chakroborty, et al. (2010). "The Effects of High-density Zoning on Multifamily Housing Construction in the Suburbs of Six US Metropolitan Areas." *Urban Studies*, 47(2), <https://doi.org/10.1177/0042098009348325>

is to increase the cost of land per housing unit and ultimately the cost to buy or rent a home. The spread of zoning laws across the US was driven by and continues to contribute to racial and income-based segregation.⁷ While efforts have been made by local, state, and federal policymakers to address the need for zoning to address concerns in the built environment and its sometimes negative impacts on housing markets, there is more to be done.

Some single-family zoning reforms could prove useful in affecting change in affordability and housing diversity. This includes reducing lot size requirements, aligning zoning dimensional rules (including lot size requirements) with historic patterns of development found in town, allowing attached and detached accessory dwelling units, and reforming cluster/open space/cottage court ordinances to be more viable. Beyond zoning, reform to subdivision regulations could also reduce unnecessary lot area and infrastructure. However, all single-family housing still comes with affordability drawbacks, due to the increased spending per unit on utility provision, site work, building envelope, and land.

Study components

To better understand zoning on Cape Cod, this study assessed several aspects of each Town's bylaw, systematizing those assessments across jurisdictions. The analysis is divided into the following sections:

- I. **Simple use-based analysis.** This section presents summary statistics and maps assessing *only* the allowed land uses per district, without taking into account any other aspects of zoning. This provides a *baseline* of what is allowed.
- II. **Dimensional Summary.** This section presents summary statistics for non-use (or use-dependent) aspects of zoning bylaws across the Cape. This includes dimensional and parking rules.
- III. **Housing type analysis.** This section makes a high-level assessment of how development intensity, dimensional, and parking regulations impact the viability of housing development at the parcel level.

⁷ Lens, M. (2022). "Zoning, Land Use, and the Reproduction of Urban Inequality" *Annual Review of Sociology*, 48:1. <https://doi.org/10.1146/annurev-soc-030420-122027>

I. Use-Based Analysis

This research element assessed each town's zoning bylaw's use designations to establish a baseline of residential viability on the Cape. Zoning's effect on development can be thought of as a series of subtractive processes that make any given development proposal viable or nonviable. The first and most blunt subtractive process is zoning's establishment of which land uses are allowed in which districts. This is a list of uses allowed by-right, through a discretionary process like a Special Permit, or else prohibited. Generally, allowed uses are upstream of all other rules (e.g., regardless of whether housing fits within the dimensional regulations, if it is not allowed as a use, it is not allowed at all). Thus, it is key to understand what uses are allowed in which districts.

This is a focused assessment that disregards all other dimensional regulations, non-zoning land use regulations, or physical realities of a town's parcels. Housing might not be viable given those other considerations, but understanding what is allowed at all is an important first step.

Method

Each zoning district was assessed for its allowance of residential uses that could be developable under general market conditions (i.e., without specialized status or subsidized funding). The assessment generally followed the standard set by the National Zoning Atlas.⁸ Allowances for one-, two-, three-, and four-or-more-family dwellings ("housing scale") were assessed separately. For each housing scale, the district was marked as allowing that scale by-right, allowing it by Special Permit, or prohibiting it.⁹

⁸ <https://www.zoningatlas.org/>

⁹ The language used by the National Zoning Atlas is "Allowed/Conditional," "Public Hearing," and "Prohibited." Uses allowed by Site Plan Review (but without a Special Permit) were generally thought of as being "By-Right" (or "Allowed/Conditional"), since they presumptively allowed despite a public hearing and any conditions levied by the Town.

Certain types of residential use allowances were disregarded for this assessment:

- Districts exclusively allowing public, non-profit, and/or age-restricted housing were not considered as allowing housing in this analysis. Allowing public or nonprofit housing is valuable and can make affordable housing projects viable, but those projects tend to operate outside the normal real estate market (relying on public subsidies) and often use other permitting pathways (e.g., Friendly 40B Comprehensive Permits).

Meanwhile, age-restricted developments are specialized products developed by specialized organizations. They often operate in the wider real estate market, and age-restricted developments impact the market of an aging Cape. However, these operators and these developments work differently than most non-age-restricted development, and this difference is great enough that they should not be considered analogous.

- Cluster developments were not counted in this analysis. Cluster developments (also known as conservation or open space developments) are generally subdivisions or other one-off developments that preserve a significant portion of their land for conservation or recreation. Housing within these developments tends to be more compact, with smaller lots, smaller footprints, and less land devoted to roads. Many communities include provisions for cluster development and may allow single-family and/or multifamily development within them.

Cluster developments were excluded from this assessment for several reasons. First, they are typically only eligible for large, subdivision-scale sites, which are increasingly rare on the Cape. Second, they often require specialist developers with a working knowledge of the Town's cluster regulations, which is a market that exists but is considerably smaller than the market generally. Third, they are simply rare. Relatively few developments have used cluster provisions to create housing.

- Any congregate housing or other specialized or staff-supported housing types were excluded, since (similar to age-restricted housing), these are specialized products functioning in a market that's related to, but separate from, the housing market generally.
- Housing accessory to commercial uses were generally not counted (e.g., homes for security guards), though allowances for apartments above/next to retail properties

(enabling mixed-use development) were counted.

- Provisions allowing more than one single-family home per parcel (whether through an accessory dwelling unit provision or some other provision) were not counted as allowing two-family development. The majority of these provisions require all single-family homes allowed on a lot to individually meet the requirements of single-family zoning, such that these provisions become functionally the same as single-family zoning. These provisions may help overcome potentially onerous subdivision requirements, but they are not substantive zoning allowances, per se—at least on the scale of a duplex allowance.

This analysis assessed both base zoning and overlay zoning districts. Overlays were only included (and only overrode base zoning's rules) when new residential uses were allowed or existing residential uses were removed. Overlay districts that did not change use rules were excluded from this analysis.

Using geographic information systems (GIS), the district-level assessments were joined to zoning district geographic datasets. Base and the relevant overlay districts were overlaid.¹⁰ By default, the base district rules were considered prevailing. Where overlay districts specified new rules, the rules of the overlay district prevailed. For maps, the zoning districts provided were used to display results. For quantitative summaries, this analysis only looked at the total upland area within each district, since wetlands will be functionally undevelopable regardless of zoning.¹¹

Findings

The following are high-level findings from this analysis:

- Single-family development is allowed across large swathes of the Cape. It is allowed by-right on the majority of zoned upland area in the majority of towns. In a handful of towns, less than 50% of zoned upland allows single-family development. This includes Provincetown, Sandwich, Mashpee, and Bourne, where large sections of

¹⁰ Through the “union” geoprocessing function in QGIS.

¹¹ To quantify upland, this analysis used MassDEP's wetlands GIS layer, and deleted that layer from the zoning district geometries before recalculating the geometry area. See <https://www.mass.gov/info-details/massgis-data-massdep-wetlands-2005>

land are controlled by the federal or state government.

- Some towns include broad by-right allowances for two-family/duplex development (i.e., Eastham, Orleans, Dennis, Yarmouth, Orleans, and Bourne), while other towns have no districts where duplexes are allowed by-right (Brewster, Mashpee, Provincetown, Sandwich, Wellfleet, and Truro).
- Rules for three- and four-family development are nearly identical on the Cape, since most towns jump to a broad multifamily use category after one or two units.
- Multifamily (3- and 4-or-more-family) housing is allowed by-right in very little upland area on the Cape (2% of all upland). Barnstable, Bourne, Falmouth, Eastham, Orleans, Sandwich, and Yarmouth each include small- to medium-sized areas where multifamily housing is allowed by-right. The downtown Hyannis area is the largest such area allowing multifamily development by-right.
- Some towns (Harwich, Sandwich, and Dennis) have large portions of their land where multifamily is allowed by Special Permit.
- A large number of towns include no or nearly no land where multifamily development is allowed at all (at least those multifamily uses that count in this analysis). Chatham, Eastham, Falmouth, Mashpee, Truro, Wellfleet, and Yarmouth each allow multifamily on 3% or less of their land.
- Over the whole Cape:
 - Single-family homes are allowed by-right on 79% of zoned upland area. Very little zoned upland requires a Special Permit for single-family development.
 - Duplexes are allowed by-right on 23% of zoned upland area and allowed by-right or Special Permit on 38% of zoned upland area.
 - Triplexes and larger multifamily homes are allowed by-right on 2% of zoned upland and allowed by-right or Special Permit on 20% of zoned upland. While this latter 20% figure is significant, it is (a) unevenly distributed across Cape towns, (b) uses discretionary entitlement processes, which can have a chilling effect on multifamily development, and (c) belies the impact of non-use regulations on development viability.

Cape-Wide Results Mapped

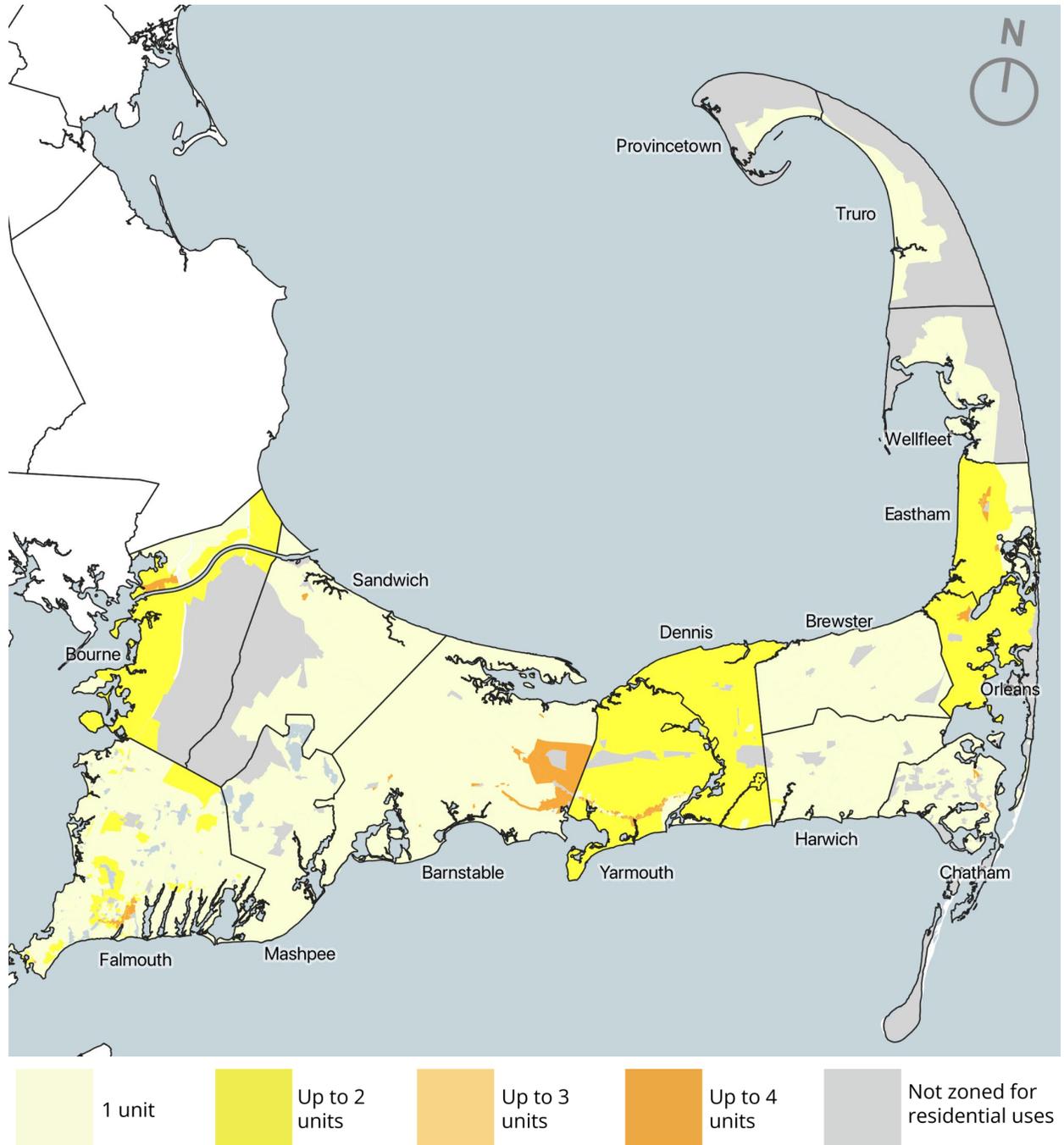
Use allowances vary considerably by municipality across the Cape. This set of maps visualizes Cape-wide residential use allowance, with one map for uses allowed by-right and another for uses allowed by-right or by Special Permit. These maps display zoning districts categorized by the most housing units allowed in a residential structure (housing scale), with categories for up to one unit, up to two units, up to three units, and up to four or more units. There are a few ways in which these maps may require qualification:

- Use designations of “up to four units” includes districts where multifamily thresholds are less than four (commonly at three or two units). Indeed, few if any communities set legal thresholds between three and four units, with most multifamily rules kicking in between two and three units. For analytical clarity and compatibility with other analyses inspired by the National Zoning Atlas, the three-family and four-family distinction is maintained. Note that **while many districts allow three-unit homes, none allow three- but not four-or-more-unit homes**, so this color on the maps cannot be found.
- Multifamily districts that do not allow single-family development are still labeled ‘*up to n units*’ even though one could not build less than multifamily. Examples of this can be found in Barnstable, Bourne, Brewster, Dennis, Eastham, Falmouth, Harwich, Sandwich, and Yarmouth. Districts with these rules tend to be downtown/village districts or highway commercial-style districts.
- All the caveats of the method apply. I.e., these designations only apply to market-driven housing production and not specialized housing types, do not consider accessory units, do not consider dimensional rules, etc. See [Method](#) for details.

To see zoning assessments within specific towns, [Appendix A: Use-Based Analysis Maps by Town](#).

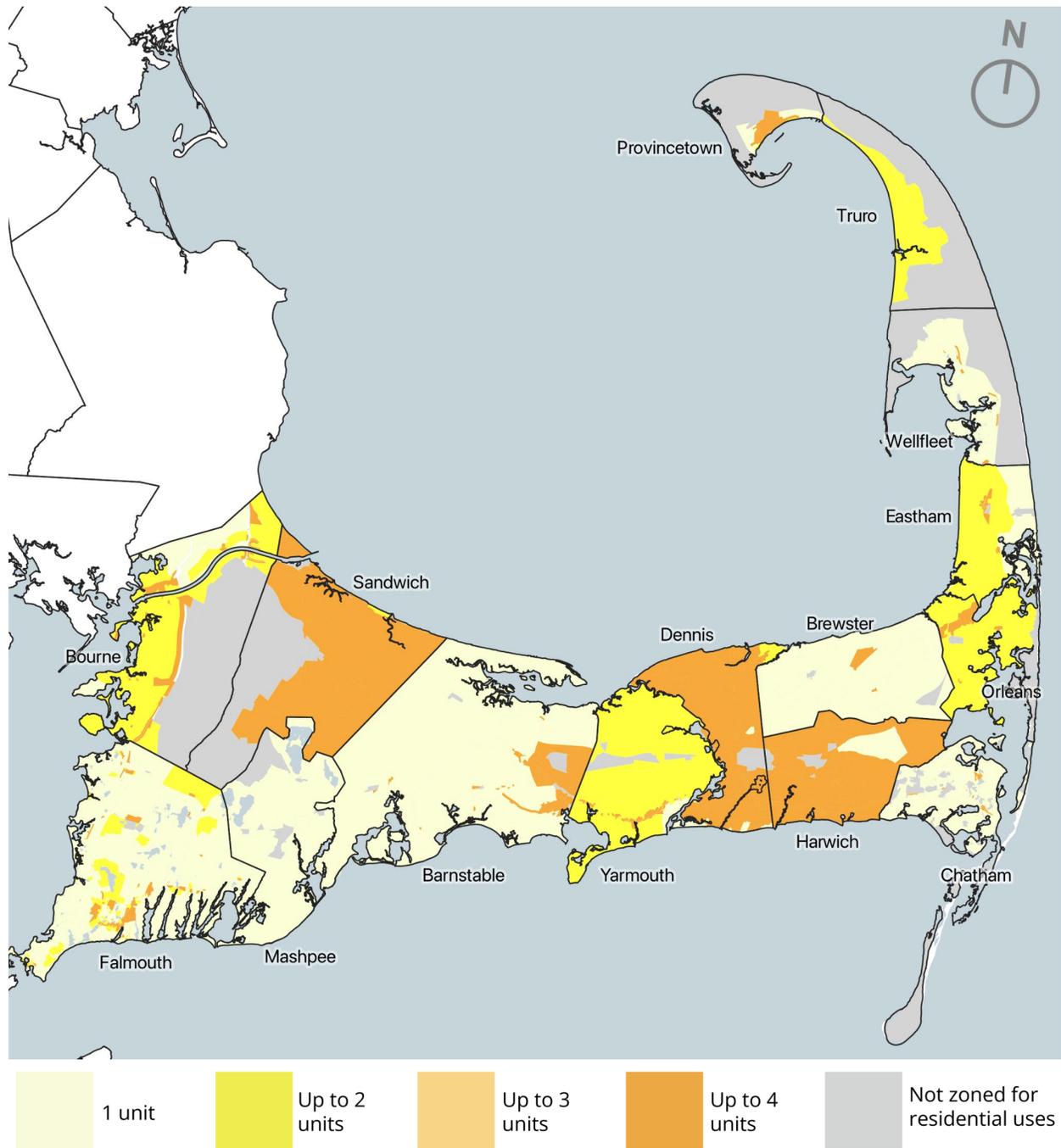
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Figure 1: Cape Cod residential use allowances, by-right



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Figure 2: Cape Cod residential use allowances, by-right or Special Permit



Quantitative Summary Tables

The following four tables summarize the use analysis. Two tables (referenced as “n units”) ask what percent of upland area allows specifically one-family homes, two-family homes, three-family homes, or multifamily homes of at least four units. The next two tables ask what percent of upland area allows one-family homes *or housing with more units*, two-family homes *or housing with more units*, etc. (These are referenced as “n+ units”.) There are by-right and by-right or Special Permit versions of each.

Table 1. Zoned upland area by residential uses allowed by-right (n units)

By-Right (n units)				
Town	1-family allowed	2-family allowed	3-family allowed	4+ family allowed
Barnstable	91%	8%	9%	9%
Bourne	52%	43%	1%	1%
Brewster	96%	0%	0%	0%
Chatham	83%	1%	1%	1%
Dennis	94%	92%	0%	0%
Eastham	97%	72%	2%	2%
Falmouth	98%	14%	0%	1%
Harwich	95%	0%	0%	0%
Mashpee	88%	0%	0%	0%
Orleans	95%	95%	2%	2%
Provincetown	31%	0%	0%	0%
Sandwich	63%	0%	0%	0%
Truro	34%	0%	0%	0%
Wellfleet	41%	0%	0%	0%
Yarmouth	92%	87%	2%	2%
TOTAL CAPE	79%	23%	2%	2%

Table 2. Zoned upland area by residential uses allowed by-right or by Special Permit (n units)

By-Right or By Special Permit (n units)				
Town	1-family allowed	2-family allowed	3-family allowed	4+ family allowed
Barnstable	91%	8%	9%	9%
Bourne	52%	43%	6%	6%
Brewster	96%	0%	2%	2%
Chatham	85%	1%	1%	1%
Dennis	94%	92%	92%	92%
Eastham	97%	72%	2%	2%
Falmouth	98%	14%	3%	3%
Harwich	95%	86%	86%	86%
Mashpee	88%	0%	0%	0%
Orleans	95%	95%	7%	7%
Provincetown	31%	17%	16%	16%
Sandwich	64%	64%	64%	64%
Truro	34%	34%	0%	0%
Wellfleet	41%	1%	1%	1%
Yarmouth	92%	89%	2%	2%
TOTAL CAPE	79%	38%	20%	20%

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Table 3. Zoned area by residential uses allowed by-right (n+ units)

By-Right (n+ units)				
Town	1+	2+	3+	4+
Barnstable	98%	9%	9%	9%
Bourne	53%	43%	1%	1%
Brewster	96%	0%	0%	0%
Chatham	83%	1%	1%	1%
Dennis	94%	92%	0%	0%
Eastham	98%	72%	2%	2%
Falmouth	98%	14%	1%	1%
Harwich	95%	<1%	0%	0%
Mashpee	88%	0%	0%	0%
Orleans	95%	95%	2%	2%
Provincetown	31%	0%	0%	0%
Sandwich	64%	<1%	<1%	<1%
Truro	34%	0%	0%	0%
Wellfleet	41%	0%	0%	0%
Yarmouth	93%	89%	2%	2%
TOTAL CAPE	80%	23%	2%	2%

Table 4. Zoned upland area by residential uses allowed by-right or by Special Permit (n+ units)

By-Right or Special Permit (n+ units)				
Town	1+	2+	3+	4+
Barnstable	98%	9%	9%	9%
Bourne	53%	6%	6%	6%
Brewster	97%	2%	2%	2%
Chatham	85%	1%	1%	1%
Dennis	95%	92%	92%	92%
Eastham	98%	2%	2%	2%
Falmouth	99%	3%	3%	3%
Harwich	96%	86%	86%	86%
Mashpee	88%	0%	0%	0%
Orleans	95%	7%	7%	7%
Provincetown	31%	17%	16%	16%
Sandwich	64%	64%	64%	64%
Truro	34%	34%	0%	0%
Wellfleet	41%	1%	1%	1%
Yarmouth	93%	4%	2%	2%
TOTAL CAPE	80%	22%	20%	20%

II. Dimensional Summary

Beyond uses, local zoning bylaws set a variety of other requirements, notably on building dimensions, site design, and parking. Minimum lot size, lot coverage ratios, parking ratios, building setbacks, building heights, and density limits all become key factors in the viability of housing development. In many cases, the allowed development density is not explicitly set. Instead, the scale of housing is determined through the interaction of parcel shape, site conditions (such as access to infrastructure and soil quality), building regulations, market-driven construction logic, and zoning's web of dimensional and parking rules. Only by letting these factors play out on a site can the scale of development be truly understood. This must be done on a case-by-case basis, but certain patterns do emerge. Large minimum lot sizes, large parking ratios, small maximum lot coverage ratios increase the land area required to build, and therefore the land costs for each home. Large setback requirements can make smaller sites functionally unbuildable.

This element of the analysis provides summary statistics for key dimensional regulations beyond use. For each dimensional category given below, the median and mean regulations are given, broken out by what is required for different housing scales.

For most metrics (parking, setbacks, height, and density) the median and mean figures do not vary considerably. This indicates these metrics may be more normally distributed, and lack strong outliers on the Cape pulling means in one direction or another. By contrast, minimum lot size and lot coverage requirements can vary considerably between the median and mean. These means are typically (though not exclusively) pulled up, indicating there are some districts with minimum lot size and maximum lot coverage requirements far above the norm. Minimum lot sizes in particular face strong upward pressure. Furthermore, the lot size calculations given here underestimate the minimum lot sizes required for multifamily developments greater than four units.¹²

¹² Minimum lot sizes are often given as a formula and are dependent on the number of units in a development. In this table, when there is a formula, this analysis used 1, 2, 3, and 4 units for each scale category (1-family, 2-family, 3-family, and 4+-family). The minimum lot size given for 4+-unit development significantly understates what the typical lot size requirement for larger multifamily developments.

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Table 5: Average minimum lot size, maximum lot coverage, and minimum parking ratio regulations in Cape Cod zoning bylaws

Scale	Min. Lot Size (ft.)*		Max. Lot Coverage (Building)		Max. Lot Coverage (Impervious)		Min. Parking Ratio (spaces/unit)	
	Median	Mean	Median	Mean	Median	Mean	Median	Mean
1-family	40,000	42,661	20%	25%	40%	51%	2	2
2-family	40,000	48,861	25%	29%	55%	53%	2	2
3-family	40,000	56,441	25%	34%	80%	70%	2	2
4+-family	40,000	63,730	25%	34%	80%	70%	2	2

* See footnote 12.

Table 6: Average minimum setback regulations in Cape Cod zoning bylaws

Scale	Min. Front Setback (ft.)		Min. Side Setback (ft.)		Min. Rear Setback (ft.)	
	Median	Mean	Median	Mean	Median	Mean
1-family	25	29	15	18	20	19
2-family	25	32	20	19	20	20
3-family	25	32	20	21	20	22
4+-family	25	32	20	21	20	22

Table 7: Average maximum height and density regulations in Cape Cod zoning bylaws

Scale	Max. Height (stories)		Max. Height (ft.)		Max. Density (units per acre)**	
	Median	Mean	Median	Mean	Median	Mean
1-family	3	3	30	32	-	-
2-family	3	3	35	34	12	12
3-family	3	3	35	36	12	13
4+-family	3	3	35	36	12	12

** Explicit density regulations are uncommon on the Cape. Approximately 17% of zoning districts that allow multifamily development have a maximum units per acre regulation. Only 7% used “floor area ratio,” a metric used to regulate density (typically in urban areas). These metrics are also not regulated for single-family development. The maximum density regulations shown here are informative for understanding the form of current regulations, but they should not be taken as representative of multifamily-allowing districts in general.

III. Housing Type Analysis

Zoning includes allowances by land use categories as well as numerous other regulations related to development intensity, building and lot dimensions, off-street parking and more. This complex of provisions then interacts with other non-zoning land use regulations, as well as the real estate (development) market, which responds to a range of inputs. Developers assessing potential opportunities work to resolve these many forces for a specific site with specific unique conditions. Policymaking happens at scale, however. This analysis seeks to assess the net impact of zoning on housing development across the region.

Method

The research team used the following method to understand how zoning rules begin to impact the physical requirements of development. This method allows policymakers to view how reasonably realistic and market-driven development would interact with local zoning. Special interest is paid to minimum lot size requirements, which are among the most potent tools in zoning to control the scale of development. Other zoning tools that drive scale—lot coverage and minimum parking requirements—are tested to show the sensitivity of development to these measures.

The method is as follows:

1. **Choose five housing types reasonably viable on the Cape.**
 - Duplex
 - Triplex
 - Small multifamily (at a hypothetical 6 units)
 - Medium multifamily (at a hypothetical 12 units)
 - Corridor buildings (large multifamily) (at a hypothetical 45 units)

2. **Assess whether those housing types are allowed in each district.** This assessment is one step further than the simple use analysis, taking into account specific allowances or prohibitions against these housing types. (For instance, some districts only allow multifamily developments of up to six units per building or only in mixed-use development. In those cases, certain multifamily types would not be allowed.) In this assessment, no distinction is made between by-right and Special

Permit use allowances. Special Permit uses are counted as allowed, even if, legally, those uses are only allowed at the discretion of the Special Permit Granting Authority.

3. **Assess the minimum lot size required by zoning for each housing type.** This was typically the result of a zoning formula based on the number of units.
4. **Pick hypothetical setback rules for residential development.** These were based on the typical setback requirements for multifamily districts on the Cape (based on but smaller than the median setback requirement for multifamily on the Cape). See Tables 8 and 9 for a summary of dimensional assumptions.
5. **Pick two sets of lot coverage and parking requirements for these housing types.** These were based on two scales of typical dimensional requirements in multifamily districts on the Cape. See Tables 8 and 9 for a summary of dimensional assumptions.
6. **Model each housing type based on those setback, lot coverage, and parking rules, such that the housing type would minimally conform to the rules. This produced “minimum viable parcel sizes” for each type.** The two sets of lot coverage and parking requirements created minimum viable parcel sizes for each housing type: a small (less land-consuming) and a large (more land-consuming) version. See Figure 3 for the housing type site plan models used to arrive at minimum viable parcel sizes.
7. **For each parcel on the Cape (including all residential and non-residential parcels, regardless of current or future use), assess whether a parcel “accommodates” a given housing type,** considering:
 - Whether each housing type’s two minimum viable parcel sizes fit on the parcel’s upland (non-wetland) area
 - Whether the housing type was allowed
 - Whether the parcel’s upland area was greater than the minimum lot size required by zoning

This method ultimately paints a powerful but partial picture of the impact of local zoning bylaws. Zoning is more than use, lot size, lot coverage, parking ratios, and setbacks, and land use regulation is more than zoning. Only use and lot size in this model are tied back to

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the specific rules of the district regulating each parcel; lot coverage, setbacks, and parking ratios are modeled independently from the district. Additionally, the particularity of each site (beyond its upland area) is disposed of entirely. Lot shape, existing site conditions, utility access, and more can make actual development viable or nonviable. Some housing types are also not accounted for. All of the housing types not included in the simple use analysis are likewise not included here (e.g., open space/cluster developments, congregate housing, accessory dwelling units, and residential uses reserved by zoning for nonprofit/public low-income or elderly housing). *Unlike* the simple-use analysis, allowances for exclusively mixed-use development are excluded here. Mixed-use development introduces new variables to building design and site planning, and these would have added another layer of complexity to an already complex model. From a real-world development perspective, they are often executed by specialist developers and are more difficult to pull off.

Despite these limitations, this model provides Cape-wide insights into the richer suite of zoning tools and its impact on the viability of development. Policymakers should interpret these figures as a likely upper estimate of development viability under zoning. This will not always be the case (e.g., many zoning districts have less restrictive setback, lot coverage, and/or parking requirements than those modeled here, and those requirements may enable more development). In aggregate, though, the model considers fewer factors than real-life development and is thus more likely to overestimate the number of opportunities.

Table 8: Dimensional and parking assumptions for minimum parcel size calculations

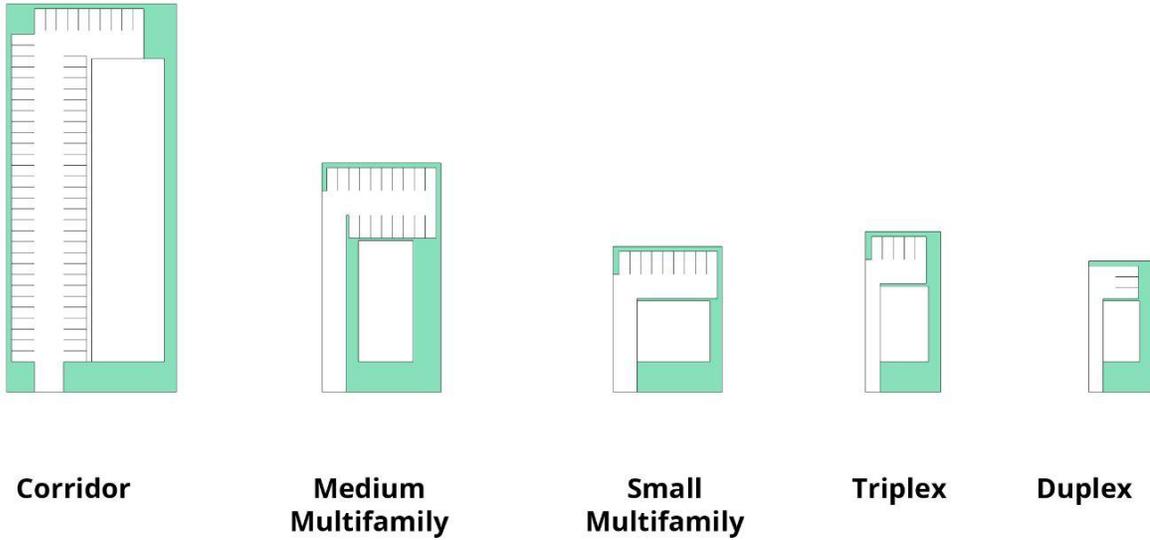
Version	Parking Spaces per unit	Max. Lot Coverage	Front Setback (ft)	Side Setback (ft)	Rear Setback (ft)
Small	1.5	80%	25	10	15
Large	2.0	50%	25	10	15

Table 9: Minimum viable parcel sizes based on dimensional assumptions and model site plans

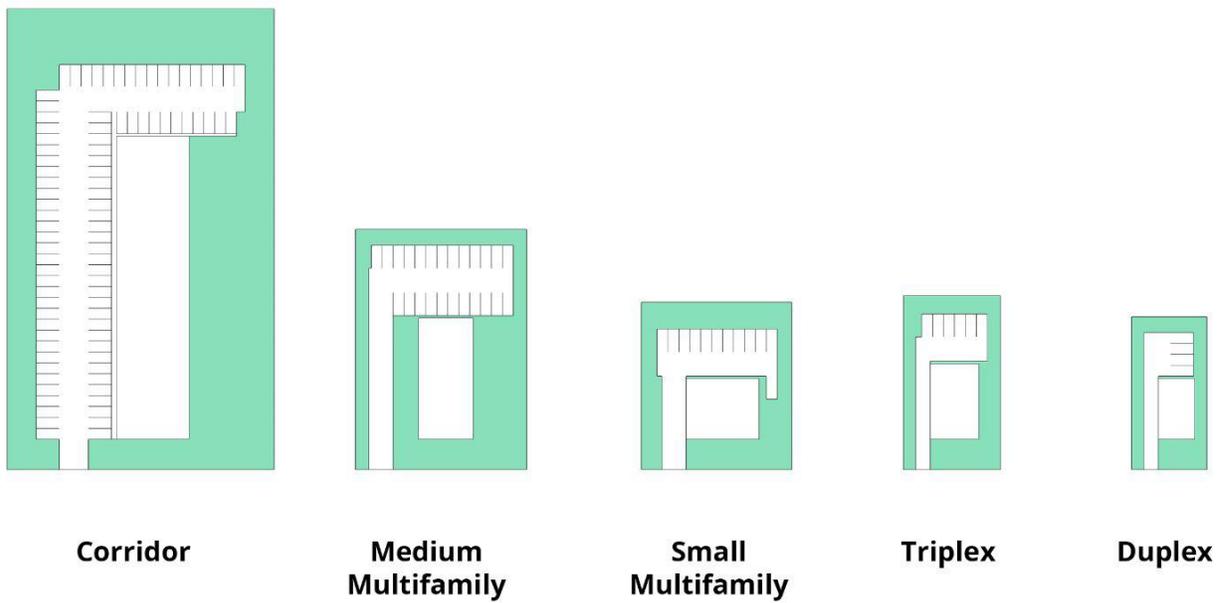
Building Typologies	Number of Units	Small Version Min. Lot Size (sf)	Large Version Min. Lot Size (sf)
Corridor Building	45	45,000	84,000
Medium Multifamily	12	19,000	28,000
Small Multifamily	6	11,000	17,000
Triplex	3	8,000	11,000
Duplex	2	6,000	8,000

Figure 3: Example site plans used to arrive at minimum viable parcel sizes, small and large versions

Minimum Viable Parcels — Small



Minimum Viable Parcels — Large



Quantitative Findings

The results of this analysis showed that each town had many more parcels that could fit each housing type than would be allowed by the district's use or lot size rules. While housing would not be appropriate on each parcel where it fits, the results of this analysis illustrate that zoning is likely restrictive and is likely hindering some possible housing opportunities.

Terminology

Throughout the findings, this memo uses the following terms:

- **“Physically fits”** means that the upland area of the parcels exceeds the minimum viable parcel size for a given version (large or small) of a given housing type.
- **“Use is allowed”** means that the use is allowed by-right or by Special Permit in the zoning district (accounting for base and overlay districts). In this analysis, if a parcel is split between two districts, the zoning condition that covers the greatest amount of area within that parcel is used.¹³
- **“Upland exceeds minimum lot size”** means the upland area within the parcel is greater than or equal to the minimum lot size required under zoning for a residential development of the given size.¹⁴ In this analysis, if a parcel is split between two districts, the zoning condition that covers the greatest amount of area within that parcel is used. Upland area is used (rather than total area) because many Cape towns' zoning bylaws use upland as the basis for their minimum lot size requirement.
- **“Accommodates”** means that a parcel meets all three of the above criteria for a given housing type. E.g., a parcel *accommodates* a duplex if the parcel physically fits a duplex, if the use is allowed by zoning, and if the parcel's upland area exceeds the minimum lot size requirement.

¹³ Typically a parcel is covered by only a single zoning district or base/overlay combination. That is not always the case, though, so this analysis simply looks at the zoning conditions on the majority/plurality of the parcel's area.

¹⁴ Typically this is driven by unit count, but is sometimes driven by units and bedrooms. This analysis always assumes two bedrooms for any units in a housing model.

Metrics Assessed

This memo looks at both the portion of parcels and the portion of upland area that accommodates each housing type, since both metrics shed light on housing viability:

- The percent of parcels is simply the portion of all assessed lots that meet the study's criteria (fit, allowed uses, and minimum lot size). These are *not* normalized for parcel size. In theory, each parcel is owned and operated by separate people/entities, and therefore each represents an independent chance to build a given housing type. In some cases, individual lots may be owned by a single or related set of entities and could be combined to build larger housing types. Nonetheless, the percent of parcels offers useful insight into the overall set of opportunities. As shown in the data that follows, **measuring the percent of parcels can show a much larger set of housing opportunities than that indicated by zoned upland area.** This is especially true for duplexes in towns with large open spaces and large areas allowing duplexes (by-right or by Special Permit).
- The percent of upland similarly measures the extent of development opportunity, but normalizes the variations in parcel size. If 30% of parcels allow multifamily development, but only 5% of upland area allows multifamily, that indicates a potential bias toward large-lot single-family zoning. Alternatively or additionally, it may indicate the presence of large upland open spaces and/or compact multifamily zoning. The percent of upland metric must be paired with more granular district-level insights to be put in context, but it nonetheless adds important nuance to the percent of parcels metric.

Summary Tables

Table 10: Parcels and upland area meeting fit criteria across Cape Cod for the small version of each housing type

Small Version					
	Duplex	Triplex	Small Multi.	Med. Multi.	Corridor
Physically fits					
Parcels (count)	149,144	140,419	121,005	79,854	24,605
Parcels (% of total)	93%	88%	76%	50%	15%
Upland Area (sqmi)					
Upland Area (sqmi)	306	304	297	276	220
Upland Area (%)	100%	99%	97%	90%	71%
Physically fits and Use is allowed					
Parcels (count)	72,062	32,501	27,237	18,059	4,157
Parcels (% of total)	45%	20%	17%	11%	3%
Upland Area (sqmi)					
Upland Area (sqmi)	112	57	55	50	30
Upland Area (%)	36%	19%	18%	16%	10%
Physically fits and Use is allowed and Upland exceeds minimum lot size					
Parcels (count)	10,661	4,963	4,312	3,399	1,872
Parcels (% of total)	7%	3%	3%	2%	1%
Upland Area (sqmi)					
Upland Area (sqmi)	66	33	30	27	18
Upland Area (%)	21%	11%	10%	9%	6%

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Table 11: Parcels and upland area meeting fit criteria across Cape Cod for the large version of each housing type

Large Version					
	Duplex	Triplex	Small Multi.	Med. Multi.	Corridor
Physically fits					
Parcels (count)	140,419	121,005	88,021	47,125	10,002
Parcels (% of total)	88%	76%	55%	29%	6%
Upland Area (sqmi)	304	297	281	249	189
Upland Area (%)	99%	97%	91%	81%	61%
Physically fits and Use is allowed					
Parcels (count)	66,774	27,235	20,072	10,209	1,786
Parcels (% of total)	42%	17%	13%	6%	1%
Upland Area (sqmi)	110	55	52	44	25
Upland Area (%)	36%	18%	17%	14%	8%
Physically fits and Use is allowed and Upland exceeds minimum lot size					
Parcels (count)	10,214	4,578	3,853	3,076	910
Parcels (% of total)	6%	3%	2%	2%	1%
Upland Area (sqmi)	66	32	30	26	16
Upland Area (%)	21%	11%	10%	9%	5%

Table 12: Percent of parcels meeting fit criteria for the small version of each housing type by town

% of Parcels that Physically Fit Housing Type (Small Version)					
Town	Duplex	Triplex	Small Multi.	Med. Multi.	Corridor
Barnstable	95.3%	91.7%	80.7%	52.7%	19.0%
Bourne	92.4%	84.3%	72.6%	50.1%	15.6%
Brewster	96.7%	95.1%	91.9%	65.6%	26.2%
Chatham	96.1%	92.9%	81.6%	53.4%	12.9%
Dennis	89.7%	74.5%	55.7%	32.3%	8.9%
Eastham	97.6%	95.6%	92.0%	81.0%	9.6%
Falmouth	93.4%	87.4%	71.5%	45.2%	14.2%
Harwich	94.2%	90.8%	75.7%	44.4%	14.6%
Mashpee	94.2%	87.7%	77.0%	39.0%	12.7%
Orleans	97.3%	96.4%	94.3%	83.1%	26.6%
Provincetown	52.9%	39.6%	26.2%	13.8%	4.9%
Sandwich	90.4%	88.3%	84.6%	68.8%	20.1%
Truro	91.0%	90.1%	87.5%	83.2%	33.2%
Wellfleet	89.6%	85.7%	80.8%	64.7%	20.3%
Yarmouth	95.0%	88.9%	66.1%	26.1%	6.6%
% of Parcels that Physically Fit Housing Type (Small Version) and Use is Allowed					
Town	Duplex	Triplex	Small Multi.	Med. Multi.	Corridor
Barnstable	4.2%	4.0%	3.3%	2.4%	1.1%
Bourne	83.1%	1.8%	1.6%	1.0%	0.4%
Brewster	2.1%	2.1%	2.0%	1.7%	0.5%
Chatham	1.4%	1.3%	1.0%	0.1%	0.0%
Dennis	87.8%	72.8%	54.1%	30.8%	0.0%
Eastham	93.1%	1.3%	1.3%	1.2%	0.6%
Falmouth	3.9%	2.2%	2.0%	1.4%	0.7%
Harwich	87.0%	83.6%	69.3%	39.5%	12.1%
Mashpee	0.0%	0.0%	0.0%	0.0%	0.0%
Orleans	95.2%	7.1%	6.5%	4.6%	0.1%
Provincetown	35.0%	21.2%	13.1%	6.7%	2.2%
Sandwich	89.8%	87.7%	84.0%	68.2%	19.6%
Truro	78.6%	0.0%	0.0%	0.0%	0.0%
Wellfleet	2.5%	2.5%	2.4%	2.2%	0.9%
Yarmouth	89.7%	1.0%	1.0%	0.8%	0.5%

% of Parcels that Physically Fit Housing Type (Small Version) and Use is Allowed and Upland exceeds minimum lot size					
Town	Duplex	Triplex	Small Multi.	Med. Multi.	Corridor
Barnstable	3.6%	3.3%	2.6%	1.8%	0.8%
Bourne	8.8%	1.8%	1.6%	0.8%	0.2%
Brewster	0.2%	0.1%	0.1%	0.0%	0.0%
Chatham	1.0%	0.8%	0.6%	0.1%	0.0%
Dennis	2.9%	1.7%	1.1%	0.4%	0.0%
Eastham	10.1%	0.7%	0.7%	0.7%	0.6%
Falmouth	1.2%	0.8%	1.2%	0.9%	0.6%
Harwich	17.5%	17.5%	17.5%	17.4%	12.1%
Mashpee	0.0%	0.0%	0.0%	0.0%	0.0%
Orleans	42.1%	6.3%	5.7%	4.1%	0.1%
Provincetown	35.0%	21.2%	13.1%	6.7%	2.2%
Sandwich	7.6%	3.5%	1.9%	1.0%	0.3%
Truro	26.5%	0.0%	0.0%	0.0%	0.0%
Wellfleet	1.8%	1.7%	1.4%	1.3%	0.4%
Yarmouth	3.2%	0.8%	0.8%	0.6%	0.3%

When considering the **small** version of each housing type, this analysis estimates the following:

- Duplexes are by far the most widely accommodated housing type (meaning they fit, are allowed, and many parcels meet the minimum lot size requirements). Five towns accommodate duplexes on 10% or more of their parcels, including three towns that accommodate them on more than 25% of parcels (Orleans, Provincetown, and Truro).
- A relatively consistent portion of Harwich’s parcels (12–18% of parcels) accommodates all five of the studied housing types. Where communities can accommodate any multifamily housing, there tend to be more pronounced differences between smaller and larger housing types. The widest range between parcels that can accommodate the duplex and those that can accommodate the corridor building is 42% in Orleans. Besides Harwich, Provincetown is the only other community where three or more of the modeled housing types can be accommodated on 10% or more of parcels.
- Where there are differences in the accommodation of multifamily uses, the most significant differences are between duplex and all other multifamily uses. In some towns (such as Brewster, Eastham, or Falmouth), there are few distinctions in the percent of parcels accommodating multifamily types larger than two units, while

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others (such as Orleans, Barnstable, and Provincetown), retain distinctions between triplexes and larger multifamily options.

- In all but two towns, the percent of parcels that accommodate the modeled corridor building is less than 1%. The exceptions are Harwich and Provincetown, accommodating corridor buildings on 12.1% and 2.2% of their parcels, respectively.

Table 13: Percent of parcels meeting fit criteria for the **large** version of each housing type by town

% of Parcels that Physically Fit Housing Type (Large Version)					
Town	Duplex	Triplex	Small Multi.	Med. Multi.	Corridor
Barnstable	91.7%	80.7%	58.1%	33.2%	7.0%
Bourne	84.3%	72.6%	53.9%	30.2%	7.0%
Brewster	95.1%	91.9%	73.4%	43.3%	11.9%
Chatham	92.9%	81.6%	58.9%	27.9%	3.6%
Dennis	74.5%	55.7%	36.9%	17.4%	3.7%
Eastham	95.6%	92.0%	86.1%	30.3%	3.9%
Falmouth	87.4%	71.5%	50.3%	25.6%	6.0%
Harwich	90.8%	75.7%	50.2%	29.2%	6.3%
Mashpee	87.7%	77.0%	45.7%	21.2%	6.7%
Orleans	96.4%	94.3%	86.5%	55.4%	7.3%
Provincetown	39.6%	26.2%	15.9%	8.3%	2.8%
Sandwich	88.3%	84.6%	73.9%	35.9%	8.0%
Truro	90.1%	87.5%	84.1%	71.3%	14.7%
Wellfleet	85.7%	80.8%	68.1%	46.3%	8.3%
Yarmouth	88.9%	66.1%	31.5%	13.9%	3.0%
% of Parcels that Physically Fit Housing Type (Large Version) and Use is Allowed					
Town	Duplex	Triplex	Small Multi.	Med. Multi.	Corridor
Barnstable	3.8%	3.3%	2.6%	1.7%	0.7%
Bourne	75.2%	1.6%	1.1%	0.6%	0.2%
Brewster	2.1%	2.0%	1.8%	0.8%	0.3%
Chatham	1.3%	1.0%	0.6%	0.1%	0.0%
Dennis	72.7%	54.1%	35.4%	16.1%	0.0%
Eastham	91.2%	1.3%	1.3%	1.0%	0.3%
Falmouth	3.6%	2.0%	1.5%	1.1%	0.3%
Harwich	83.6%	69.3%	45.0%	25.0%	5.0%
Mashpee	0.0%	0.0%	0.0%	0.0%	0.0%
Orleans	94.2%	6.5%	4.9%	2.9%	0.0%
Provincetown	23.0%	13.1%	7.6%	4.1%	1.1%
Sandwich	87.7%	84.0%	73.3%	35.3%	7.7%
Truro	77.9%	0.0%	0.0%	0.0%	0.0%
Wellfleet	2.5%	2.4%	2.3%	2.0%	0.4%
Yarmouth	83.9%	1.0%	0.9%	0.6%	0.3%

% of Parcels that Physically Fit Housing Type (Large Version) and Use is Allowed and Upland exceeds minimum lot size					
Town	Duplex	Triplex	Small Multi.	Med. Multi.	Corridor
Barnstable	3.2%	2.9%	2.2%	1.3%	0.5%
Bourne	8.5%	1.6%	1.1%	0.6%	0.2%
Brewster	0.2%	0.1%	0.1%	0.0%	0.0%
Chatham	0.8%	0.6%	0.4%	0.1%	0.0%
Dennis	2.9%	1.7%	1.1%	0.4%	0.0%
Eastham	10.1%	0.7%	0.7%	0.7%	0.3%
Falmouth	1.2%	0.8%	1.0%	0.9%	0.3%
Harwich	17.5%	17.5%	17.4%	17.1%	5.0%
Mashpee	0.0%	0.0%	0.0%	0.0%	0.0%
Orleans	41.8%	5.7%	4.3%	2.7%	0.0%
Provincetown	23.0%	13.1%	7.6%	4.1%	1.1%
Sandwich	7.6%	3.5%	1.9%	1.0%	0.3%
Truro	26.5%	0.0%	0.0%	0.0%	0.0%
Wellfleet	1.8%	1.6%	1.4%	1.2%	0.3%
Yarmouth	3.2%	0.8%	0.8%	0.6%	0.2%

The patterns evident in the small version of each housing type are similarly evident in the **large version**, which requires more parking and less lot coverage.

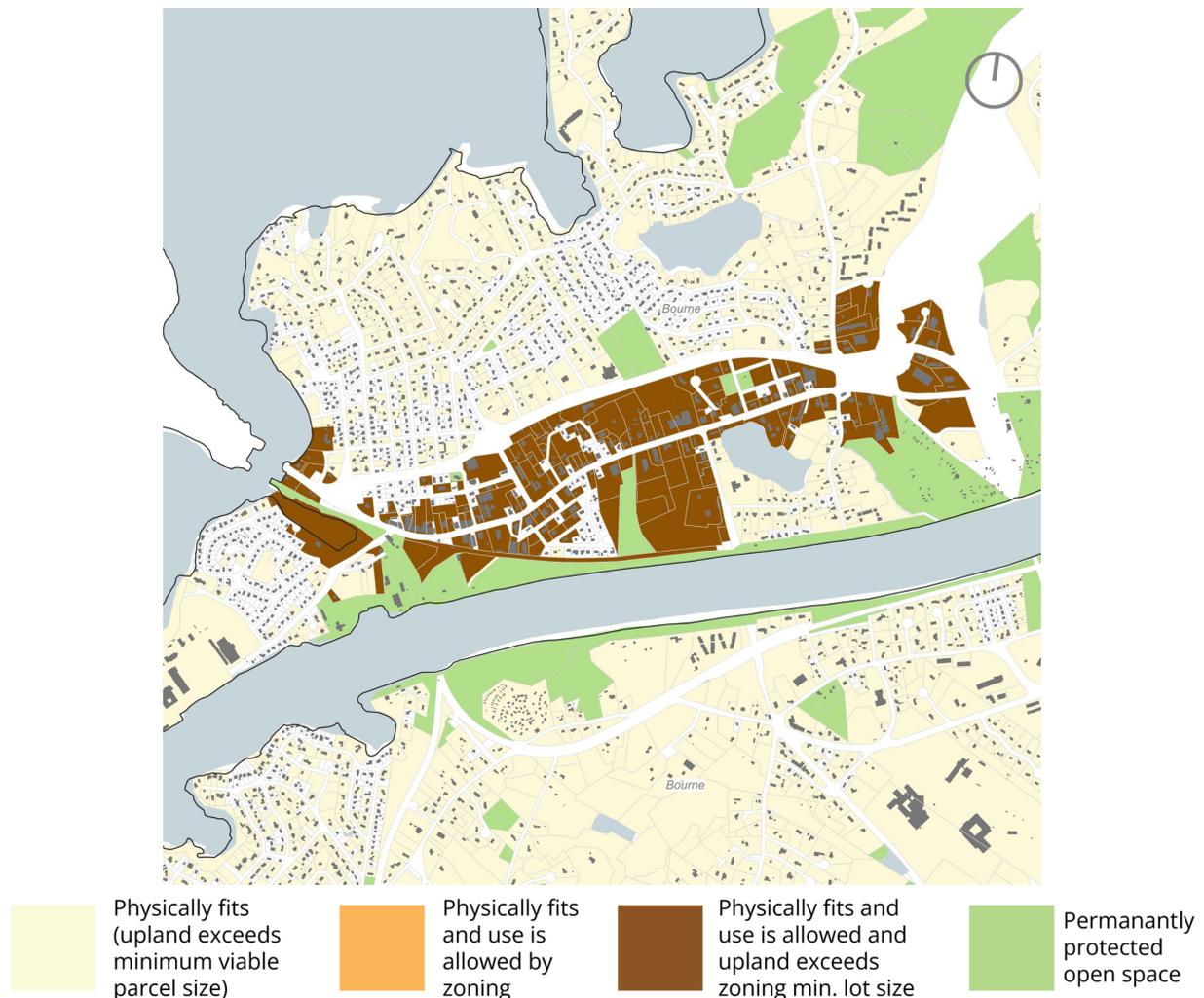
- Duplexes are still widely accommodated in communities like Eastham, Harwich, Orleans, Provincetown, and Truro (in each case accommodated on more than 10% of parcels). Provincetown and Harwich also accommodate triplexes on more than 10% of parcels.
- Harwich remains the most consistently accommodating of multifamily uses (especially those larger than duplexes), though in the large version, there is a more significant drop off in accommodating corridor buildings.
- Most towns have next to no parcels accommodating the larger version of corridor buildings. In Provincetown and Harwich, 1% and 5% of parcels respectively accommodate larger corridor building sites.
- Some towns are slightly more accommodating to multifamily options with fewer units, but these numbers are still very few.

Insights

Physical Fit vs. Accommodation

In general, far more upland area and far more parcels could physically fit each housing type than is accommodated under zoning. For instance, across the Cape, 97% of upland area is on parcels could fit the small multifamily housing type (based on lot size alone, absent any other physical or zoning characteristics), but only 10% of upland area is on parcels that accommodate small multifamily housing (based on fit, zoning's use allowance, and zoning's minimum lot size). This difference can be seen dramatically, for instance, in a place like Bourne. Within Bourne's Downton District, the zoning accommodates small multifamily development. Just outside that district, many parcels still physically fit small multifamily development, but the use and minimum lot size rules under zoning do not allow it.

Figure 5: Small Multifamily Allowances in the vicinity of Downtown Bourne



Differences by Housing Type

Smaller multifamily housing types were accommodated in more places than larger multifamily housing types, especially corridor buildings. The fewer units in the building type, the more area and parcels could accommodate that housing. For instance (when assessing the *small* version of these types): only 6% of upland area and 1% of parcels could accommodate corridor buildings. By contrast, 11% of upland area and 3% of parcels could accommodate a triplex. There is little variation in the portion of parcels or upland area accommodating triplexes and medium multifamily parcels, and by far the biggest jump in housing viability is between duplexes and triplexes.

The area around Eastham Center provides a good example of this dynamic. See Figure 6 for the analysis outputs for this area. Many parcels around Eastham Center physically fit and allow a duplex as a use, and a subset of those (but not a large one) accommodates duplexes (fits, allows the use, and meets minimum lot size requirements). The shift from duplex to triplex significantly reduces accommodated parcels, as multifamily is not an allowed use in most districts. There is little to no distinction between triplex, small multifamily, and medium multifamily housing types. Lastly, there is another jump between medium multifamily and corridor buildings, wherein the number of accommodated parcels is reduced considerably.

A big driver of this latter jump in Eastham is physical and *not* zoning-related: the typical lot size, especially outside Eastham Center, is not large enough to physically fit a corridor building at the modeled scale. A few parcels along the rail trail physically fit but do not accommodate corridor buildings, but there aren't so many that one could imagine the market acting but for zoning. Where physical fit is the driving issue, parcel aggregation alone (and not zoning reform) could resolve the issue. Beyond the lack of physical fit (and especially beyond Eastham Center), corridor buildings either face multifamily use restrictions generally, or formula-based minimum lot size regulations. These formulas typically give minimum lot size as a function of the number of dwelling units. For corridor buildings, which here are modeled at 45 units (though are very flexible in terms of scale), these formulas tend to render many parcels as unviable.

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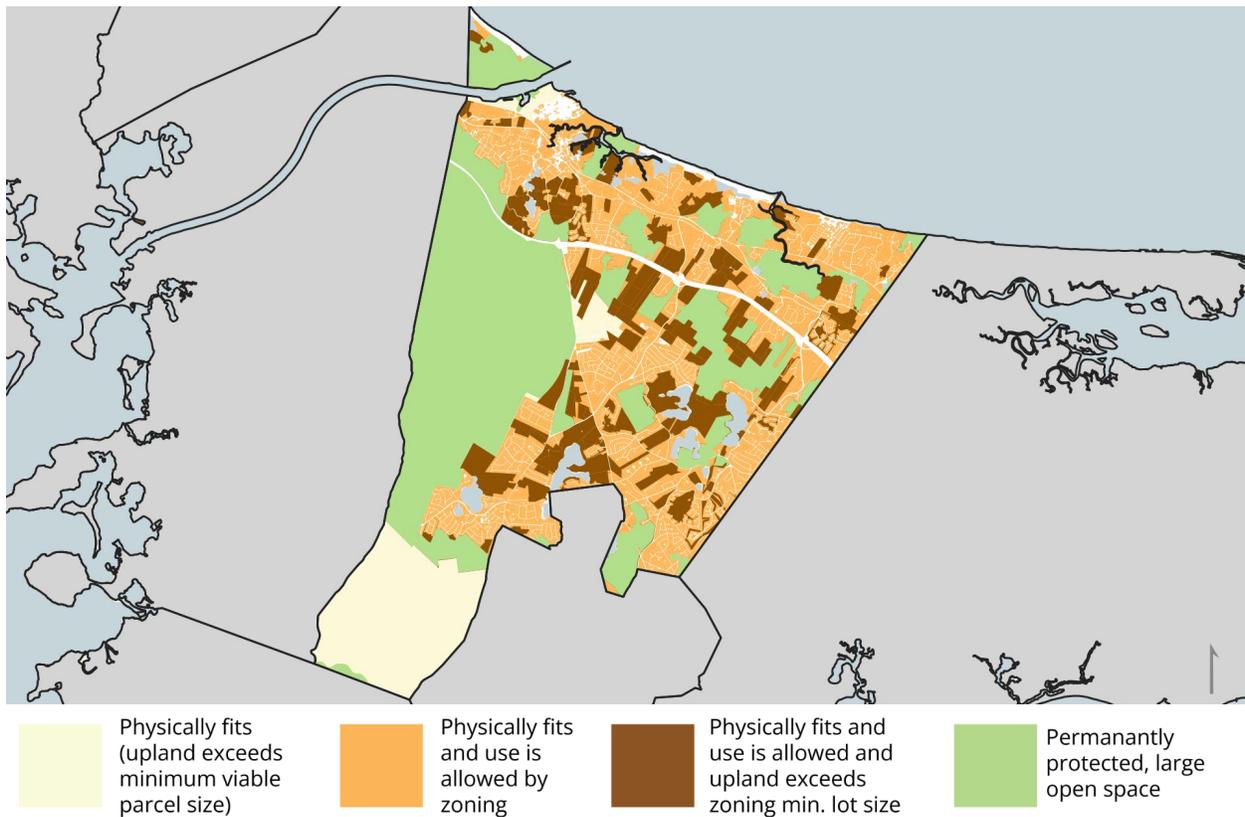
Figure 6: Use allowances by housing type around Eastham Center. Top row: duplex; middle row, left to right: triplex, small multifamily, medium multifamily; bottom row: corridor



Use vs. Lot Size Regulation Gaps

Some towns had a significant disconnect between their use rules and their minimum lot size requirements. For instance, in Eastham, duplexes physically fit and are allowed as a use on 93% of parcels, but only 10% of those parcels also have an upland area that exceeds the minimum lot size under zoning. This dynamic plays out for other multifamily types, as well. For instance for small multifamily housing across Harwich, there is a broad use allowance, but relatively few parcels with upland that meets the zoning's minimum lot size requirement..

Figure 7: Small multifamily (small version) allowances allowed in Harwich



Large vs. Small Version of Each Housing Type

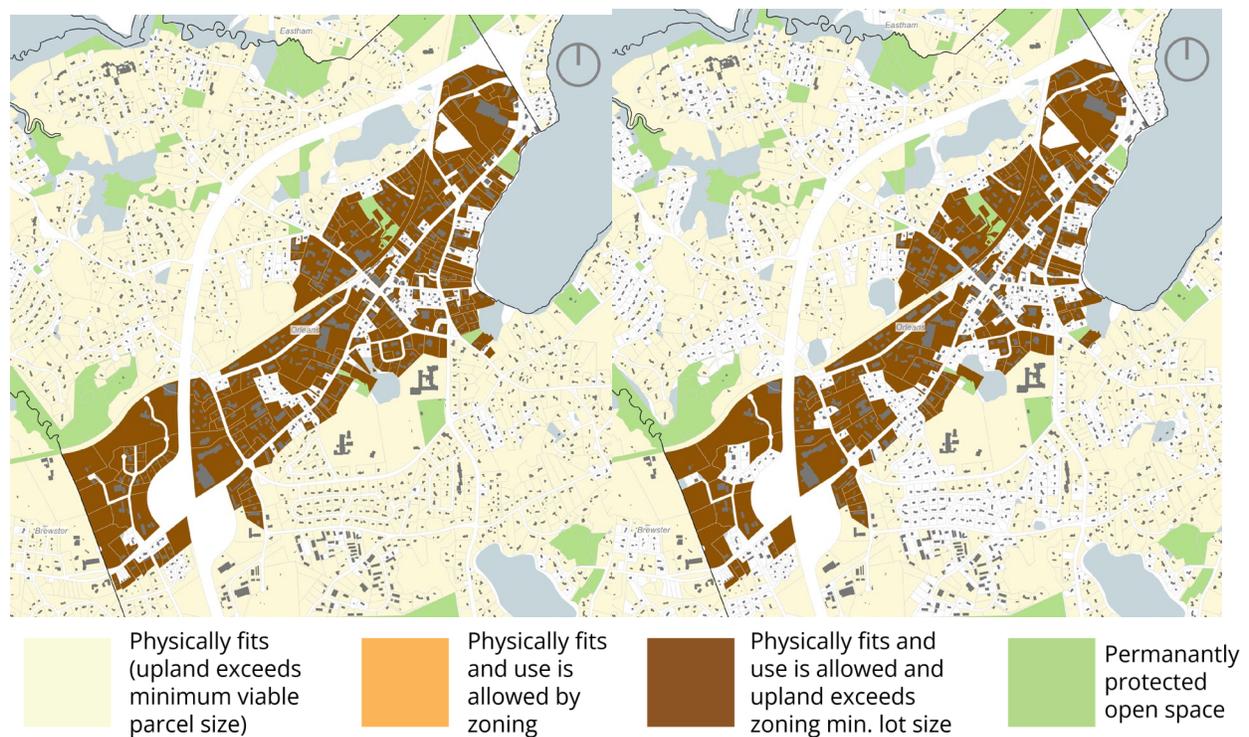
Many more parcels could physically fit the small version of each housing type, compared to the large version. However, the use and lot size rules for each subdistrict reduced the viability of most multifamily types—to the point where there was little difference in the percent of parcels accommodating large and small versions of each type. Nonetheless, when assessing the differences between small and large versions at the district level, reductions in parking requirements and lot coverage ratios do make more opportunities

available at the margins. Those marginal changes could “unlock” the potential for some new units, depending on existing site conditions and hyperlocal submarkets.

One good example of this marginal but important difference is along the Orleans Route 6A corridor. This area generally accommodates new multifamily development, including medium multifamily development (modeled at a hypothetical 12 units). See Figure 8 for maps of medium multifamily analysis in this area. Along Route 6A, the use and minimum lot size requirements are aligned, meaning there is no orange on the maps in Figure 8.

The specifics of Orleans’ multifamily zoning here include lax lot size requirements and parking requirements that vary by number of bedrooms in the units developed. Those specifics aside, the research showed marginal increases in the number of parcels accommodating medium multifamily when switching from the large to the small version of that housing type. Under these hypothetical conditions, this means there is more opportunity under the small version’s rules than under the large version’s rules. (Given the specifics of Orleans zoning here, it may, on some parcels, simply preference smaller bedroom sizes.)

Figure 8: Medium Multifamily Allowances on the Route 6A corridor in Orleans, small version (left) vs. large version (right)



Caveats

The number of parcels (rather than percent of parcels) accommodating multifamily development is high when considering the relatively small amount of multifamily development on the Cape. In theory, there are nearly 5,000 opportunities for triplex development under zoning, for instance. However, these numbers should be understood with caution. Many of these parcels have existing profitable or protected uses and are unlikely to be used for new development. Moreover, this analysis still does not assess the specific dimensional requirements other than minimum lot size, and the shape of lots is entirely unassessed. The nature of permitting is also unaddressed, with most multifamily uses subject to Special Permit review. Though there are nearly 5,000 opportunities for triplex development before any other zoning, regulatory, or market conditions are considered, only a small handful of that 5,000 are likely viable.

Cape-Wide Results Mapped

This section visualizes the parcel-level housing type analysis across the entire Cape. The scale of this visualization necessarily covers over some of the nuances seen in each town and zoning district. For town-scaled maps results that show some of these nuances more clearly, see [Appendix B: Housing Type Analysis Maps by Town](#).

The maps also show permanently protected open spaces of more than 50 acres. Permanently protected open spaces of all sizes (as well as many other land uses) are not appropriate for housing development, and the inclusion of large open spaces here is meant to signal their conservation. Small open spaces are not included only because the difficulty they add to reading the maps; they are likewise not meant for housing.

Figure 9: Cape Cod duplex fit criteria, small version

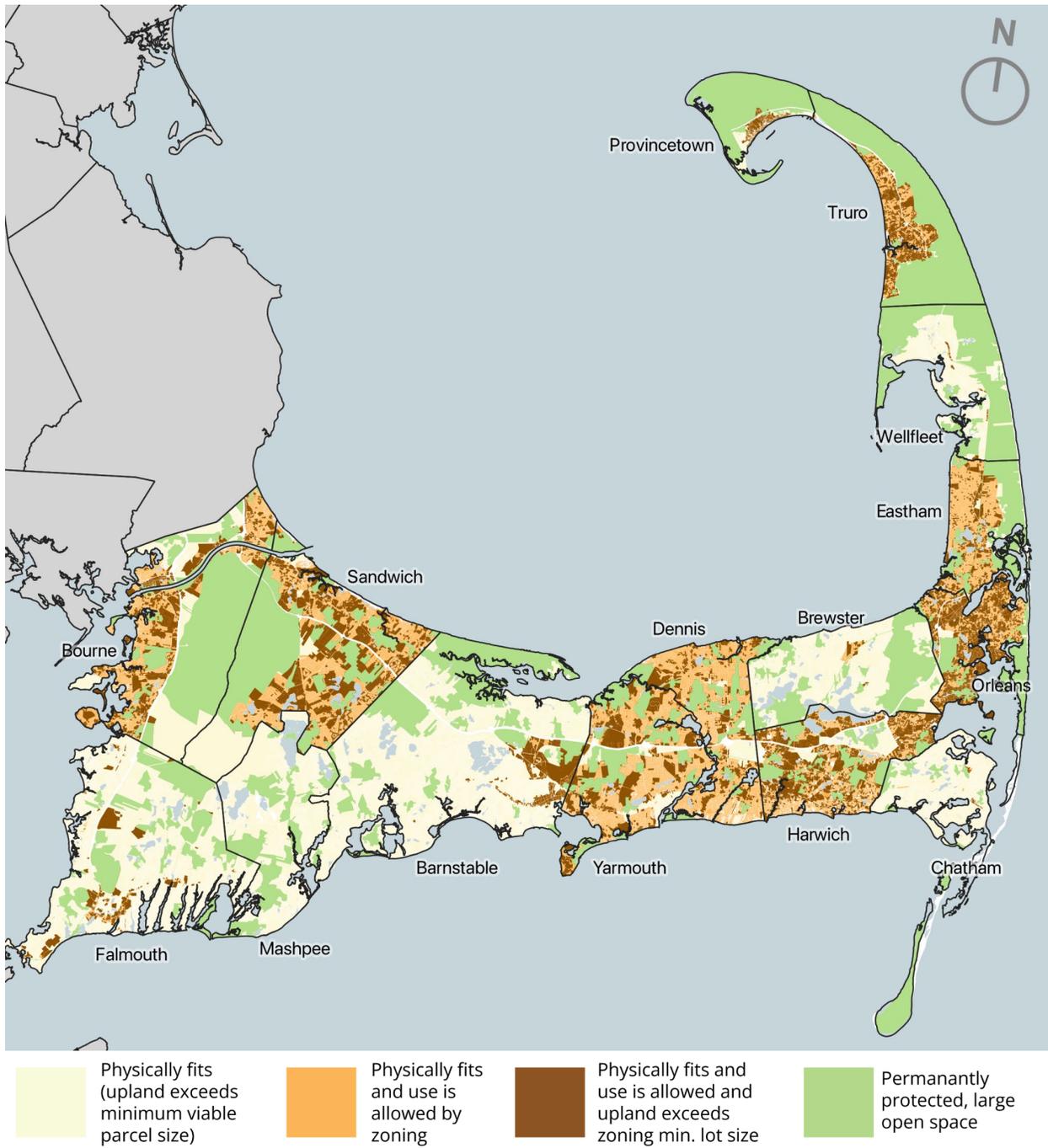


Figure 10: Cape Cod duplex fit criteria, large version

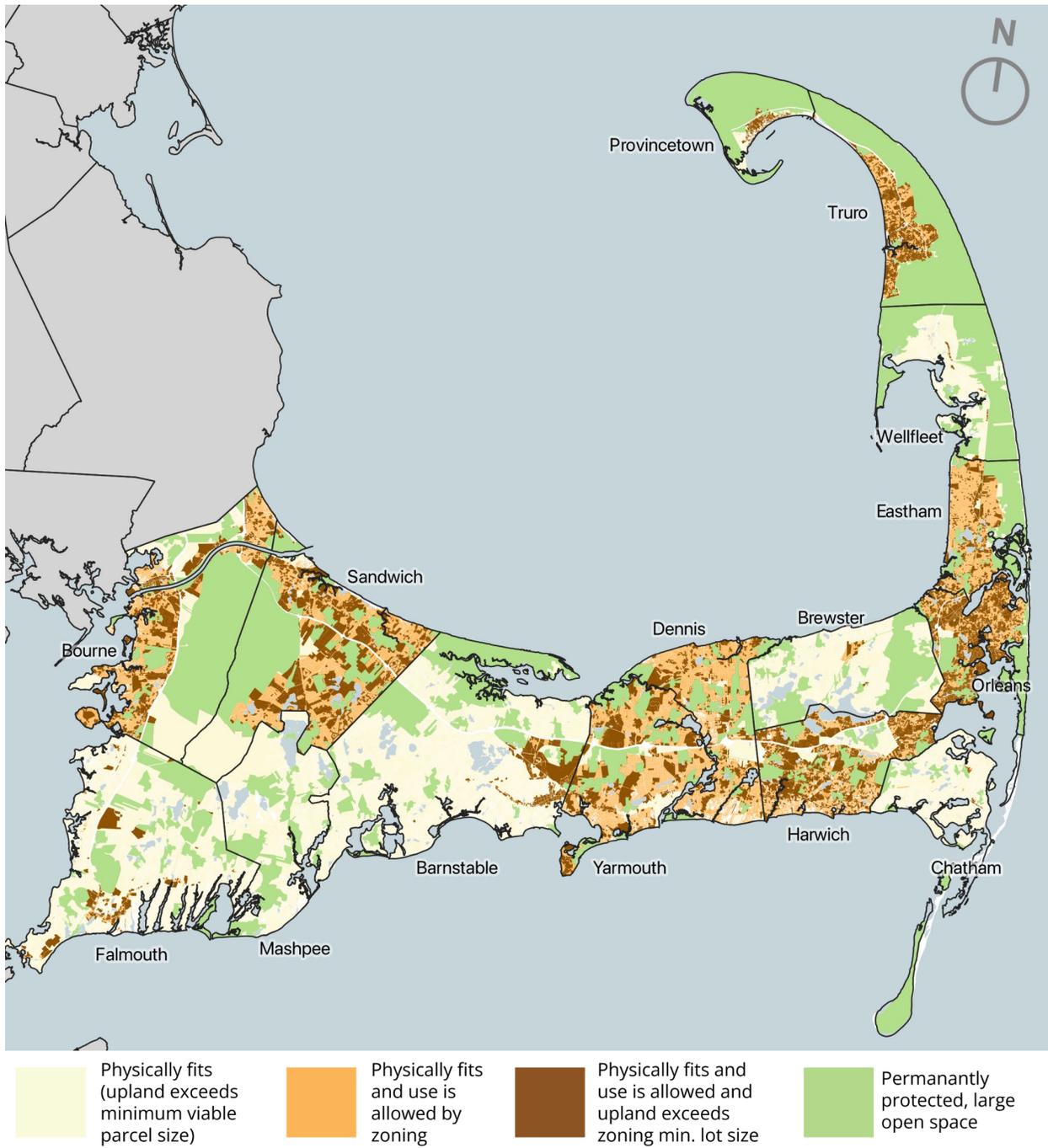
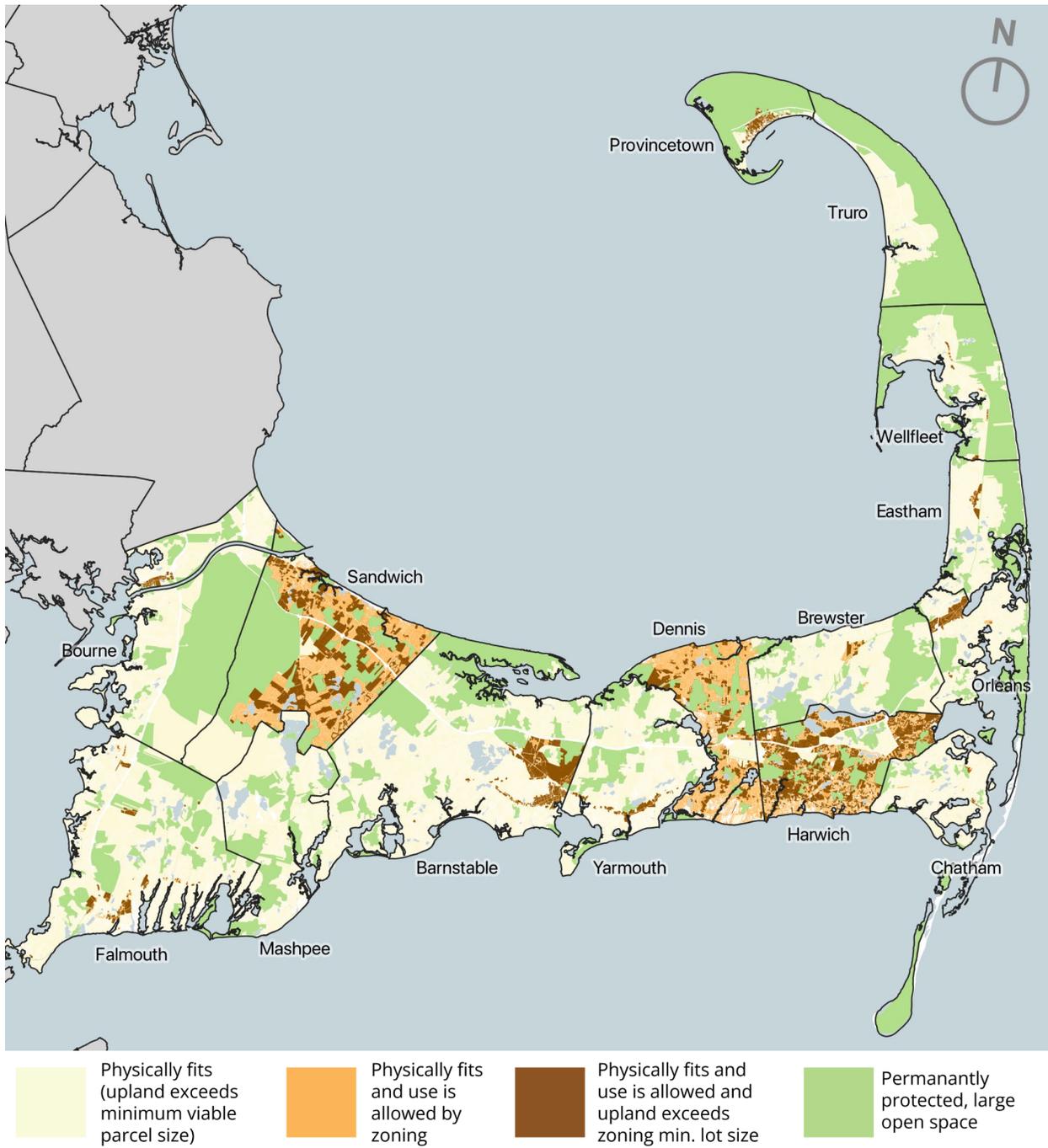
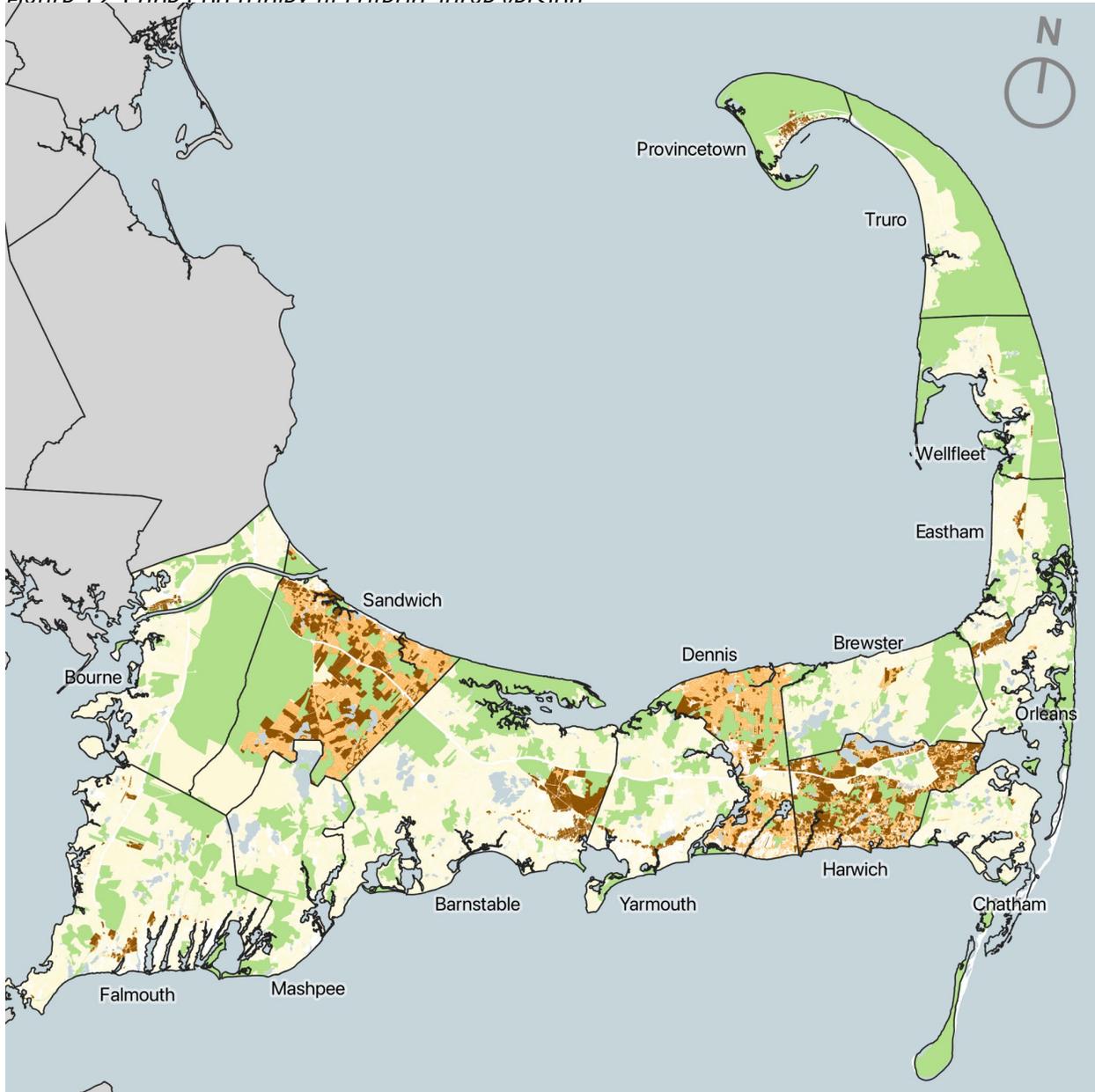


Figure 11: Cape Cod triplex fit criteria, small version



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Figure 12: Cape Cod trinlex fit criteria, large version



-  Physically fits (upland exceeds minimum viable parcel size)
-  Physically fits and use is allowed by zoning
-  Physically fits and use is allowed and upland exceeds zoning min. lot size
-  Permanently protected, large open space

Figure 13: Cape Cod small multifamily fit criteria, small version

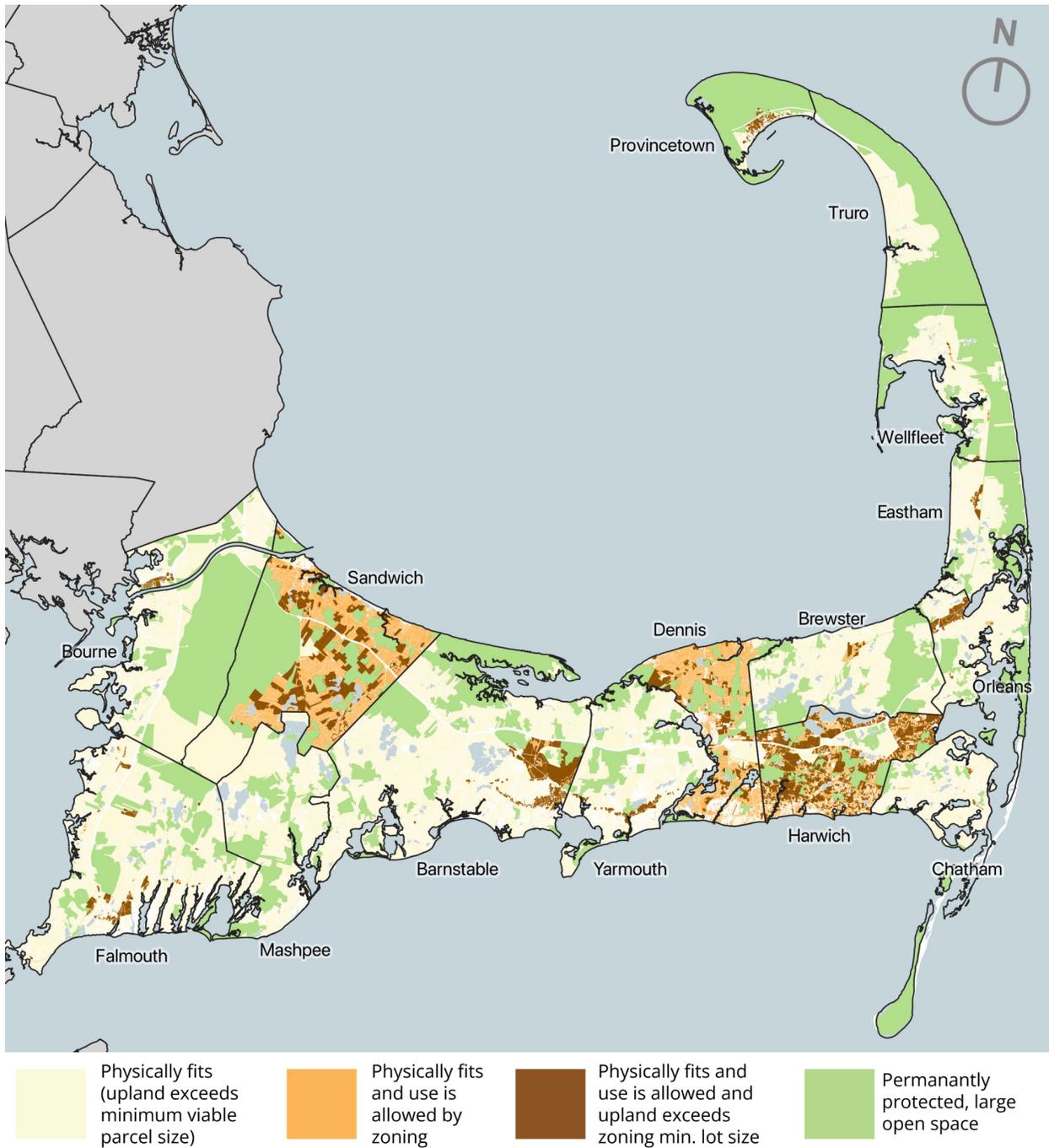


Figure 14: Cape Cod small multifamily fit criteria, large version

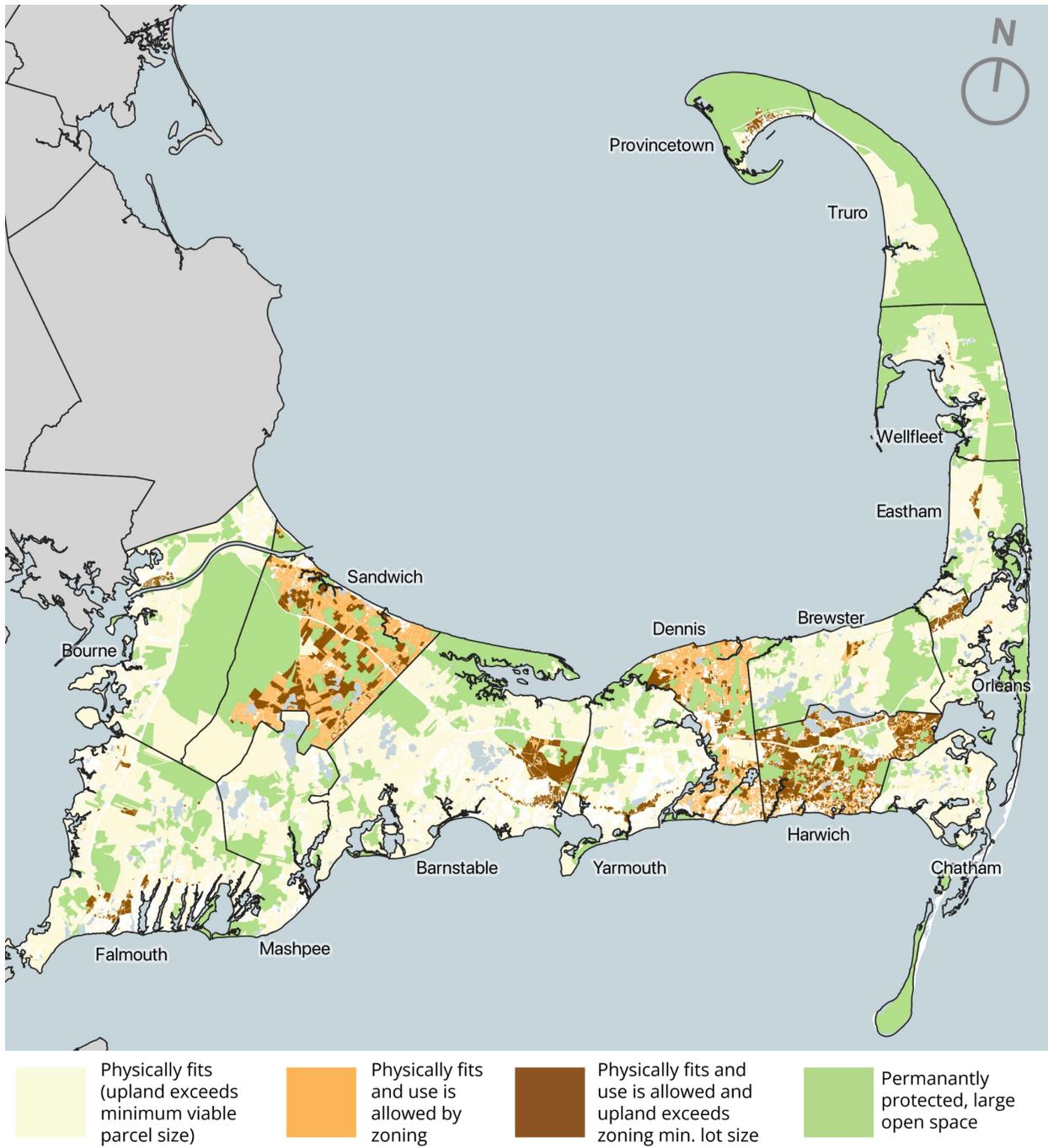


Figure 15: Cape Cod medium multifamily housing fit criteria, small version

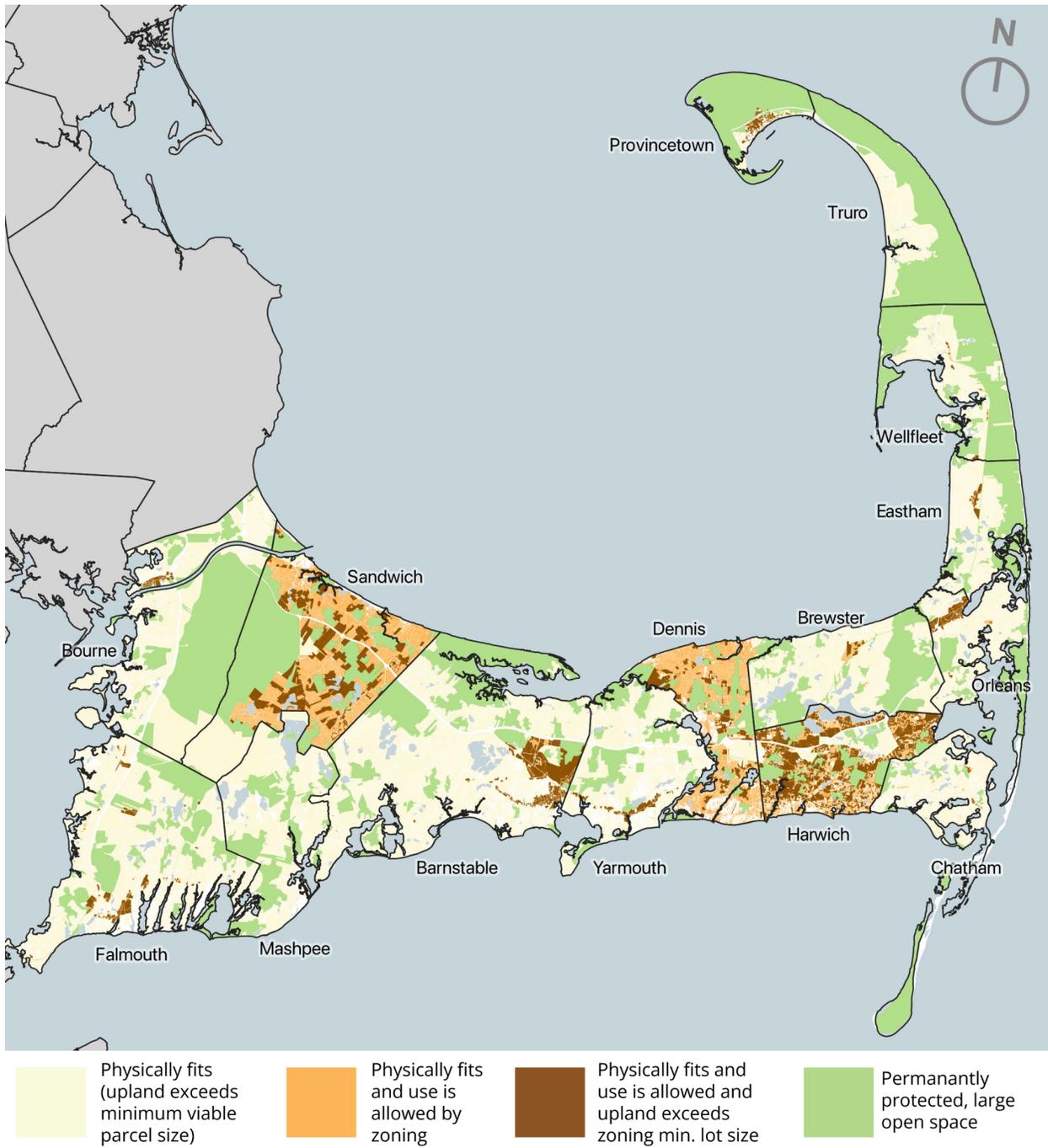


Figure 16: Cape Cod medium multifamily housing fit criteria, large version

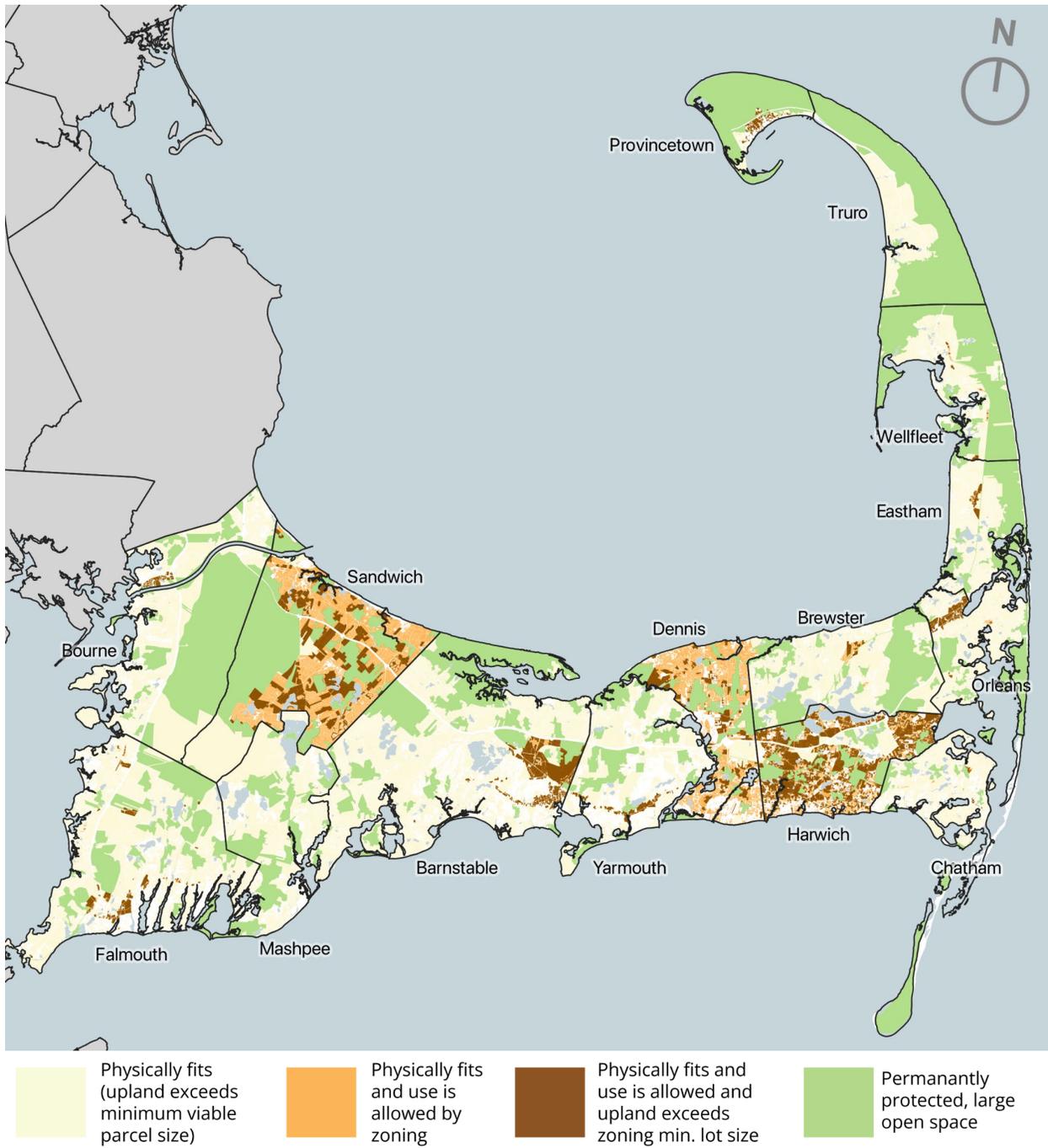


Figure 17: Cape Cod corridor building fit criteria, small version

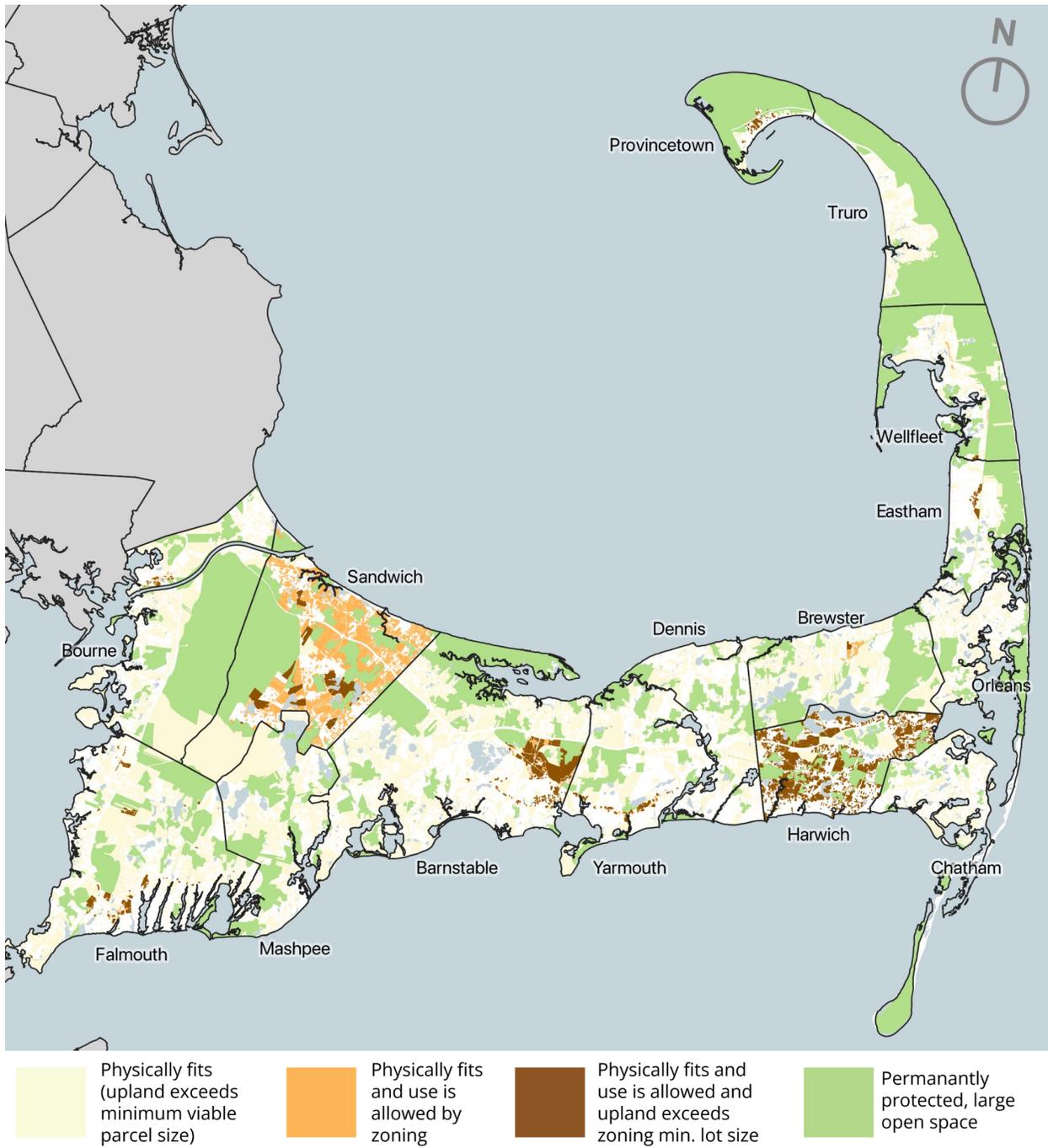
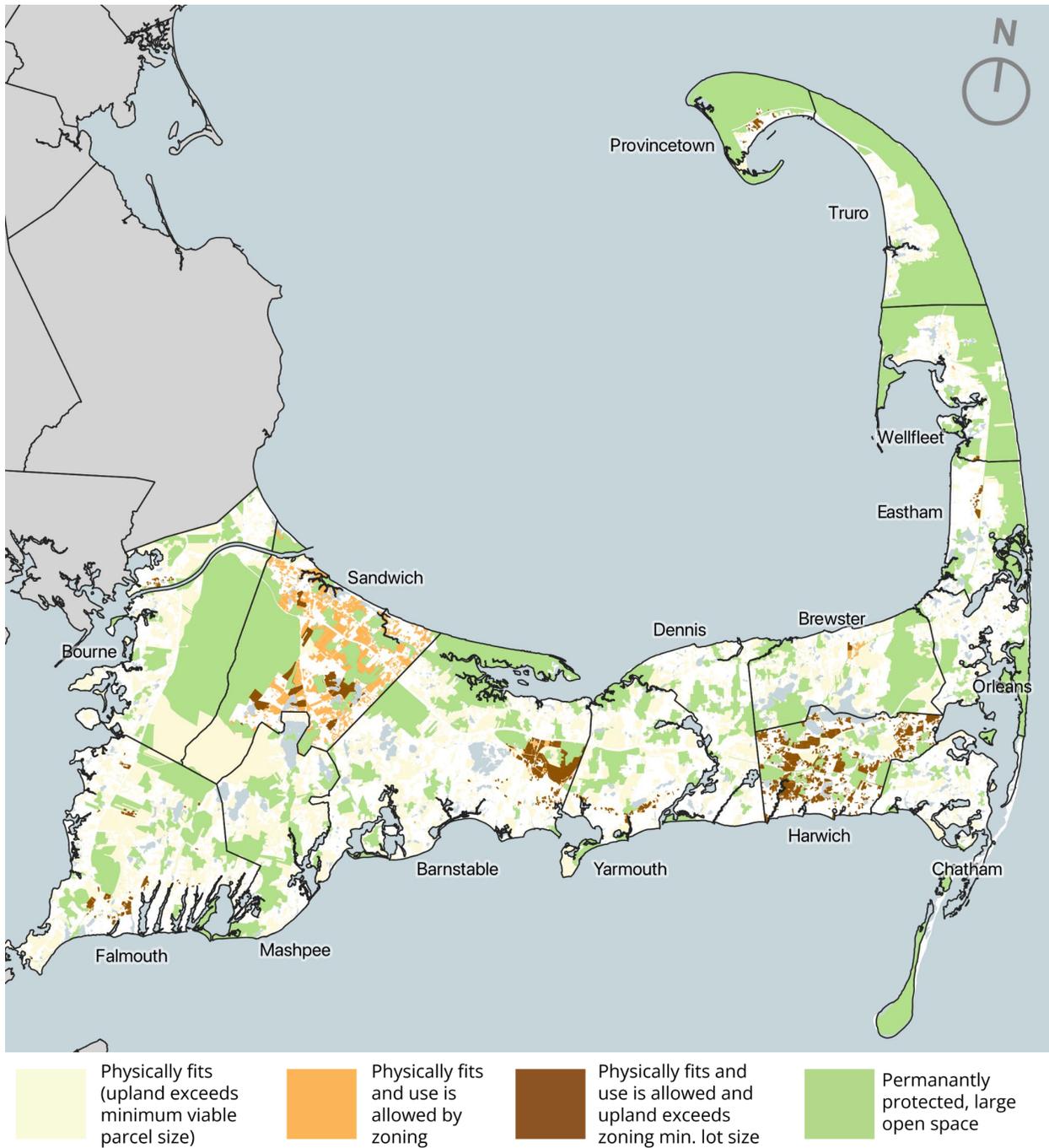


Figure 18: Cape Cod corridor building fit criteria, large version



Conclusion

The research given in this memo illustrates the potential limitations of current zoning on Cape Cod. Present limits on multifamily development are widespread, and in turn the reduced potential for more diverse and less expensive housing options. There is relatively little area with capacity for new multifamily development—whether considering zoning’s use alone, or under dimensional conditions modeled on the Cape’s zoning districts and standard housing typologies. If zoning did not support residential uses broadly, that would raise one set of questions about local priorities in the face of great housing need. However, single-family uses are broadly allowed by-right and would readily meet dimensional regulations, whereas multifamily uses are much more restricted. This raises significant further questions about the role of zoning currently, including impacts on affordability, economic development, fair housing, and more.

Zoning is one piece in a larger set of land use regulations that includes building, fire, and energy codes published statewide and enforced locally; conservation regulations (especially of wetlands and rivers); state wastewater regulations; regulatory review of Developments of Regional Impact by the Cape Cod Commission; public waterfront (Chapter 91) regulations; regulation of hazardous material sites; local subdivision regulations; historic district and landmark regulations; and more. In this analysis’s replication of typical market-driven housing types, it accounts for building code regulations that are part of this stack. The other pieces of this land use control stack were not included, either because of their particularity to specific sites or other difficulties in modeling their effects at scale. Regardless of this memo’s approach, any town or particular development will need to assess the local regulatory context to weigh viability of housing at a given site.

Importantly, each piece of the land use control stack has its own function: building and fire codes protect life safety, DEP regulations protect water quality, Chapter 91 protects the waterfront, and so on. Zoning does not need to replicate (and potentially interfere with) those regulations. Instead, zoning can act to further their core aims and to tackle other subject areas. As noted in the introduction, the legislation enabling zoning gave several goals, including (to paraphrase): encouraging housing for all income levels, facilitating adequate provision of infrastructure, preservation and increasing of amenities, and more.¹⁵

¹⁵ <https://www.mass.gov/doc/the-zoning-act/download>

Residential zoning reform, and especially multifamily zoning reform, would advance each of these goals.

Appendix A:

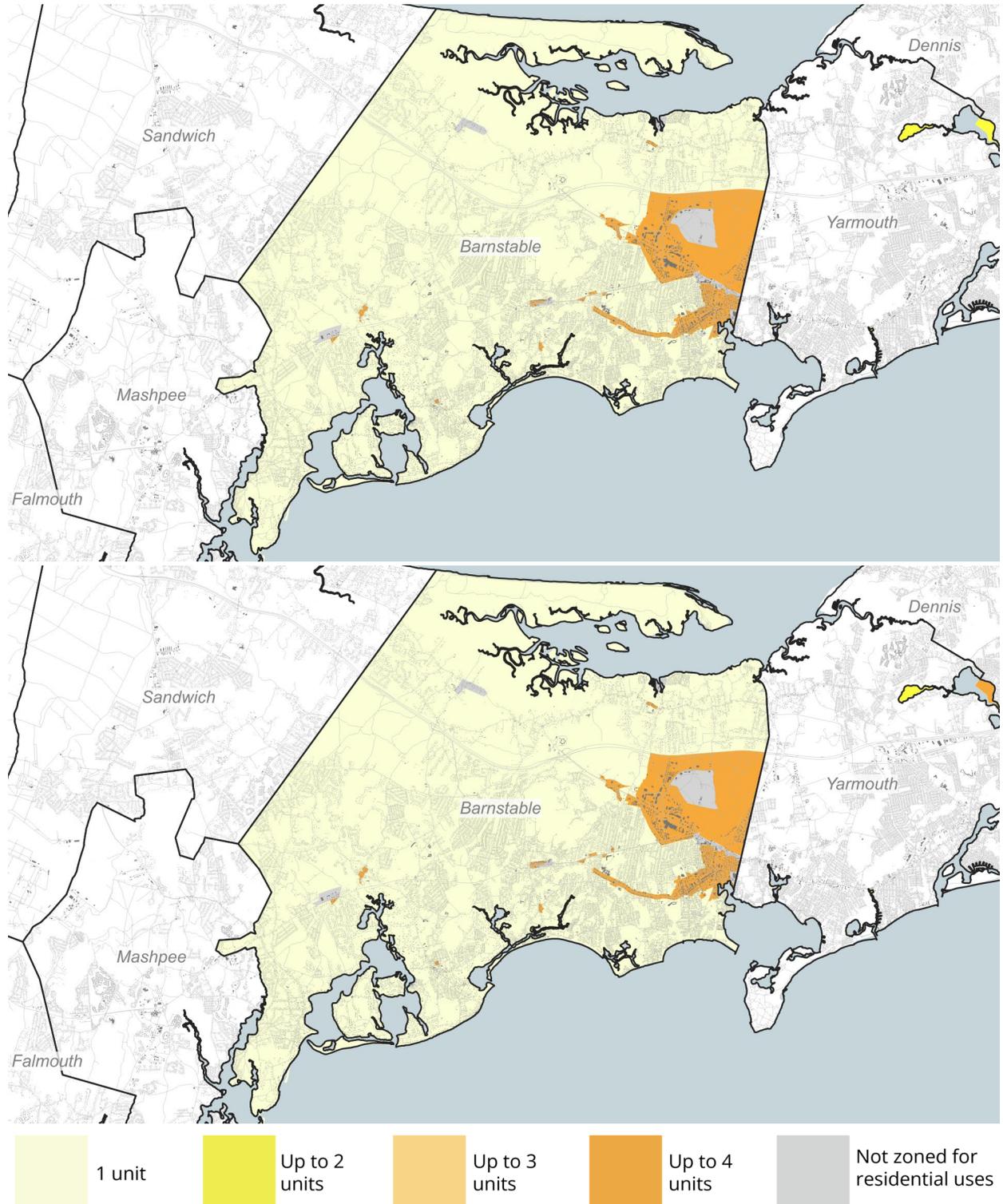
Use-Based Analysis

Maps by Town

This appendix compiles maps from the use-based analysis for specific towns on Cape Cod. For each town, there are two maps, one depicting residential uses allowed by-right and one depicting those uses allowed by-right or by Special Permit. For more on this analysis's method and findings, see [Use-Based Analysis](#).

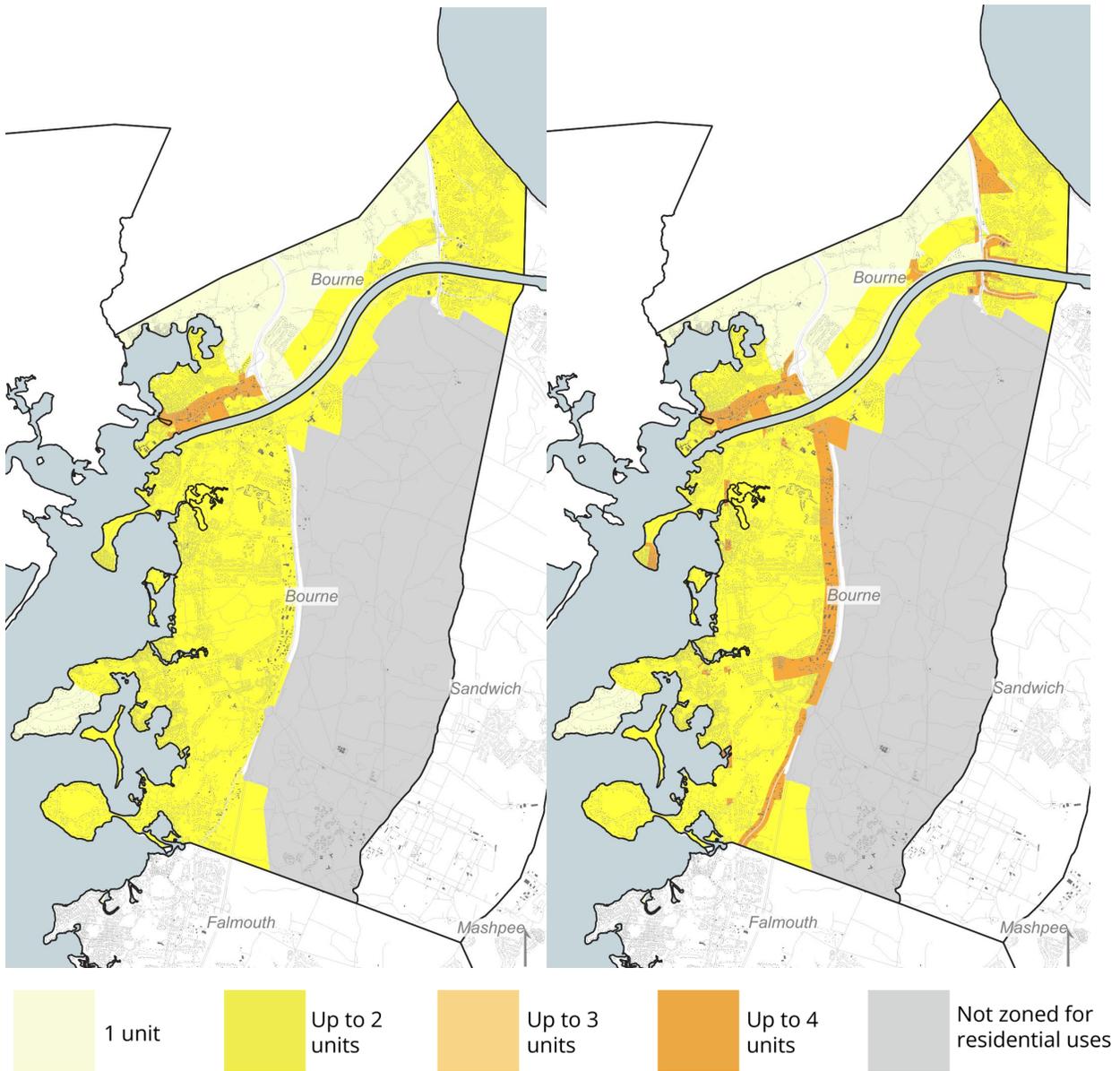
Cape Cod Zoning for Housing Assessment

Barnstable residential use allowances, by-right (top) and by-right or Special Permit (bottom)



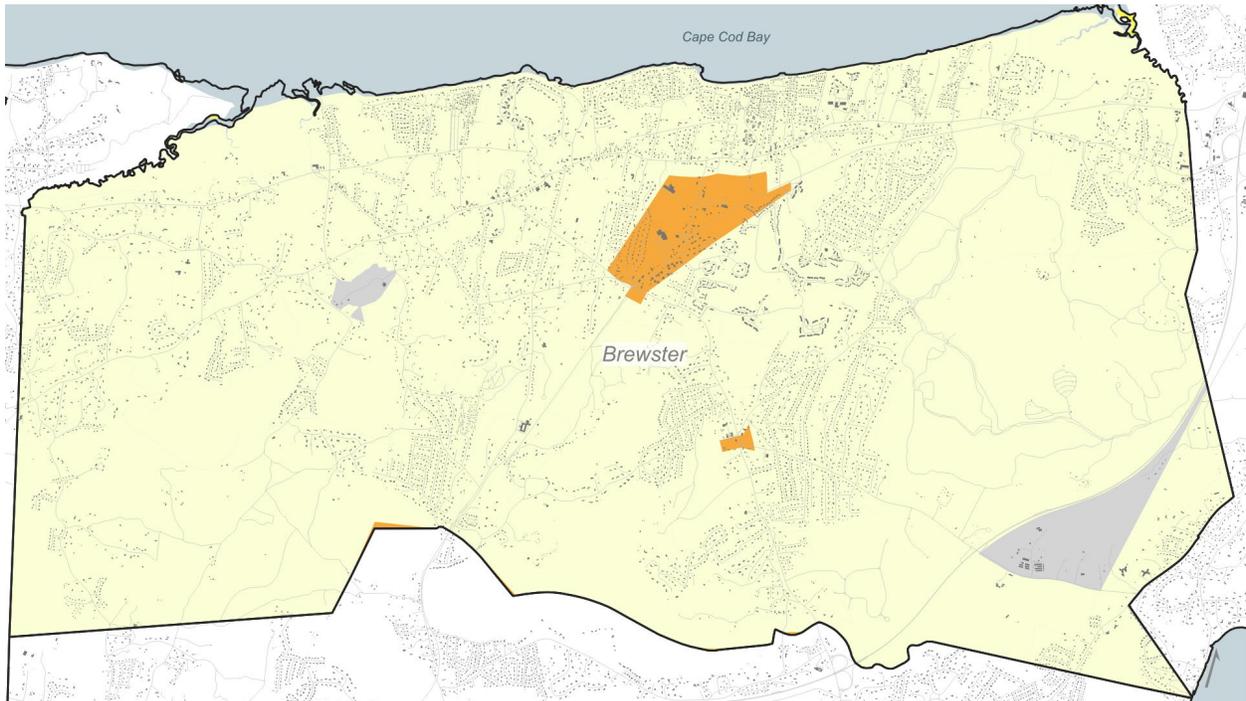
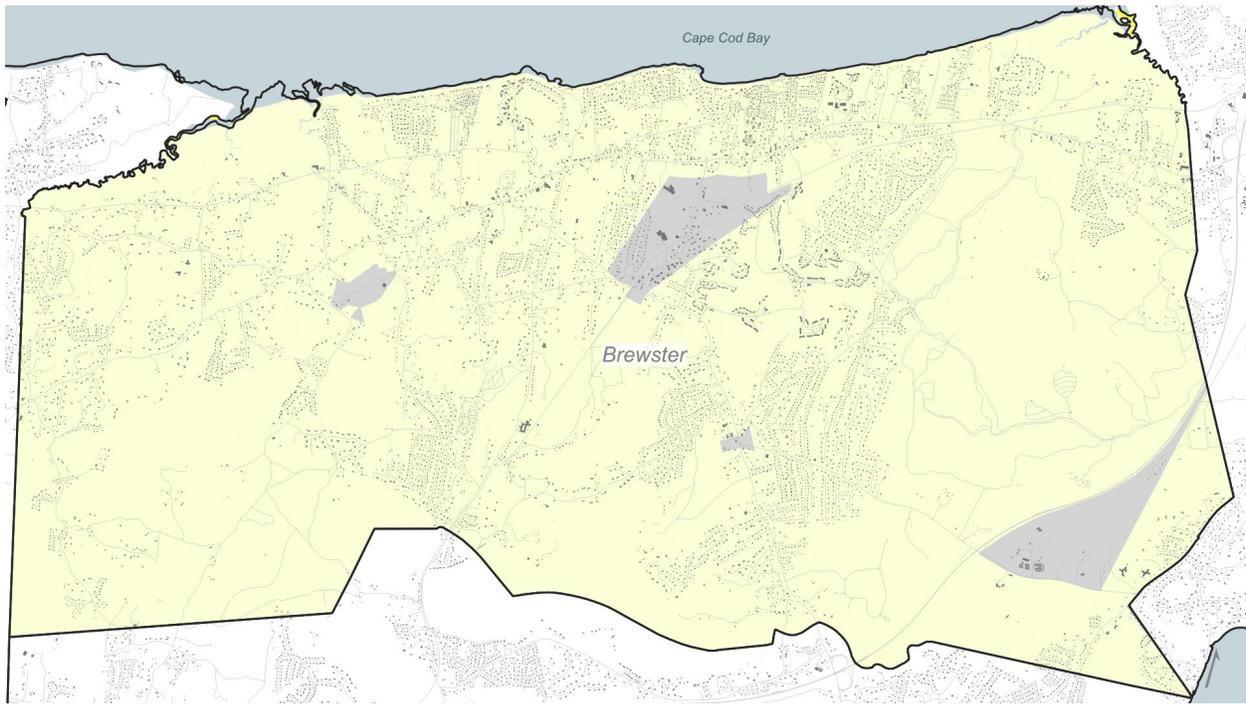
Cape Cod Zoning for Housing Assessment

Bourne residential use allowances, by-right (left) and by-right or Special Permit (right)



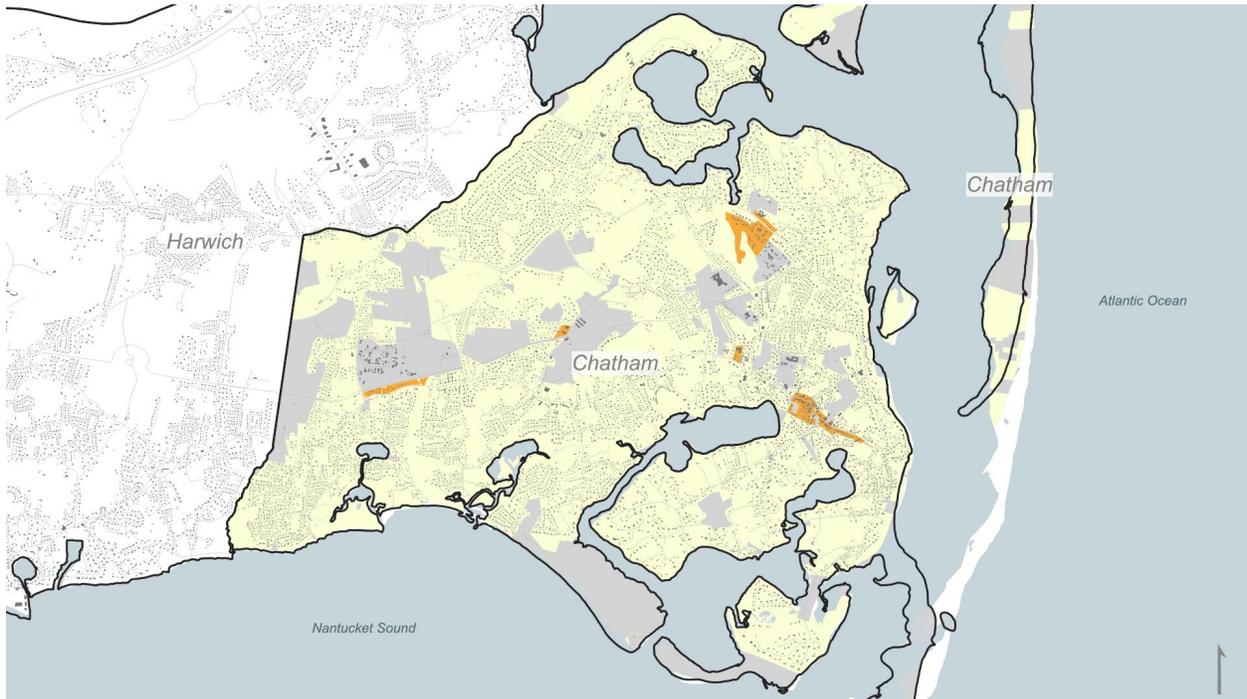
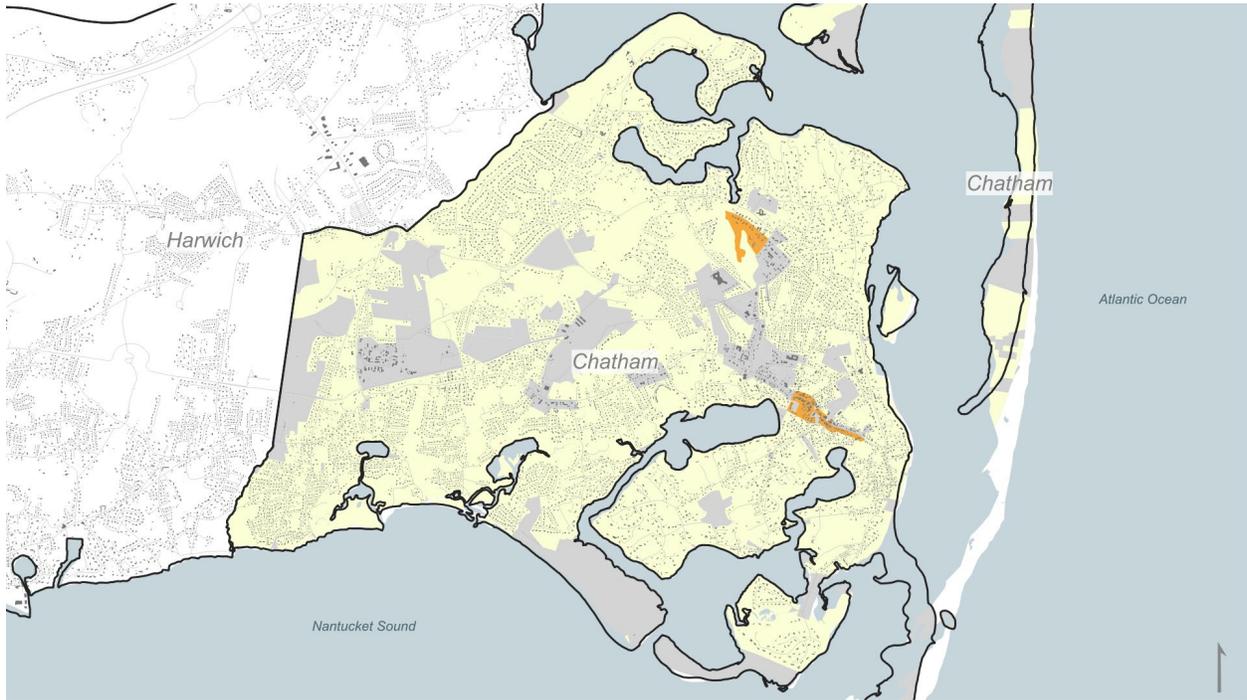
Cape Cod Zoning for Housing Assessment

Brewster residential use allowances, by-right (top) and by-right or Special Permit (bottom)



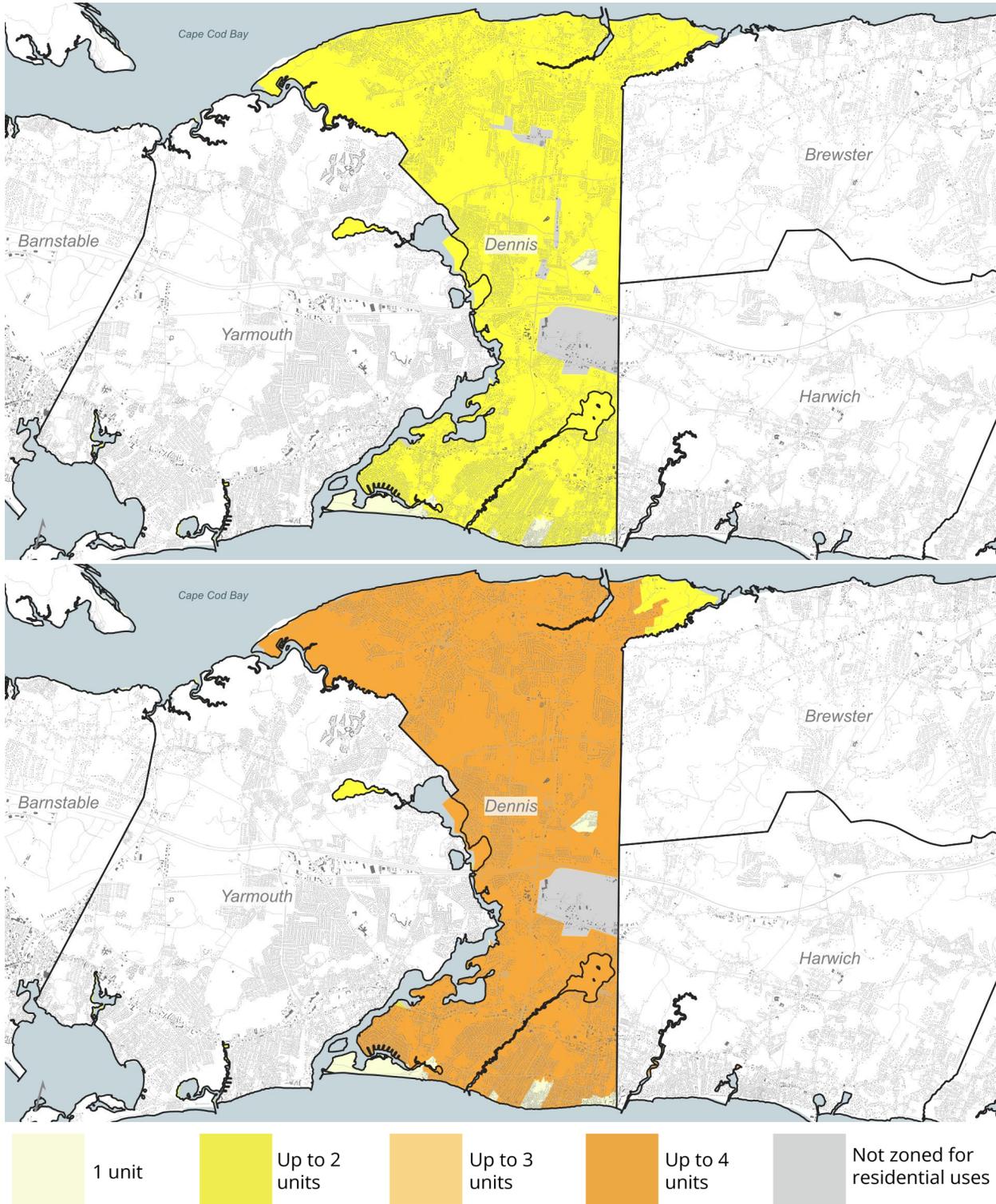
Cape Cod Zoning for Housing Assessment

Chatham residential use allowances, by-right (top) and by-right or Special Permit (bottom)



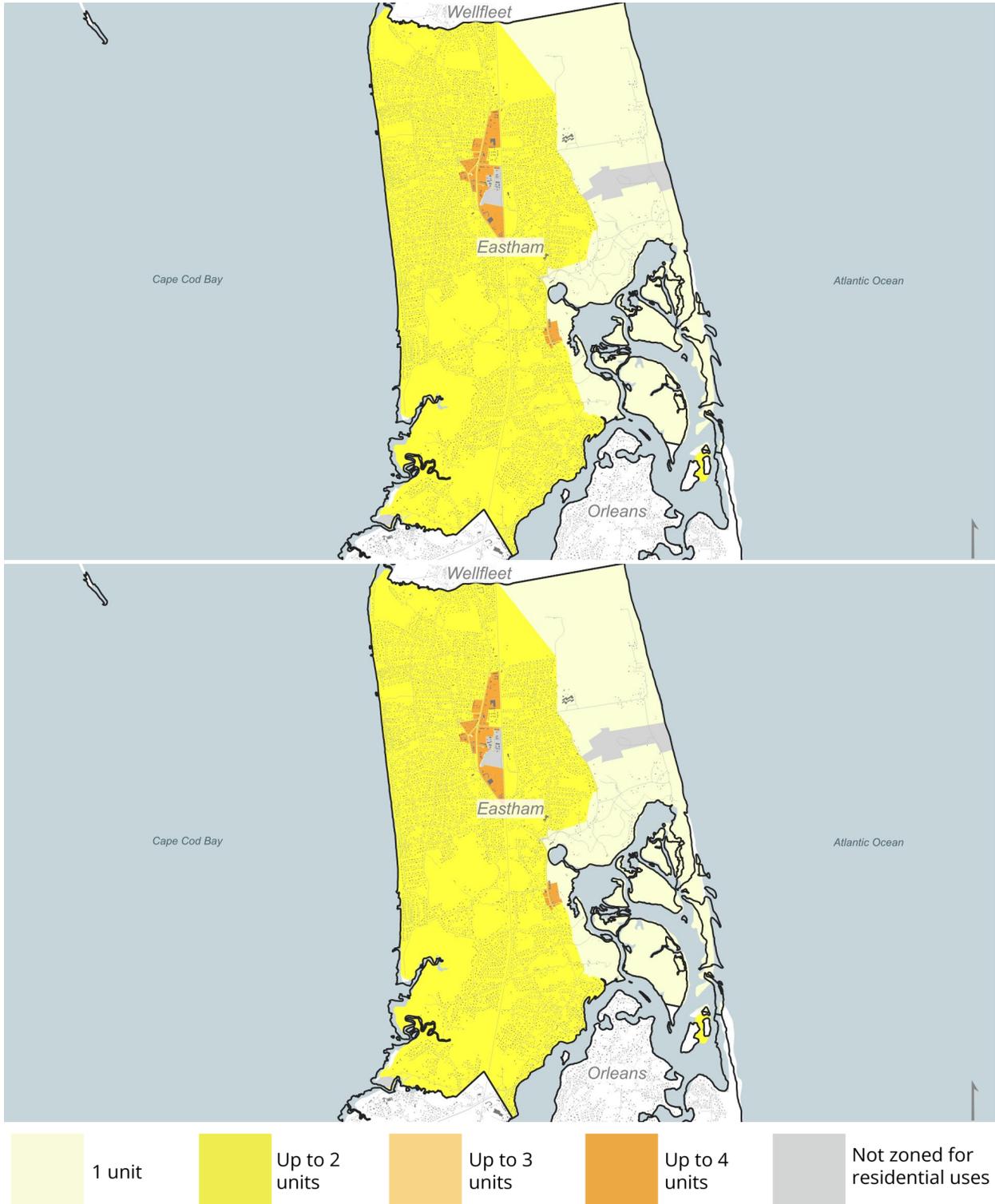
Cape Cod Zoning for Housing Assessment

Dennis residential use allowances, by-right (top) and by-right or Special Permit (bottom)



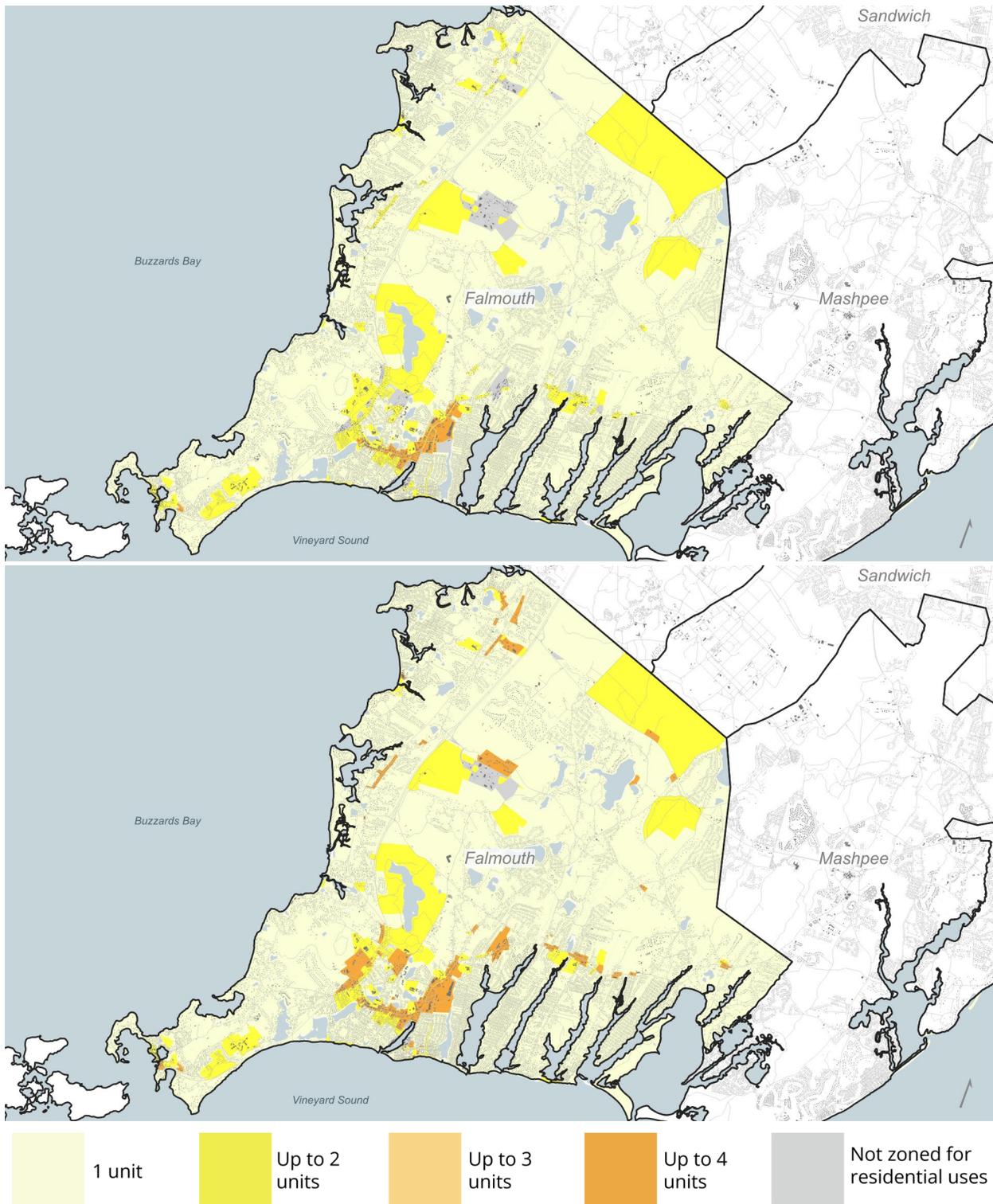
Cape Cod Zoning for Housing Assessment

Eastham residential use allowances, by-right (top) and by-right or Special Permit (bottom)



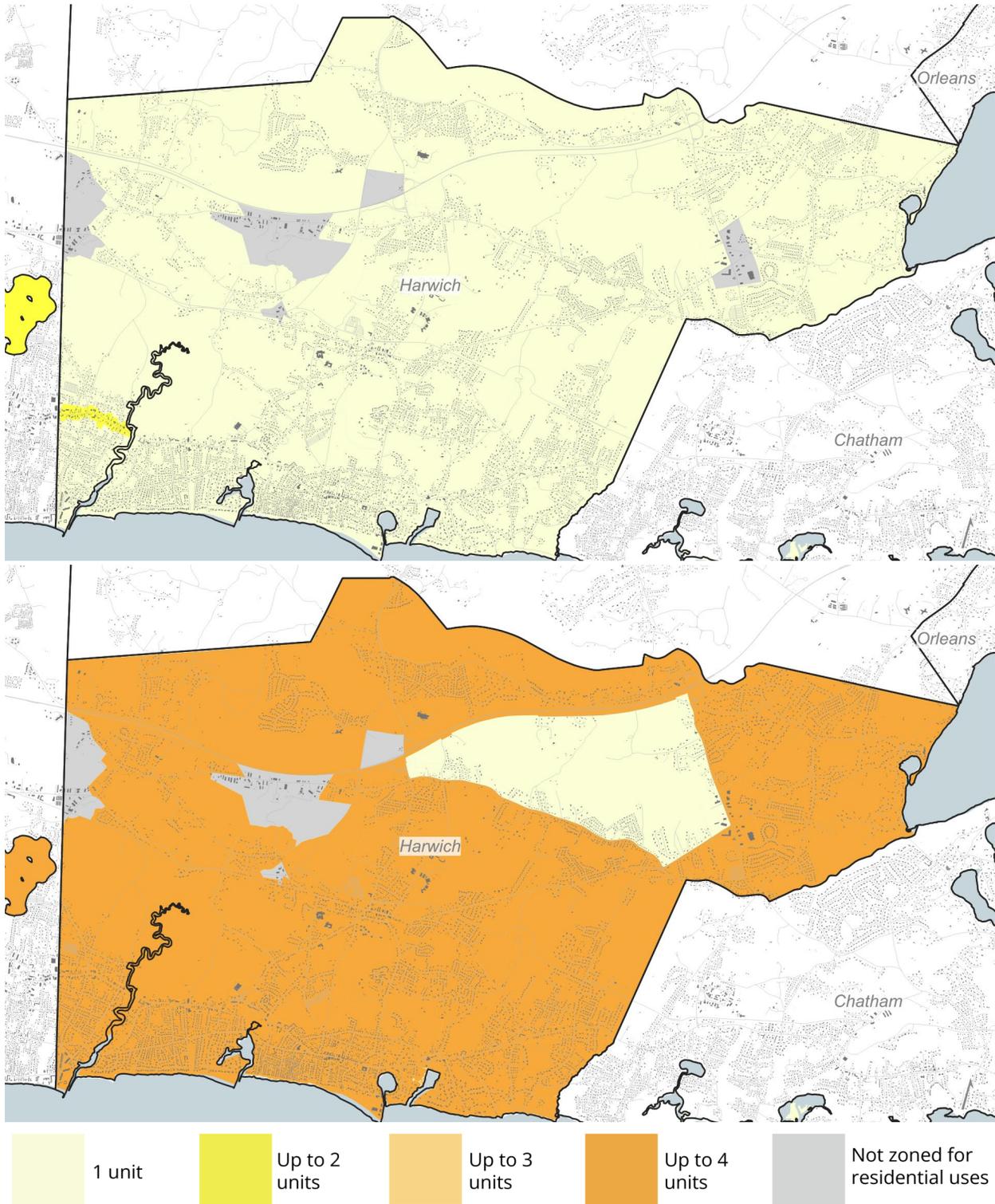
Falmouth residential use allowances, by-right (top) and by-right or Special Permit (bottom)

Cape Cod Zoning for Housing Assessment



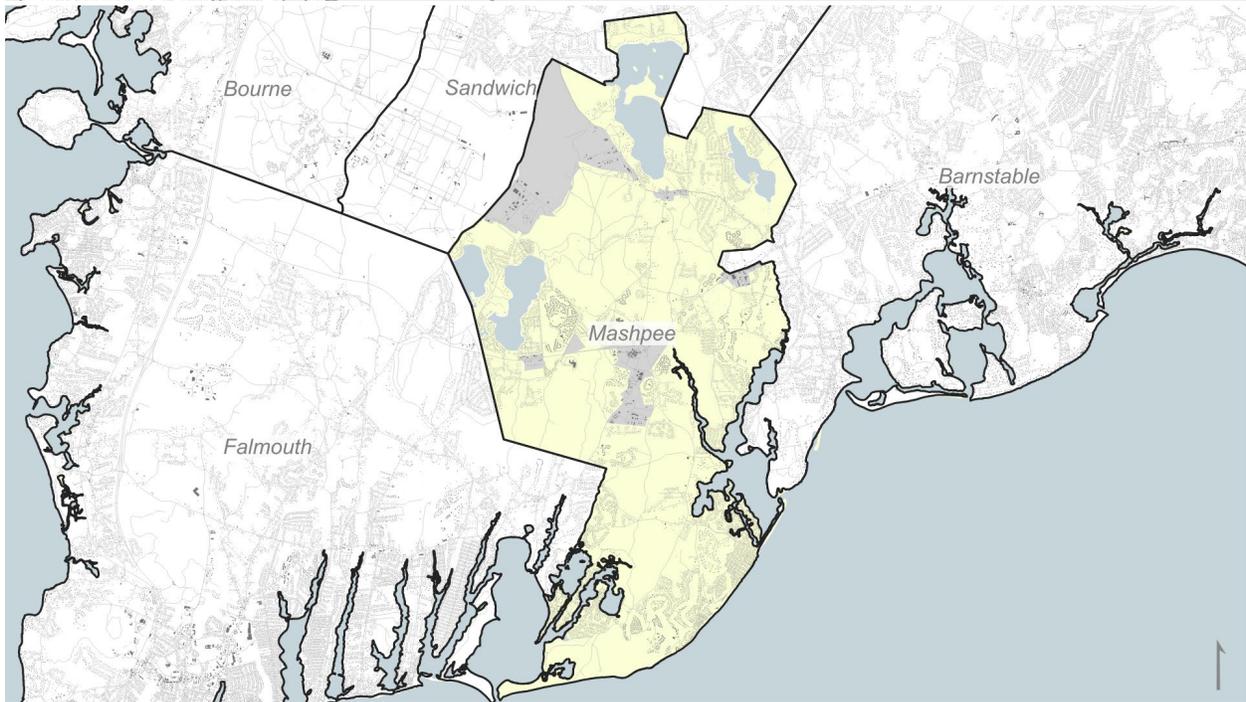
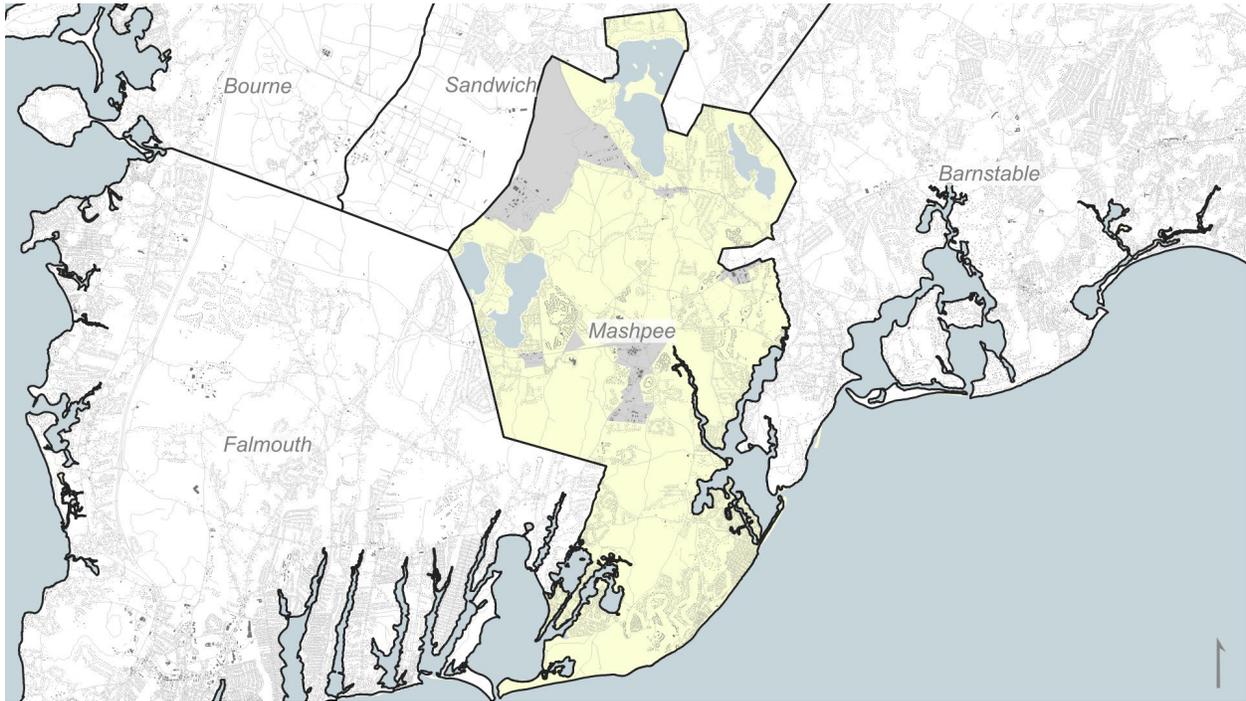
Cape Cod Zoning for Housing Assessment

Harwich residential use allowances, by-right (top) and by-right or Special Permit (bottom)



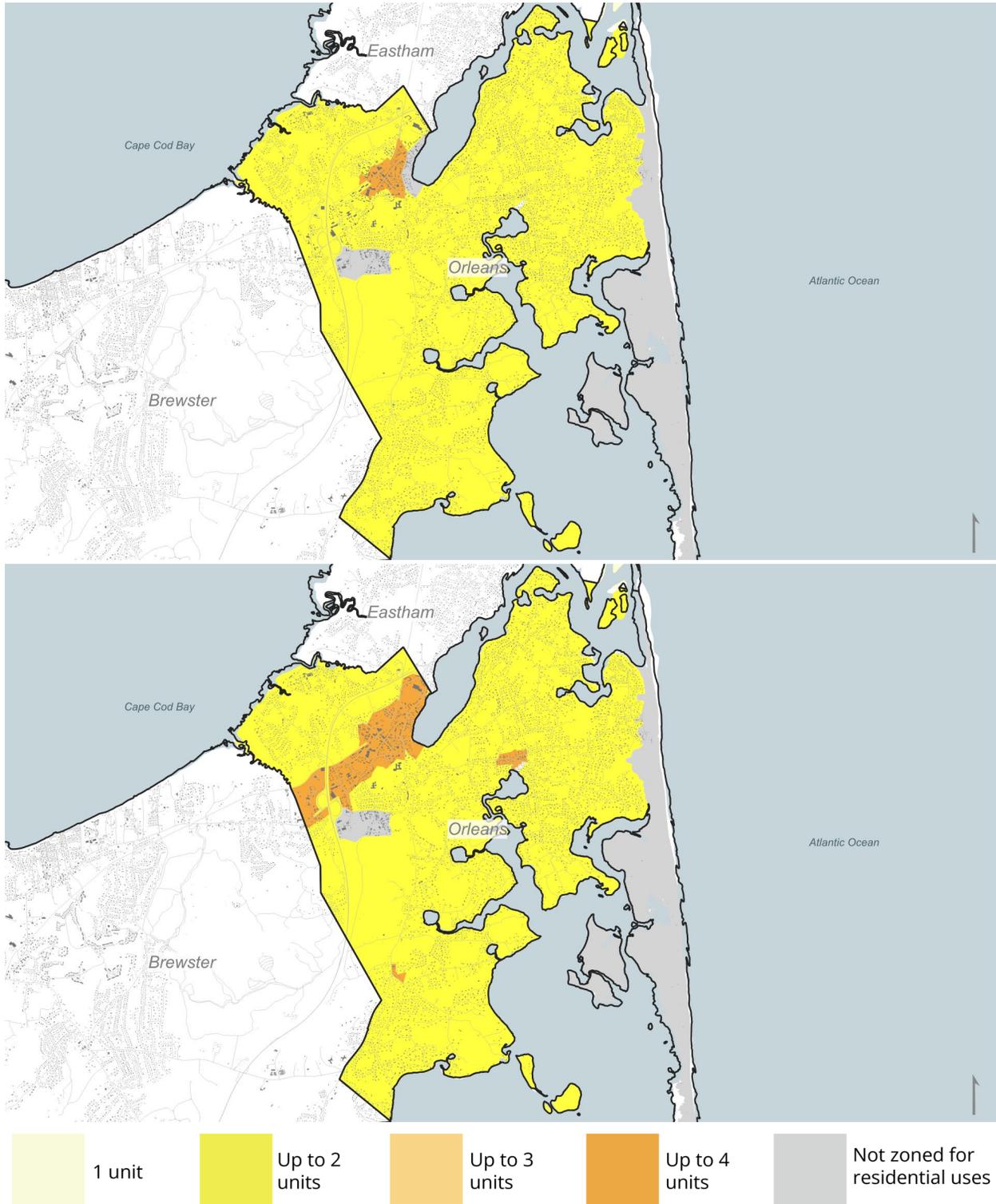
Cape Cod Zoning for Housing Assessment

Mashpee residential use allowances, by-right (top) and by-right or Special Permit (bottom)



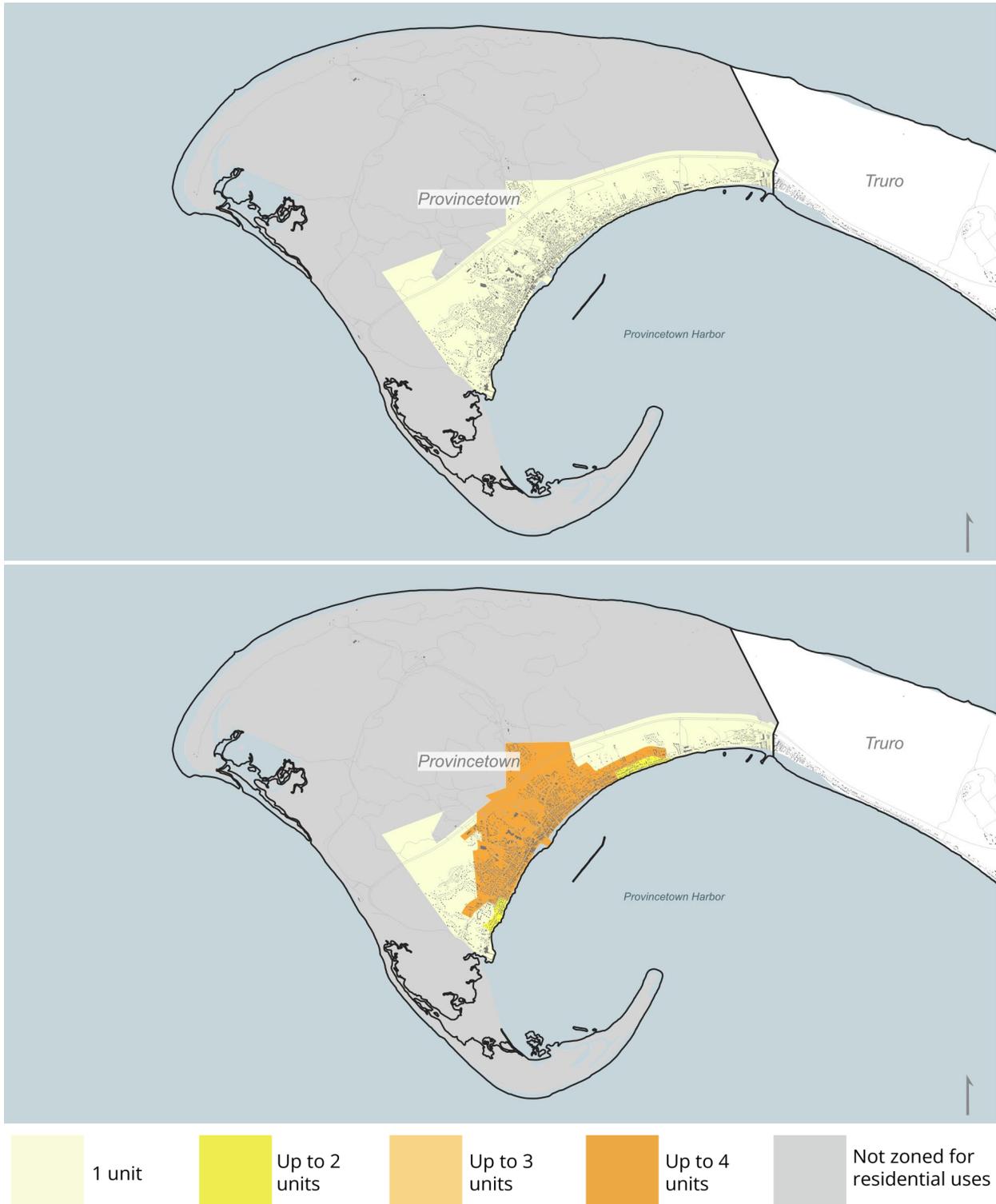
Cape Cod Zoning for Housing Assessment

Orleans residential use allowances, by-right (top) and by-right or Special Permit (bottom)



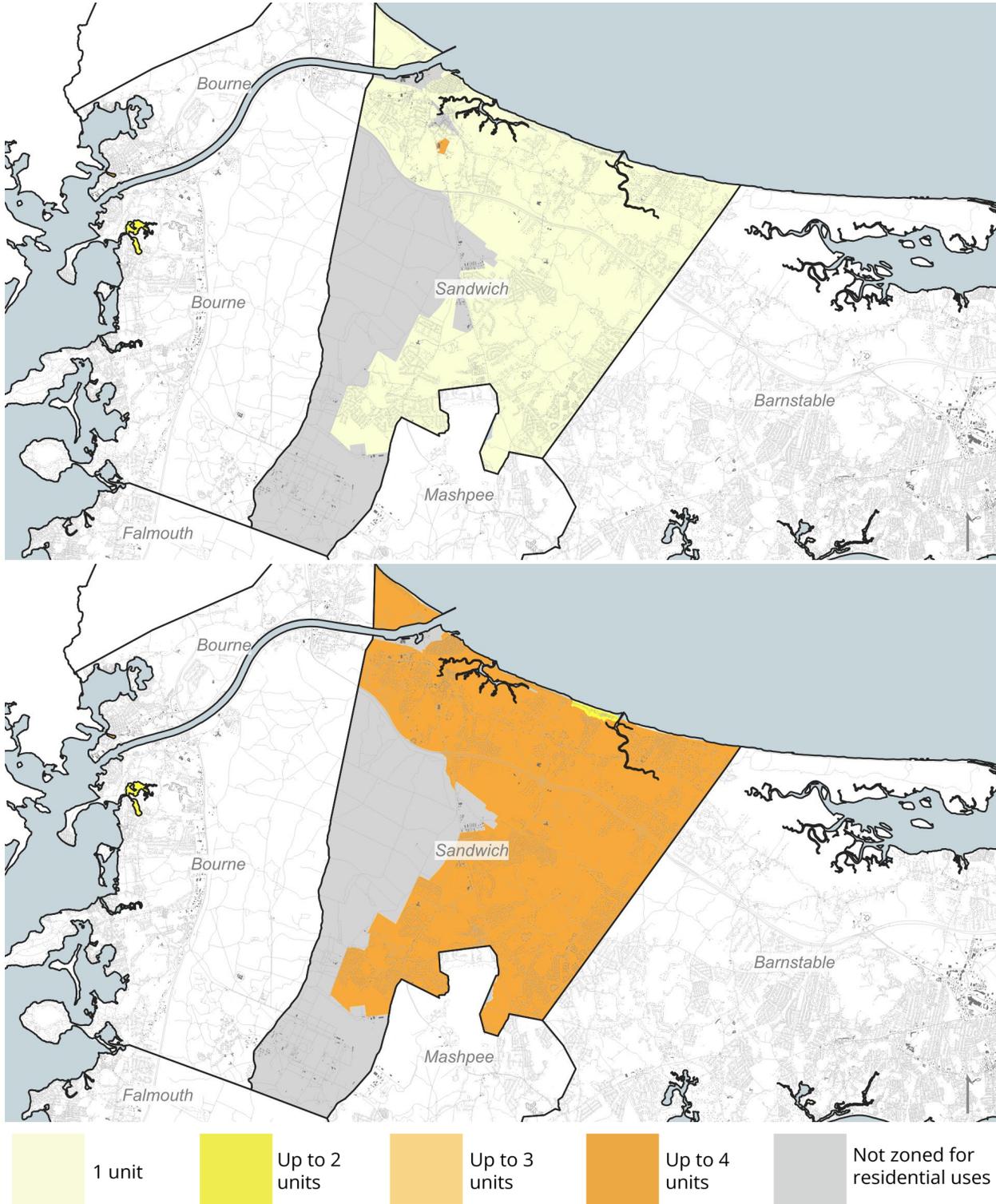
Cape Cod Zoning for Housing Assessment

Provincetown residential use allowances, by-right (top) and by-right or Special Permit (bottom)



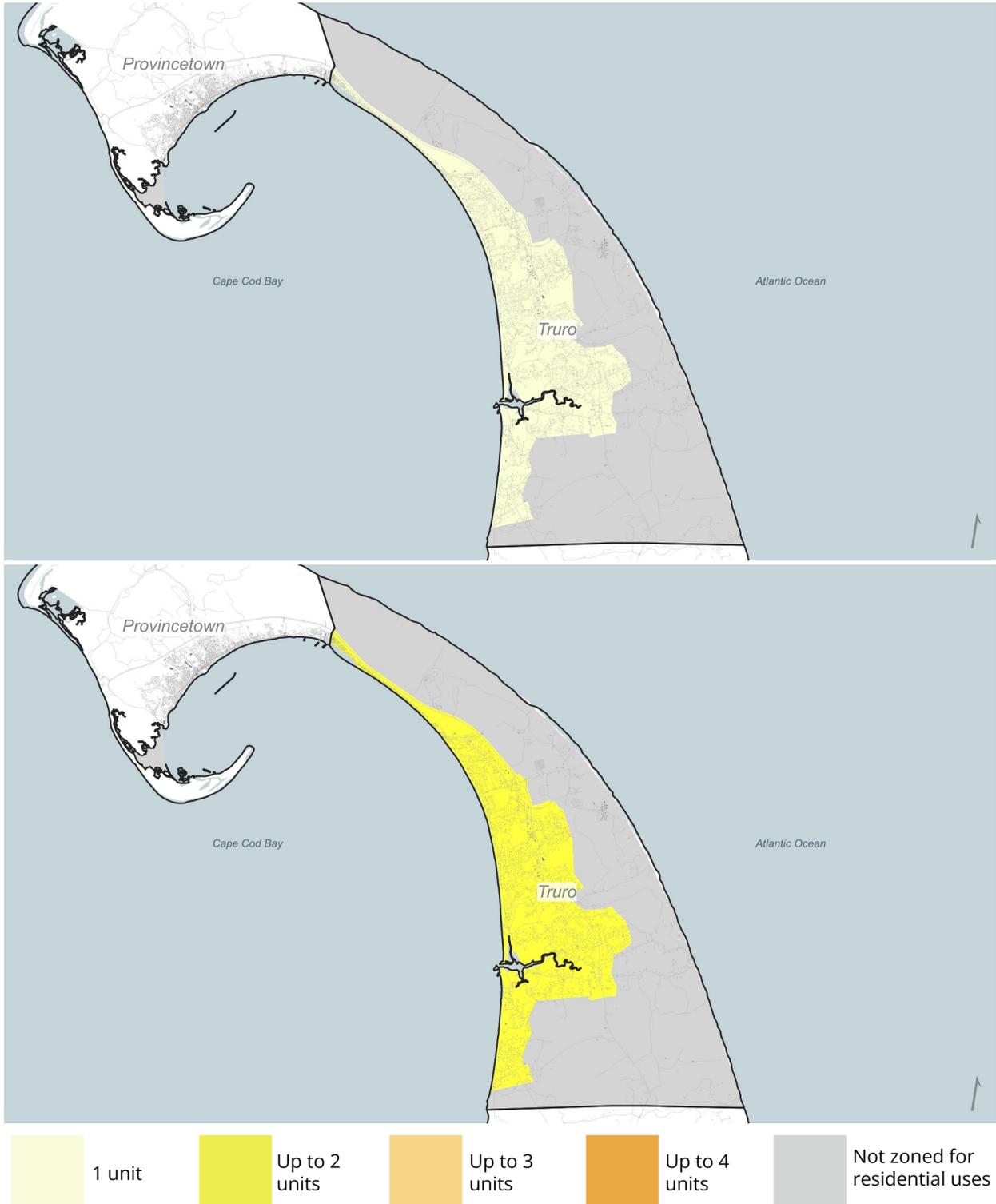
Cape Cod Zoning for Housing Assessment

Sandwich residential use allowances, by-right (top) and by-right or Special Permit (bottom)



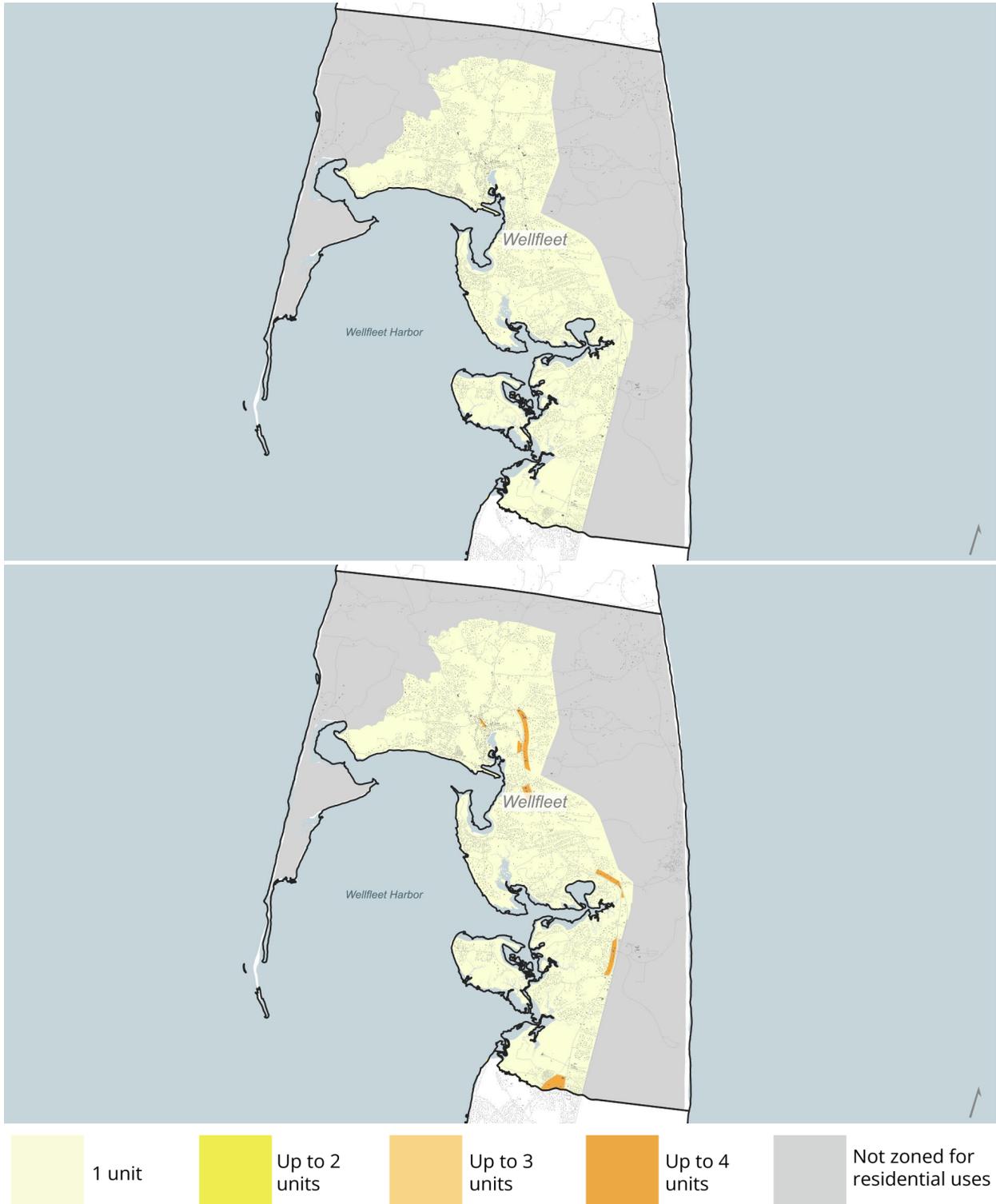
Cape Cod Zoning for Housing Assessment

Truro residential use allowances, by-right (top) and by-right or Special Permit (bottom)



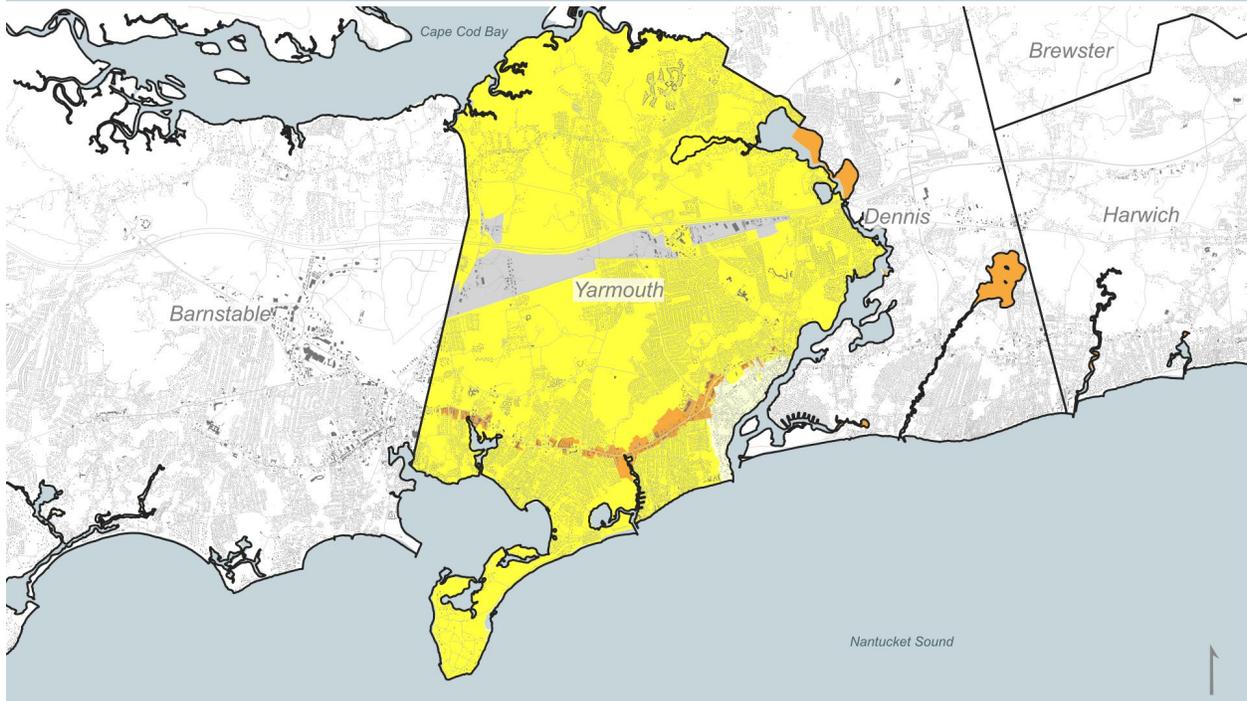
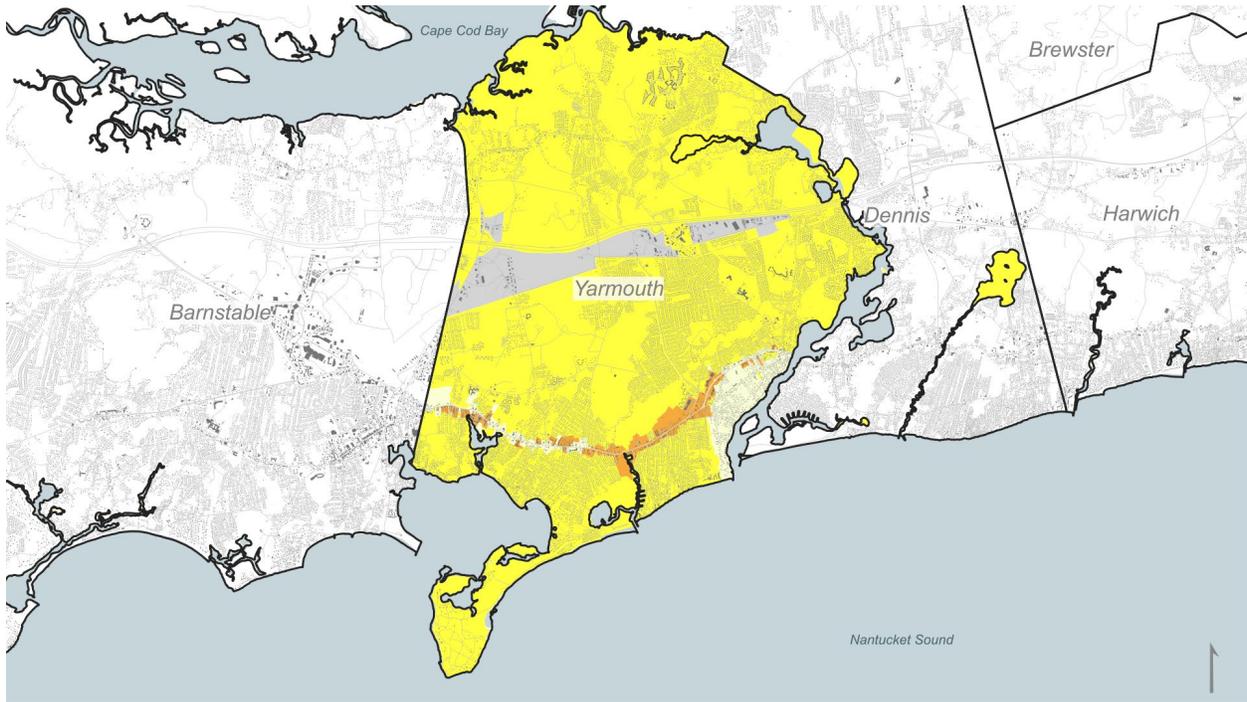
Cape Cod Zoning for Housing Assessment

Wellfleet residential use allowances, by-right (top) and by-right or Special Permit (bottom)



Cape Cod Zoning for Housing Assessment

Yarmouth residential use allowances, by-right (top) and by-right or Special Permit (bottom)



Appendix B:

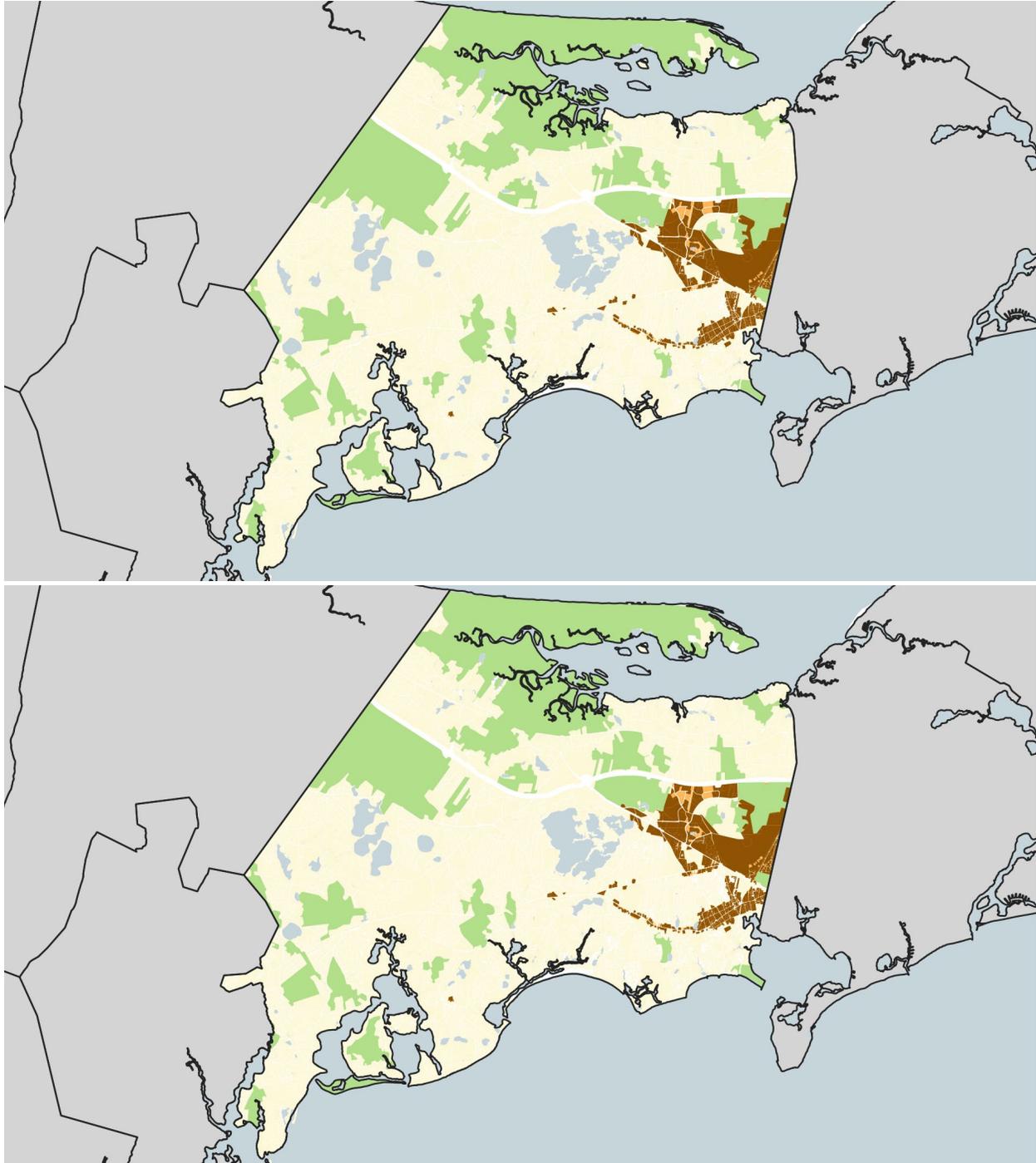
Housing Type Analysis

Maps by Town

This appendix compiles maps from the Housing Type Analysis for specific towns on Cape Cod. For each town, there are two maps for each studied housing type, one for each modeled version—a small version based on lesser dimensional/parking regulations and a large version based on greater dimensional/parking regulations. For more information on the method and results of this analysis, see [Housing Type Analysis](#).

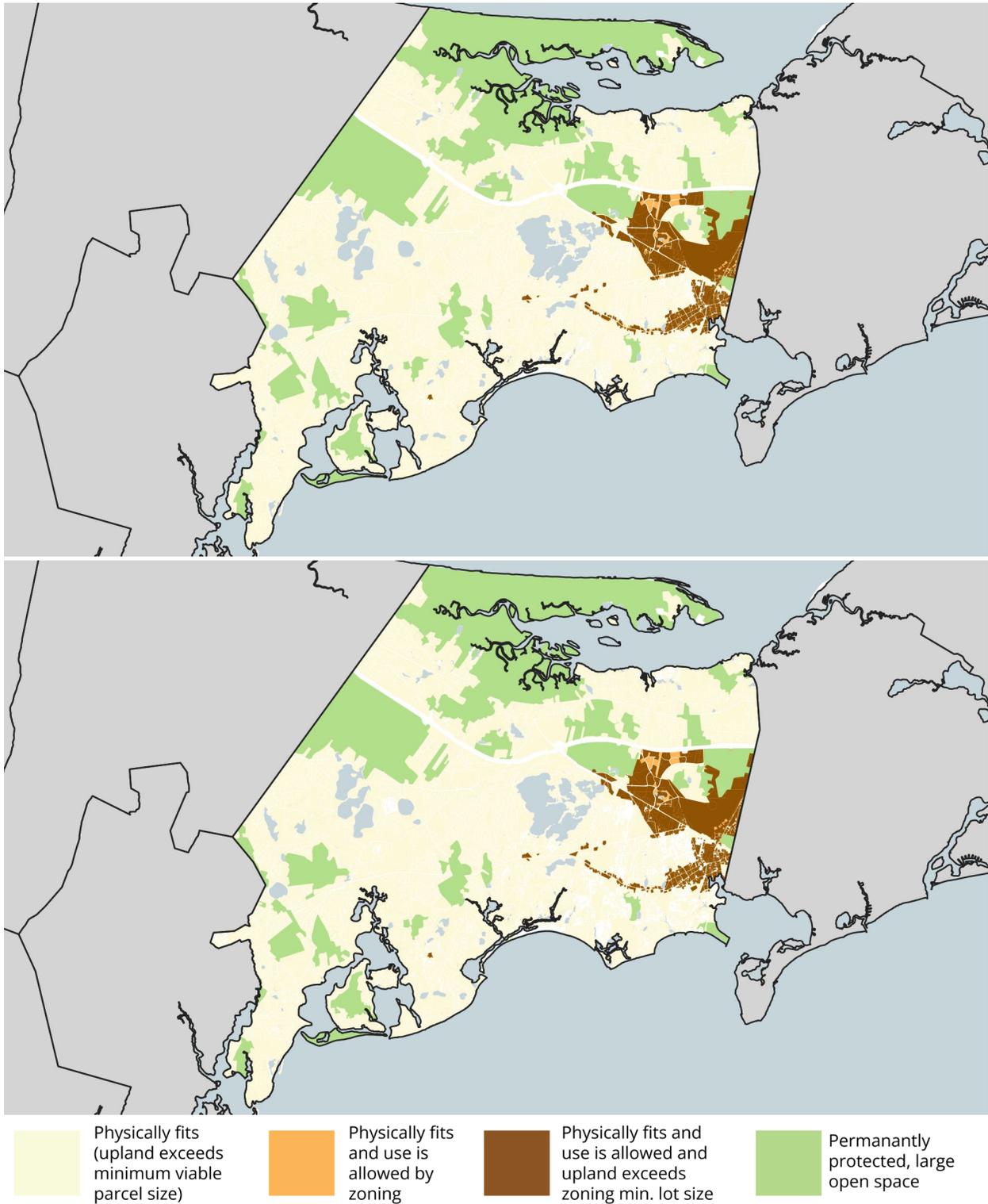
Barnstable

Barnstable duplex fit criteria, small (top) and large (bottom) versions

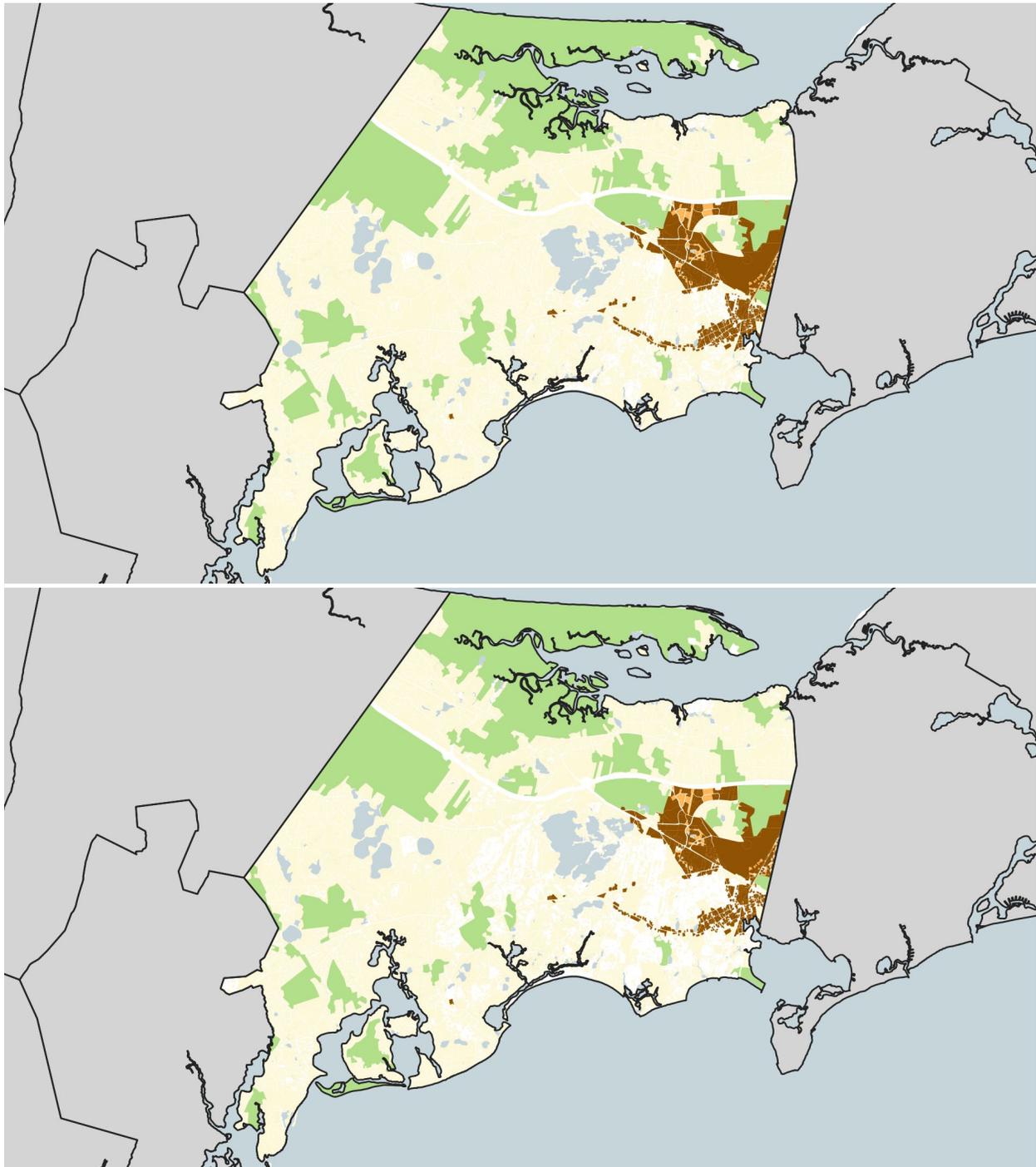


-  Physically fits (upland exceeds minimum viable parcel size)
-  Physically fits and use is allowed by zoning
-  Physically fits and use is allowed and upland exceeds zoning min. lot size
-  Permanantly protected, large open space

Barnstable triplex fit criteria, small (top) and large (bottom) versions

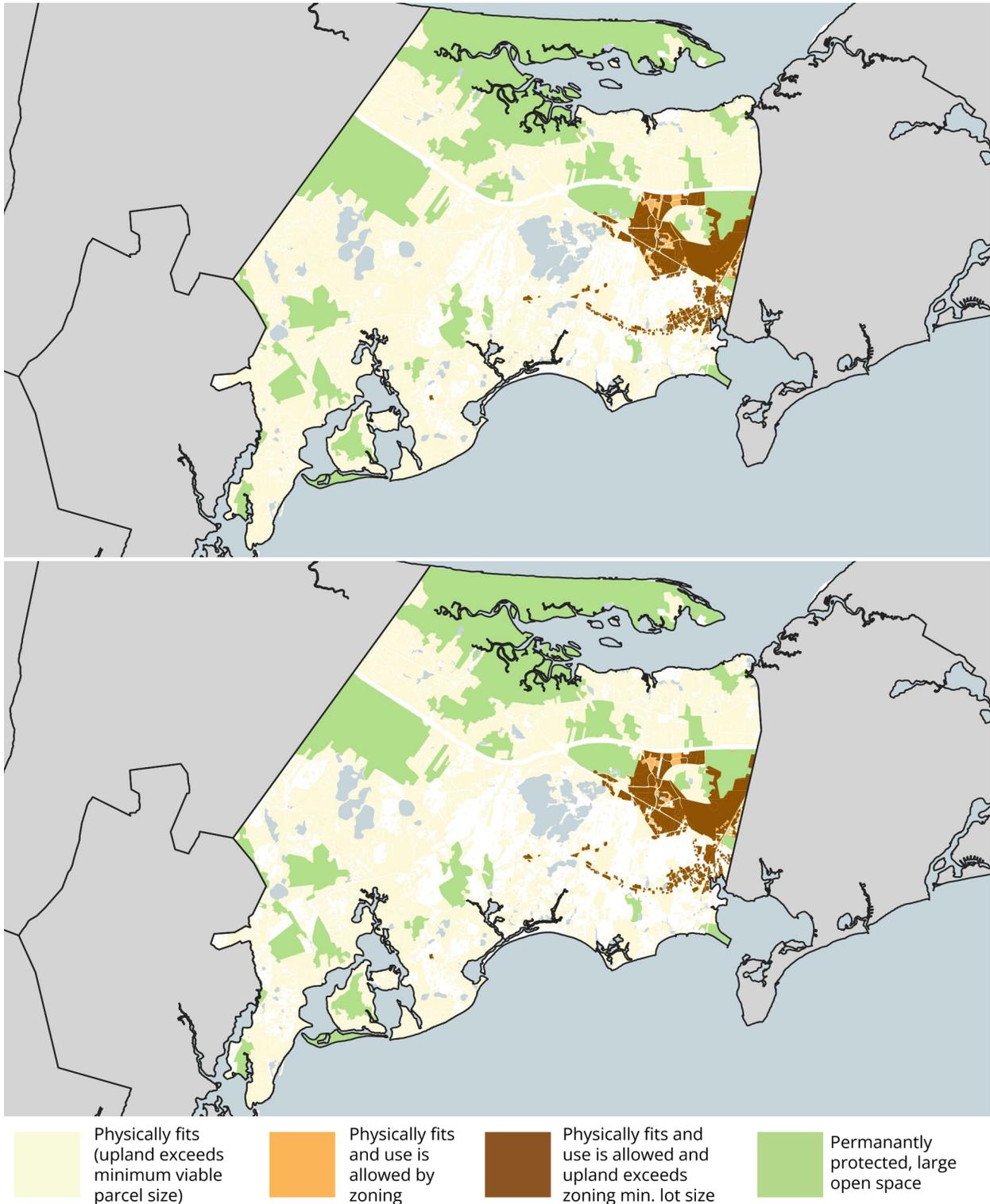


Barnstable small multifamily fit criteria, small (top) and large (bottom) versions

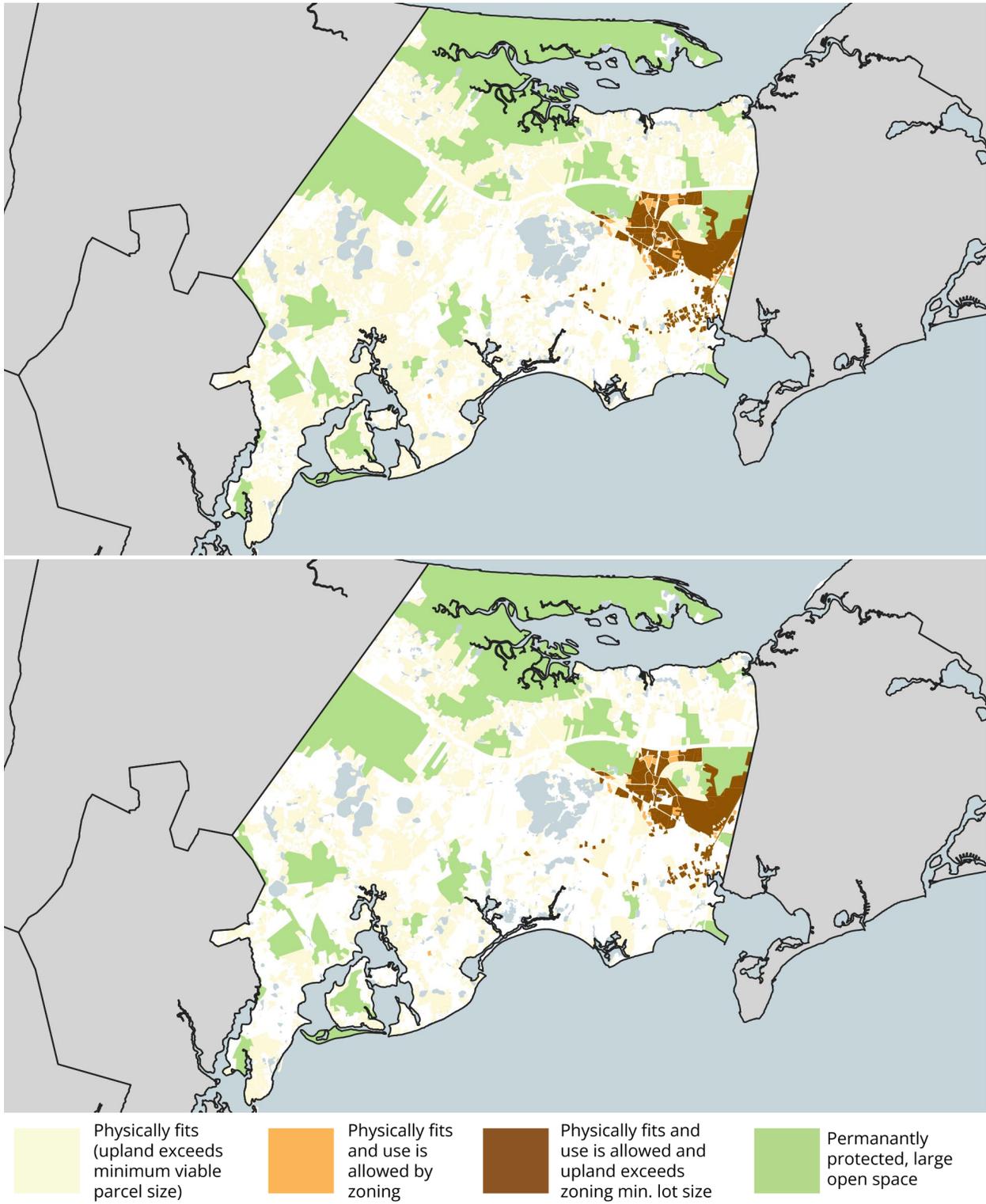


- Physically fits (upland exceeds minimum viable parcel size)
- Physically fits and use is allowed by zoning
- Physically fits and use is allowed and upland exceeds zoning min. lot size
- Permanently protected, large open space

Barnstable medium multifamily housing fit criteria, small (top) and large (bottom) versions

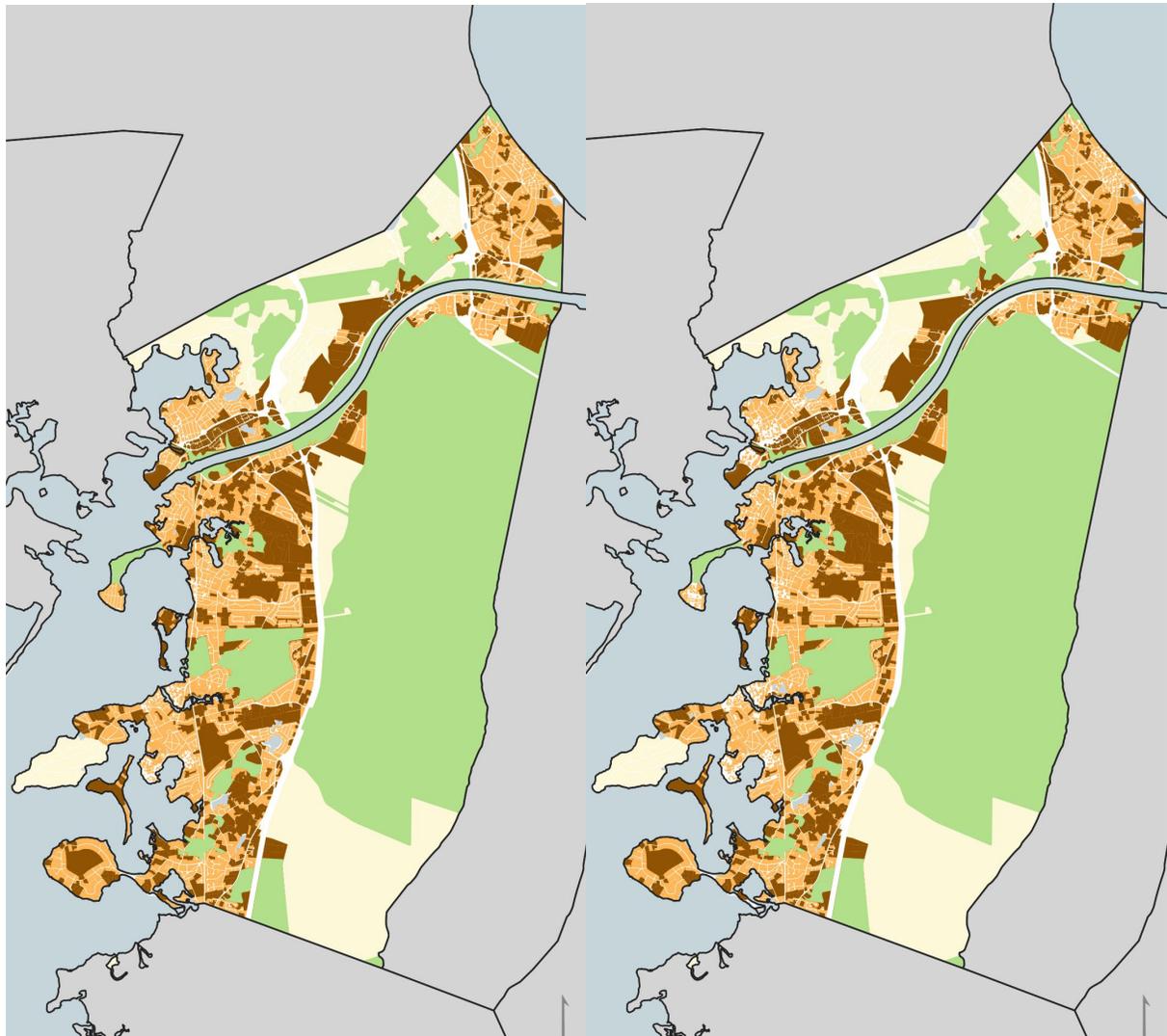


Barnstable corridor building fit criteria, small (top) and large (bottom) versions



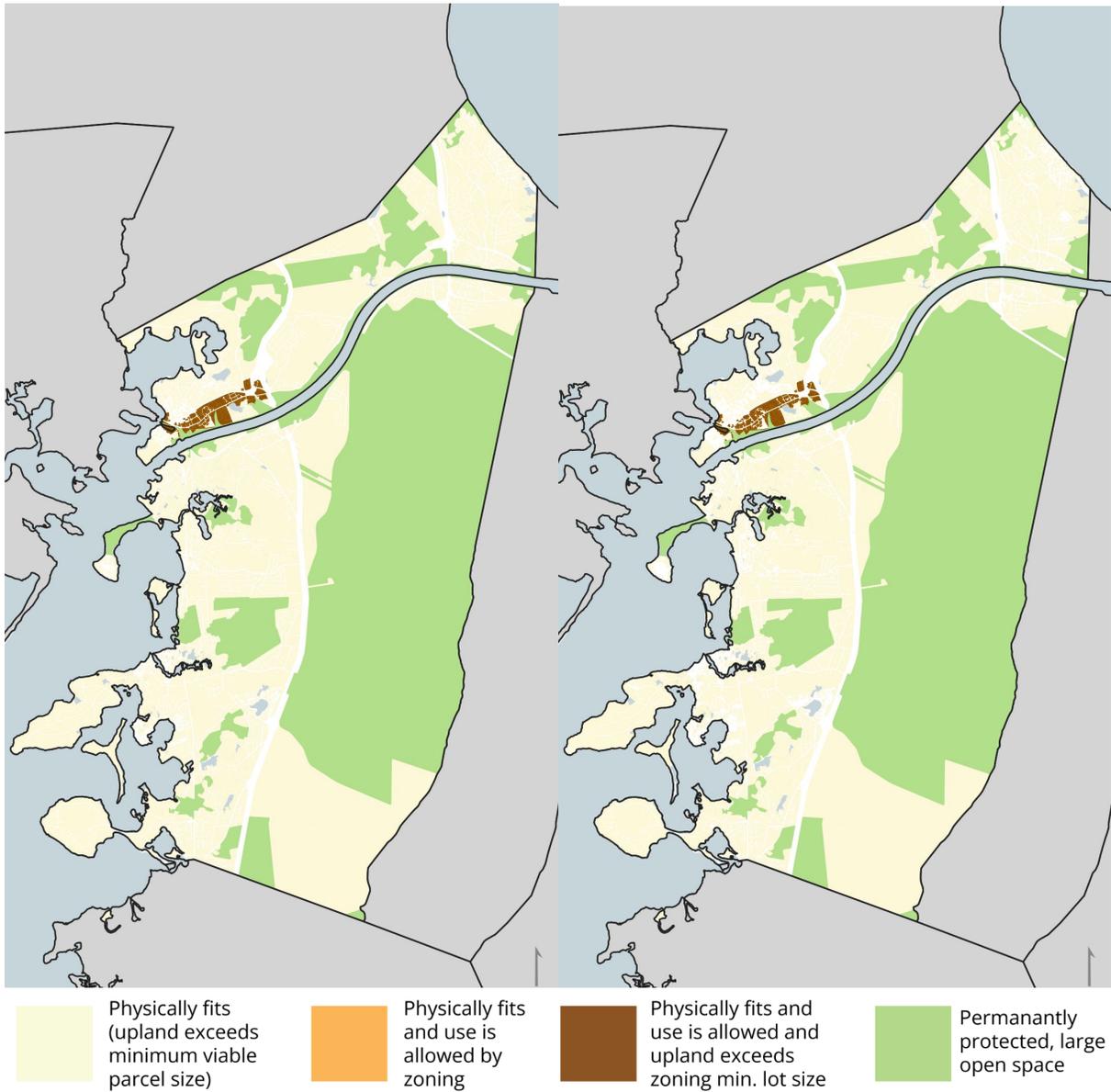
Bourne

Bourne duplex fit criteria, small (left) and large (bottom) versions



- | | | | | | | | |
|---|--|---|---|---|---|---|---|
|  | Physically fits
(upland exceeds
minimum viable
parcel size) |  | Physically fits
and use is
allowed by
zoning |  | Physically fits and
use is allowed and
upland exceeds
zoning min. lot size |  | Permanently
protected, large
open space |
|---|--|---|---|---|---|---|---|

Bourne triplex fit criteria, small (left) and large (right) versions

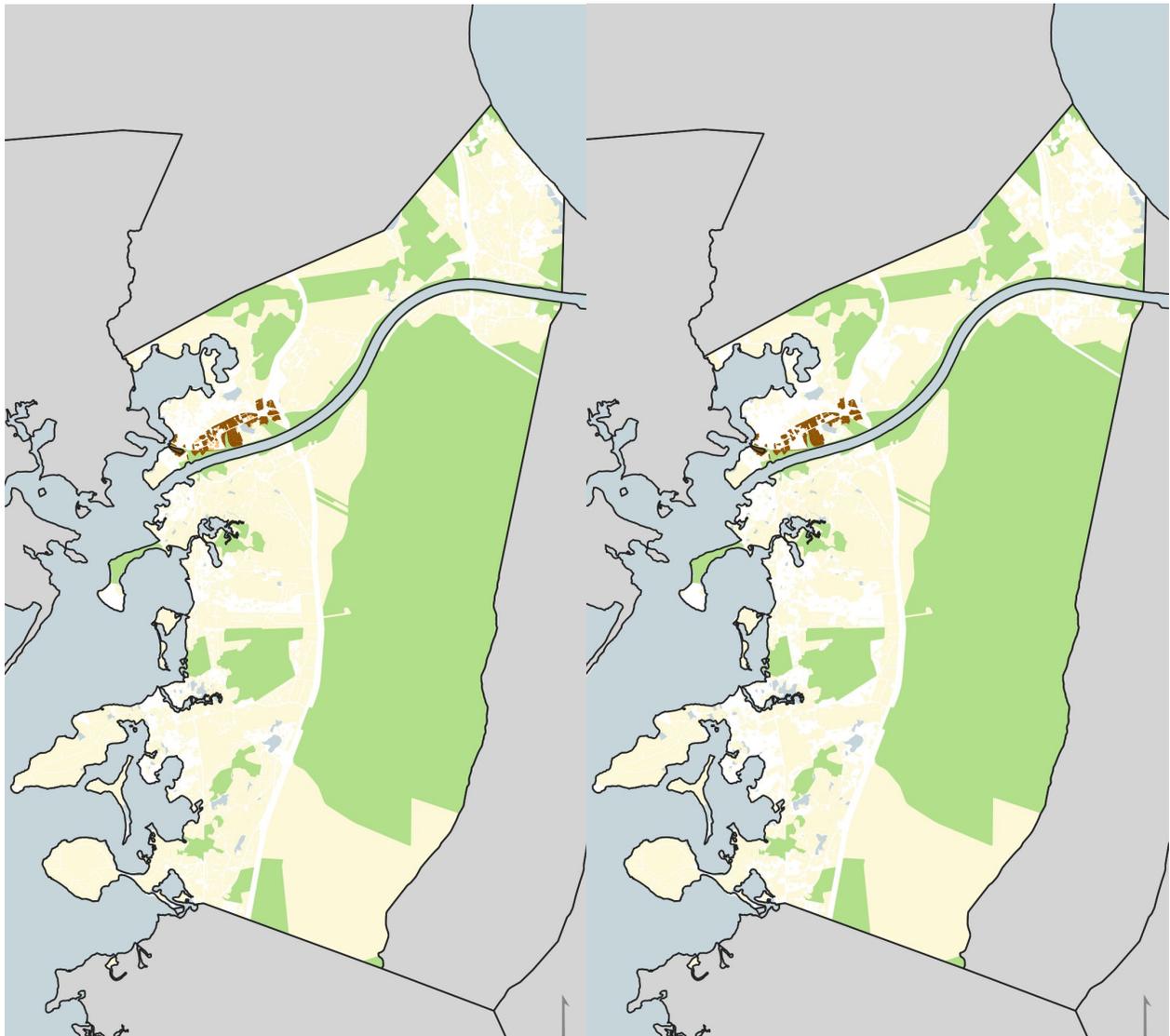


Bourne small multifamily fit criteria, small (left) and large (right) versions



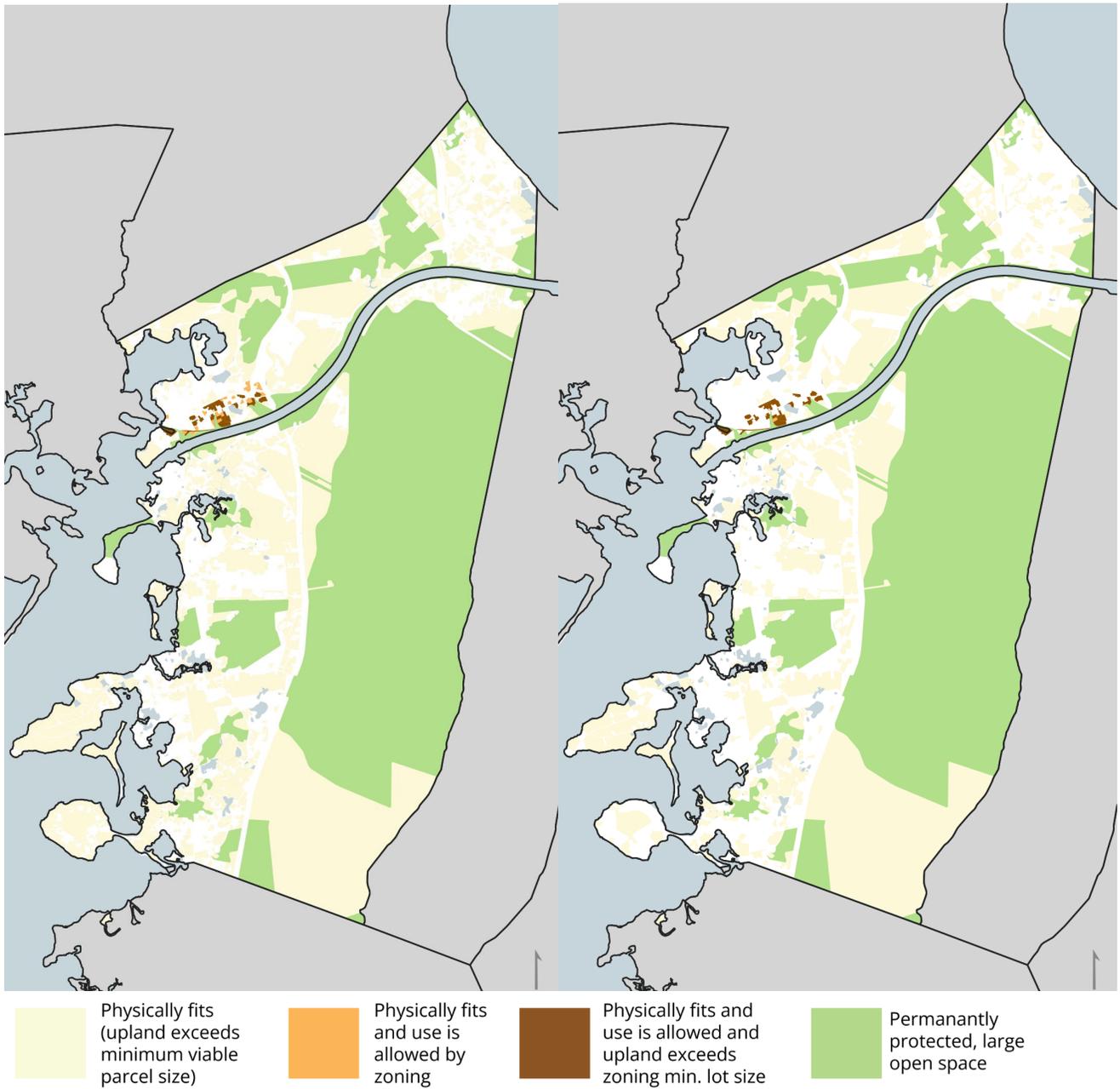
- Physically fits (upland exceeds minimum viable parcel size)
- Physically fits and use is allowed by zoning
- Physically fits and use is allowed and upland exceeds zoning min. lot size
- Permanently protected, large open space

Bourne medium multifamily housing fit criteria, small (left) and large (right) versions



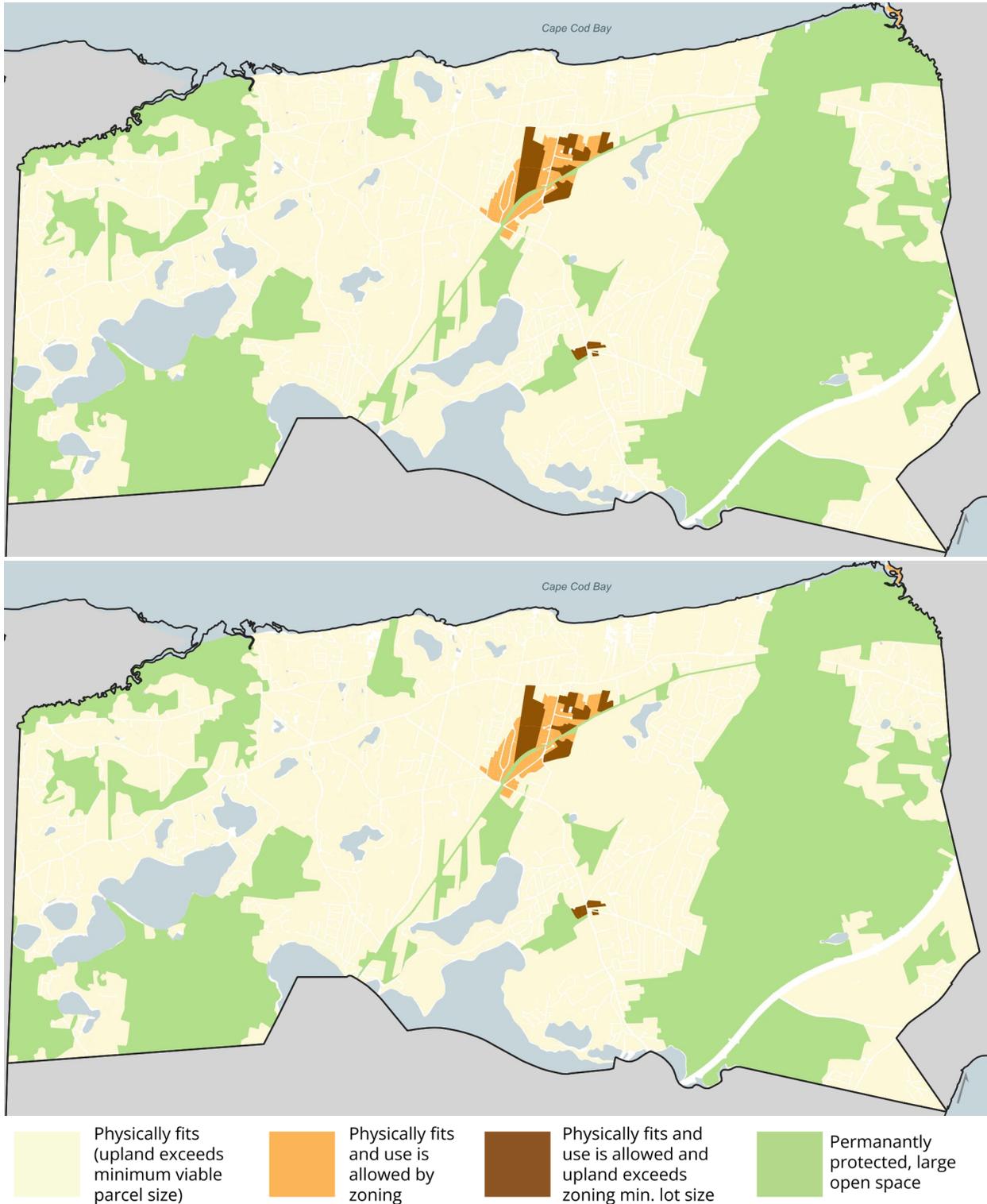
- | | | | | | | | |
|---|---|---|--|---|--|---|---|
|  | Physically fits (upland exceeds minimum viable parcel size) |  | Physically fits and use is allowed by zoning |  | Physically fits and use is allowed and upland exceeds zoning min. lot size |  | Permanently protected, large open space |
|---|---|---|--|---|--|---|---|

Bourne corridor building fit criteria, small (left) and large (right) versions



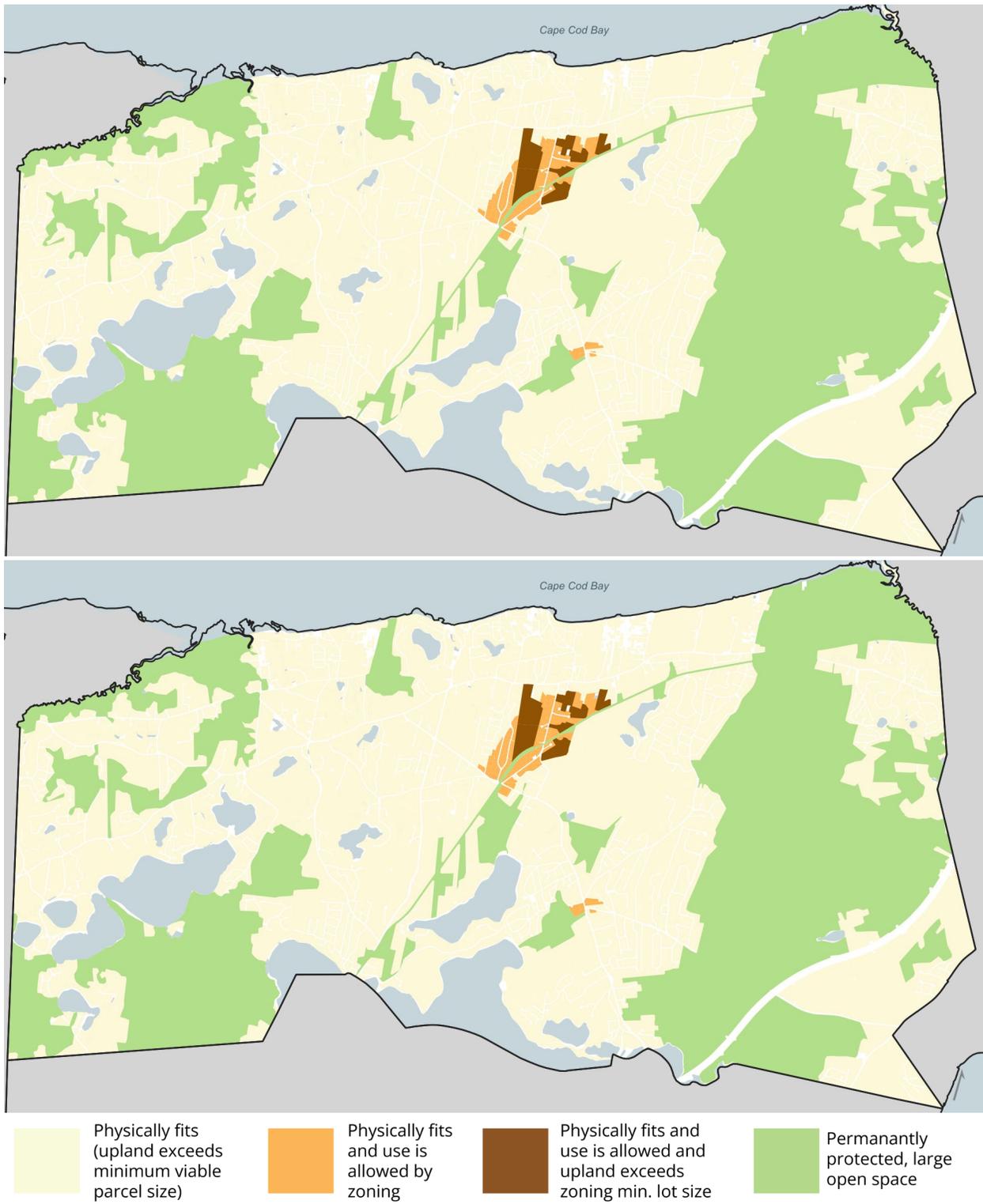
Brewster

Brewster duplex fit criteria, small (top) and large (bottom) versions



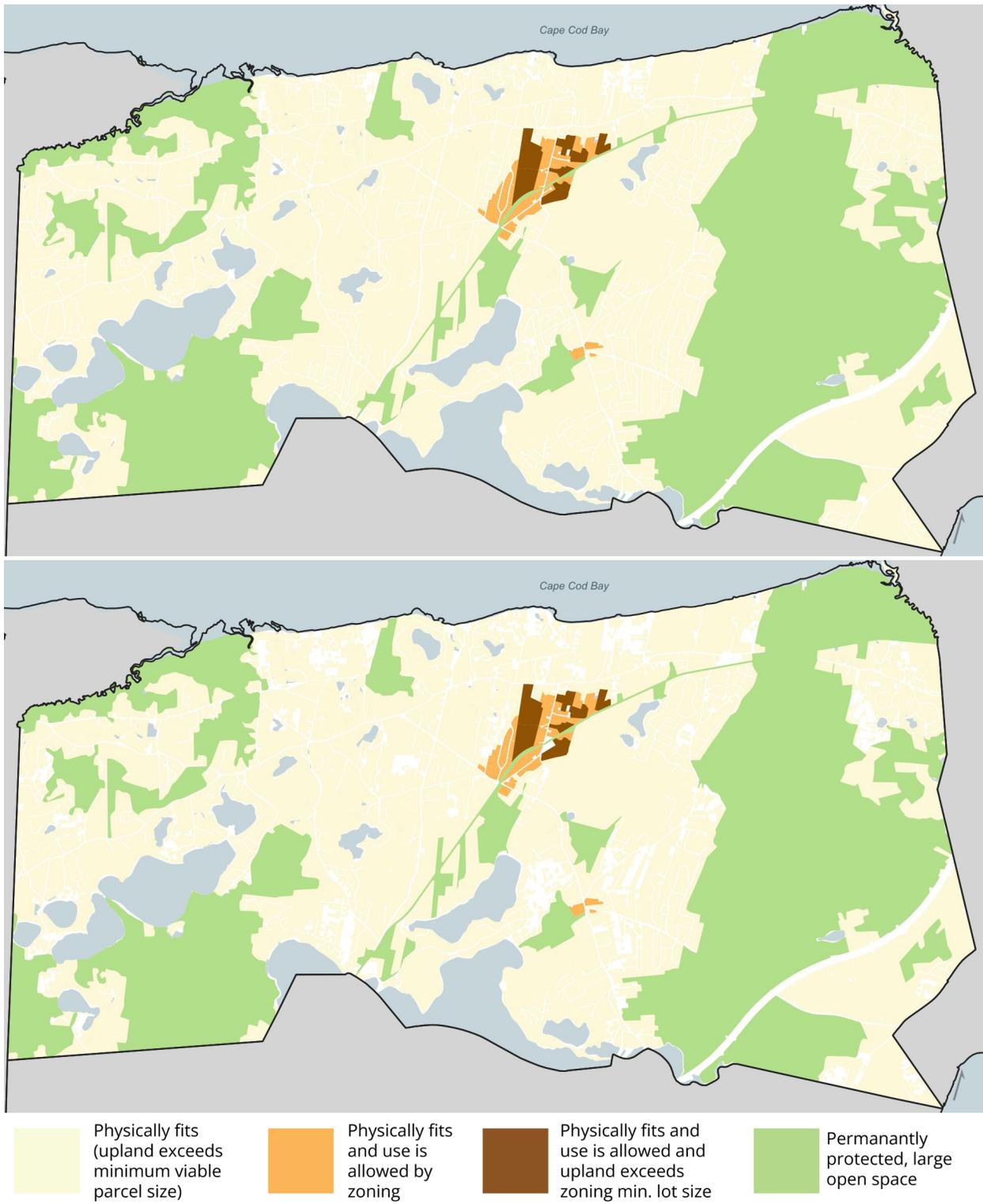
Cape Cod Zoning for Housing Assessment

Brewster triplex fit criteria, small (top) and large (bottom) versions



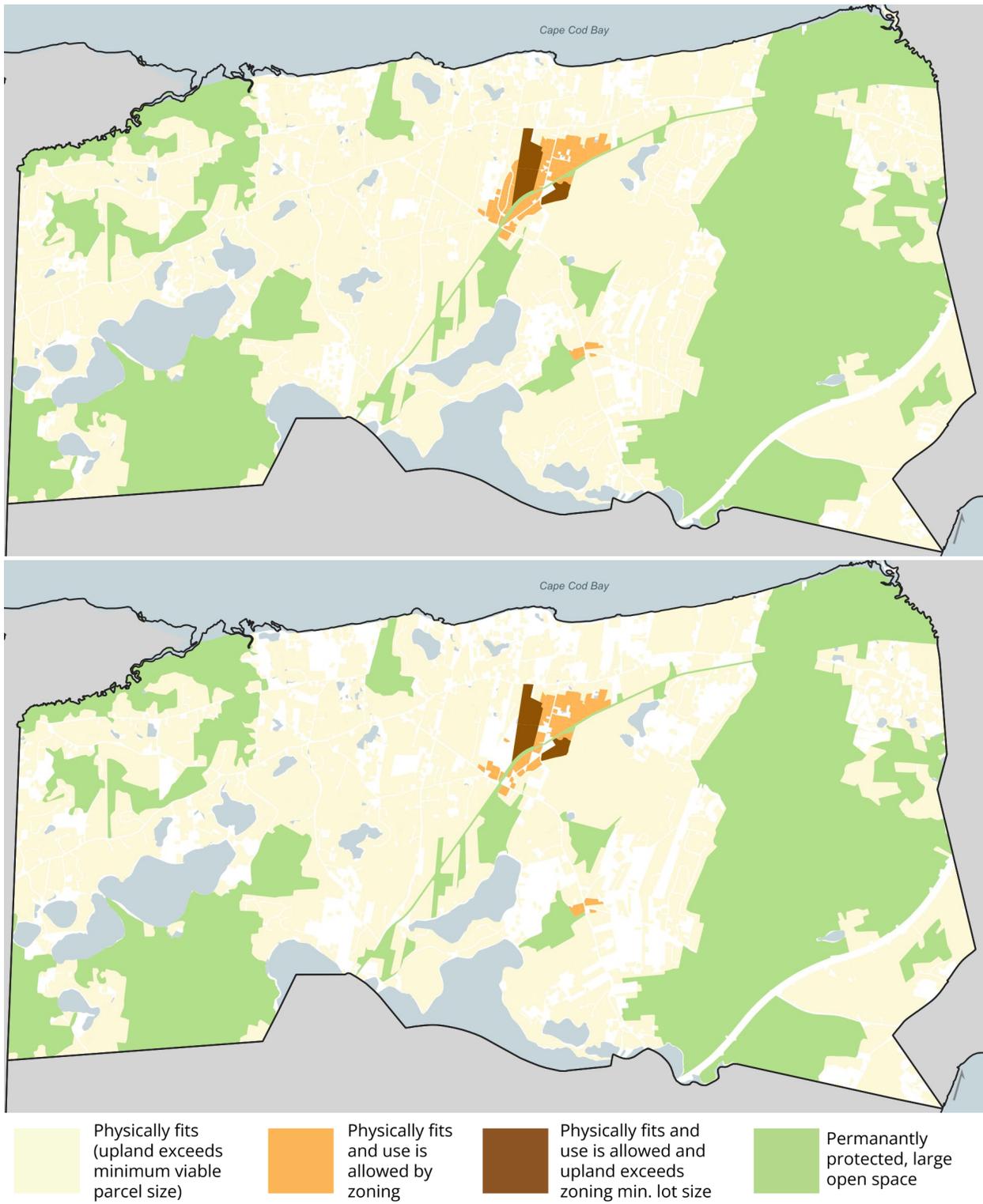
Cape Cod Zoning for Housing Assessment

Brewster small multifamily fit criteria, small (top) and large (bottom) versions



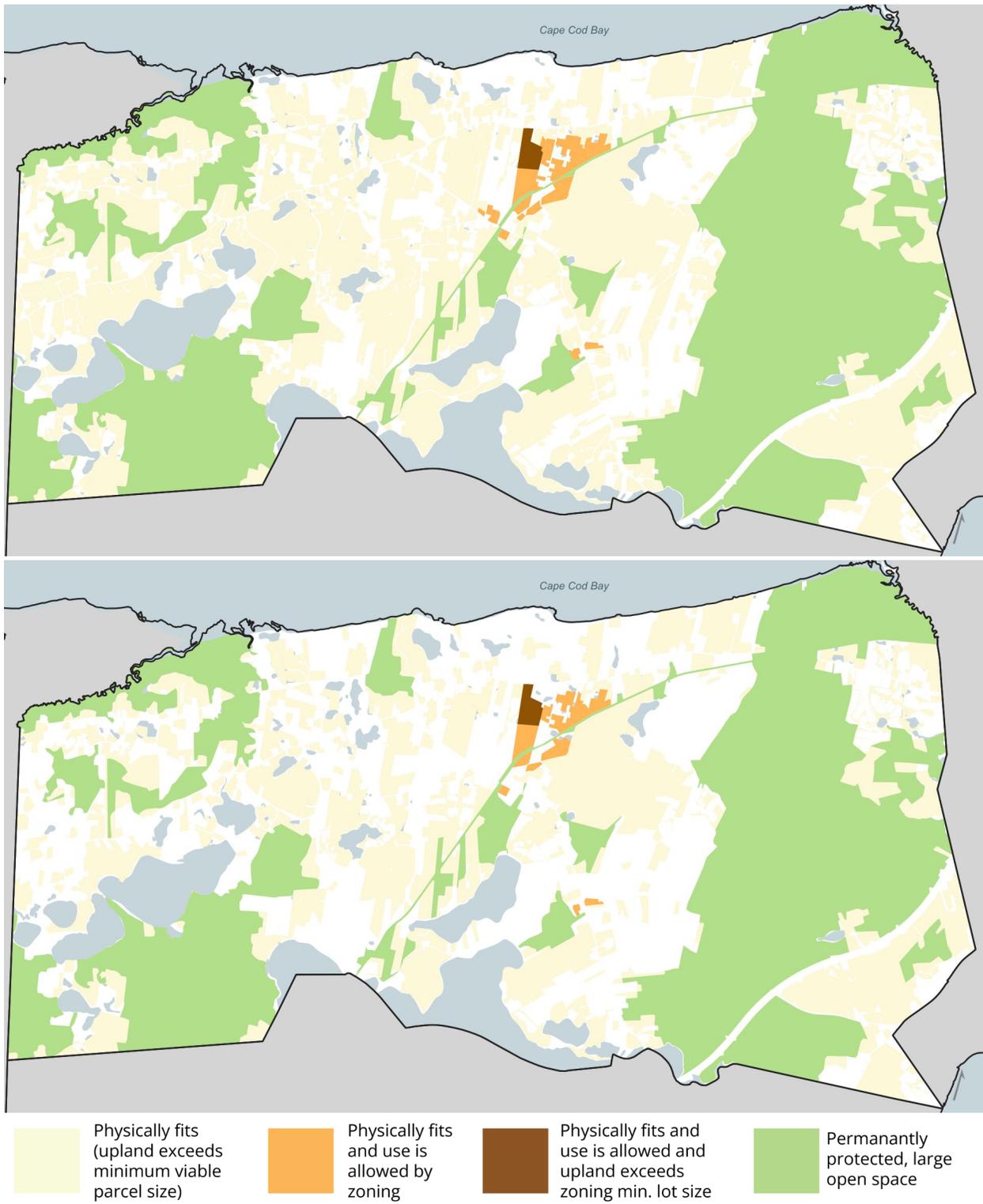
Cape Cod Zoning for Housing Assessment

Brewster medium multifamily housing fit criteria, small (top) and large (bottom) versions



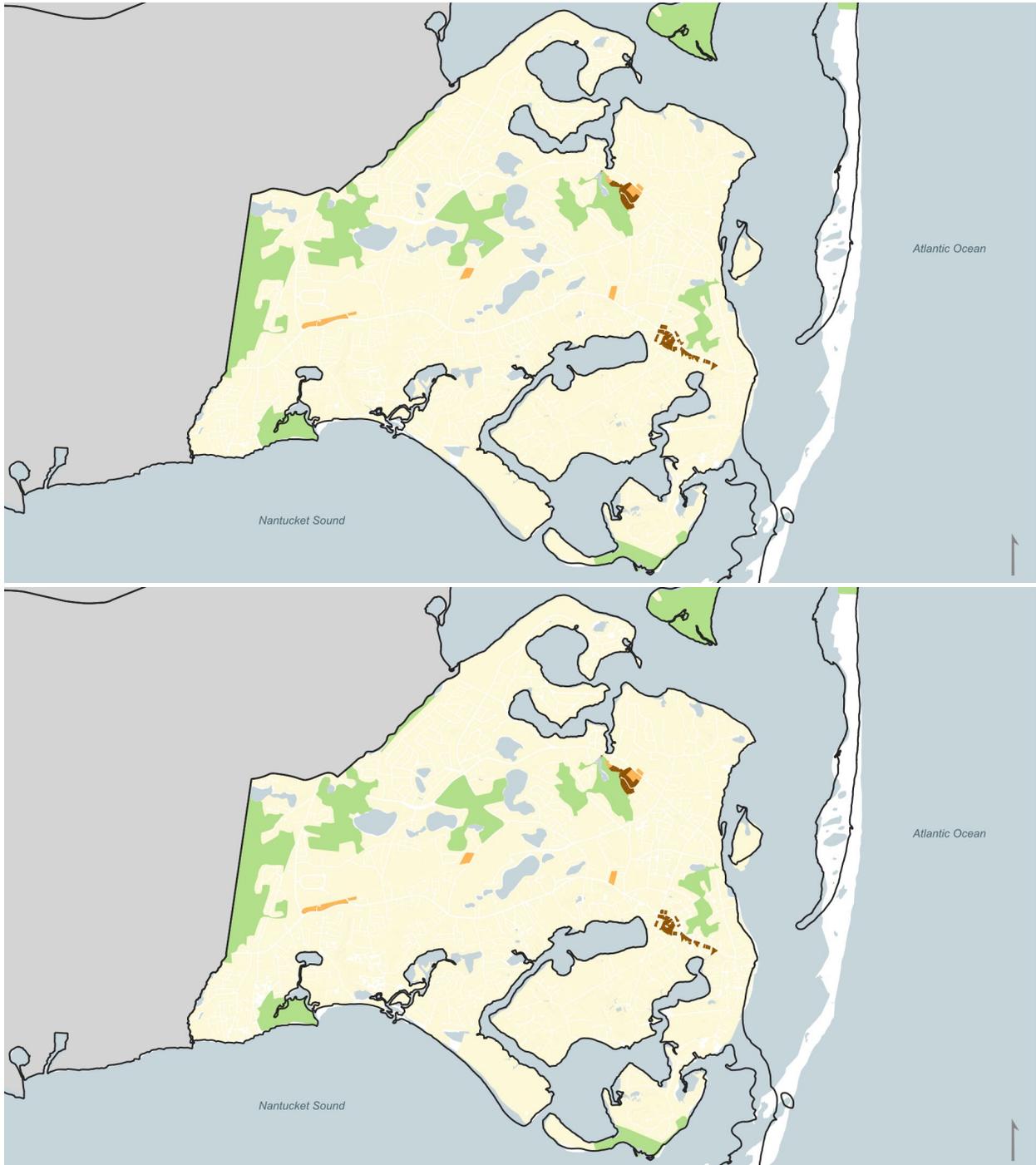
Cape Cod Zoning for Housing Assessment

Brewster corridor building fit criteria, small (top) and large (bottom) versions



Chatham

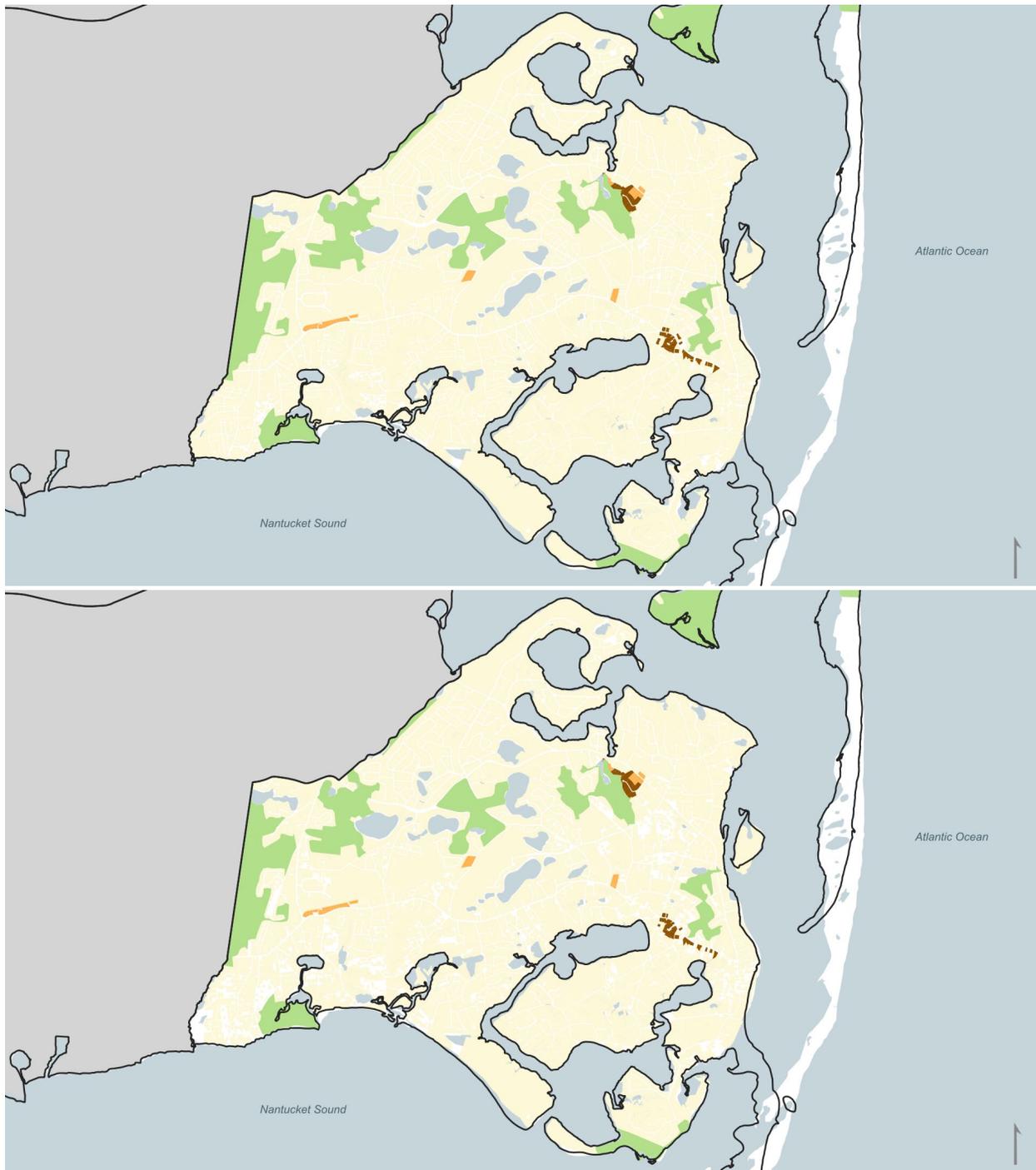
Chatham duplex fit criteria, small (top) and large (bottom) versions



-  Physically fits (upland exceeds minimum viable parcel size)
-  Physically fits and use is allowed by zoning
-  Physically fits and use is allowed and upland exceeds zoning min. lot size
-  Permanantly protected, large open space

Cape Cod Zoning for Housing Assessment

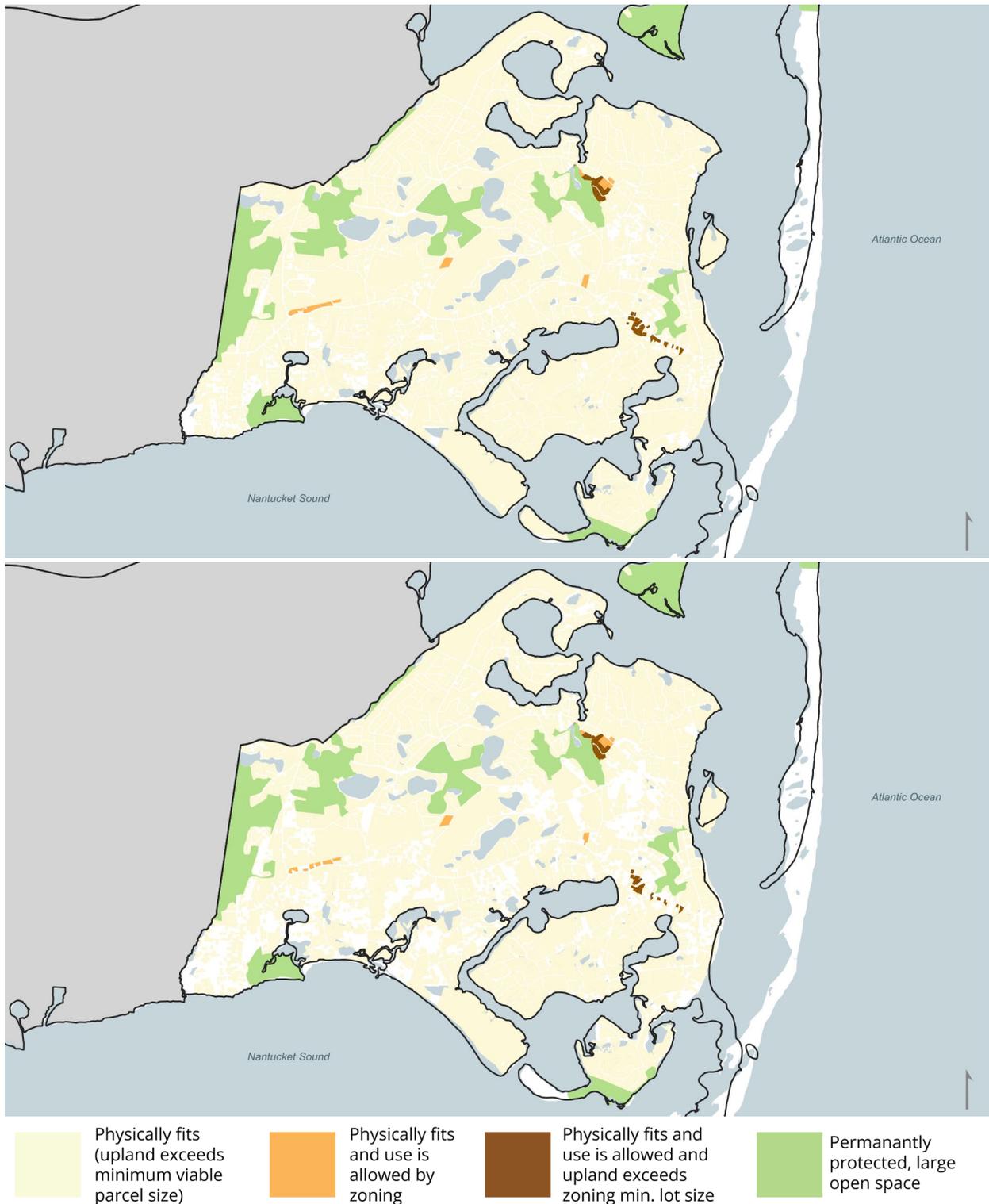
Chatham triplex fit criteria, small (top) and large (bottom) versions



-  Physically fits (upland exceeds minimum viable parcel size)
-  Physically fits and use is allowed by zoning
-  Physically fits and use is allowed and upland exceeds zoning min. lot size
-  Permanently protected, large open space

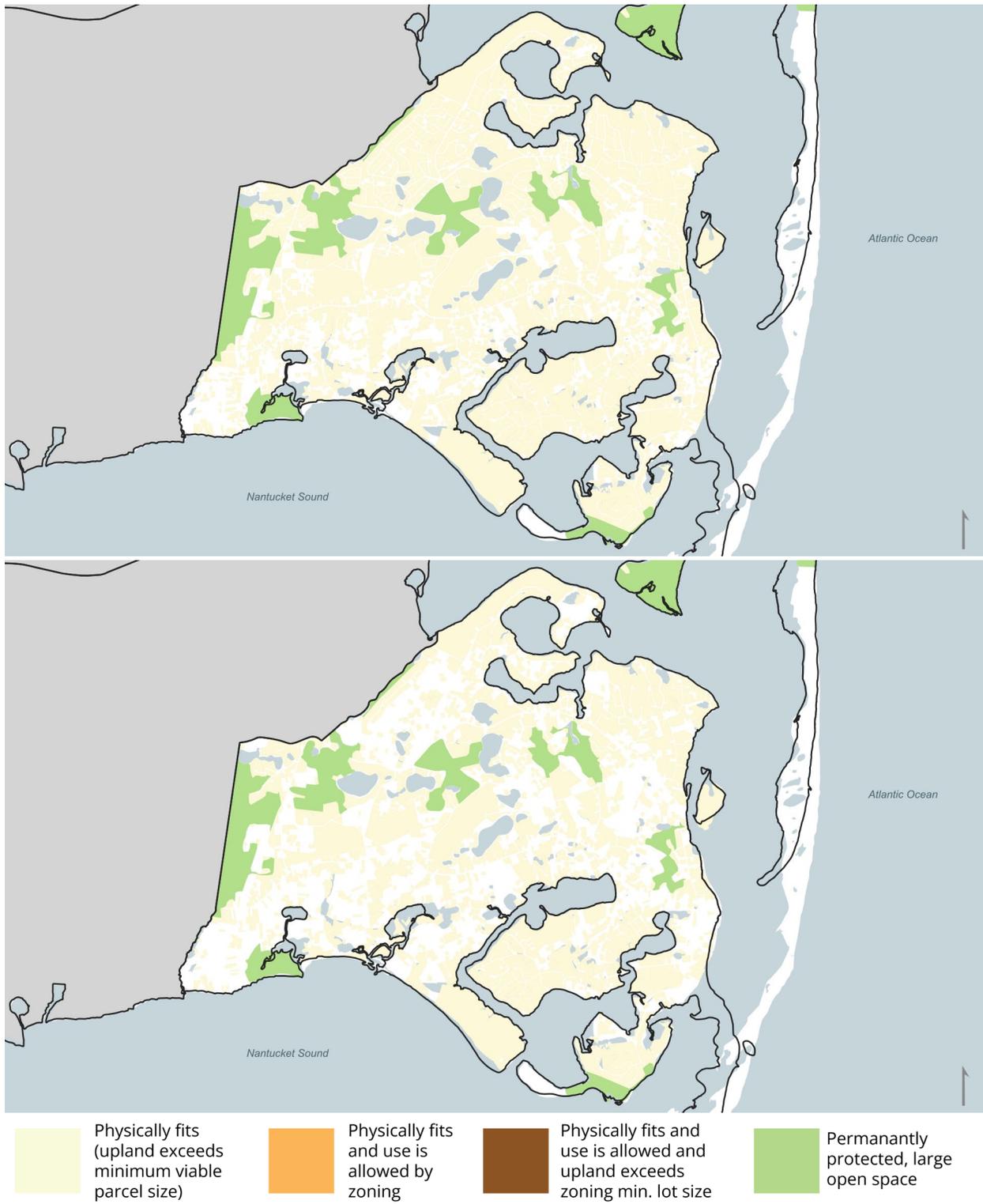
Cape Cod Zoning for Housing Assessment

Chatham small multifamily fit criteria, small (top) and large (bottom) versions



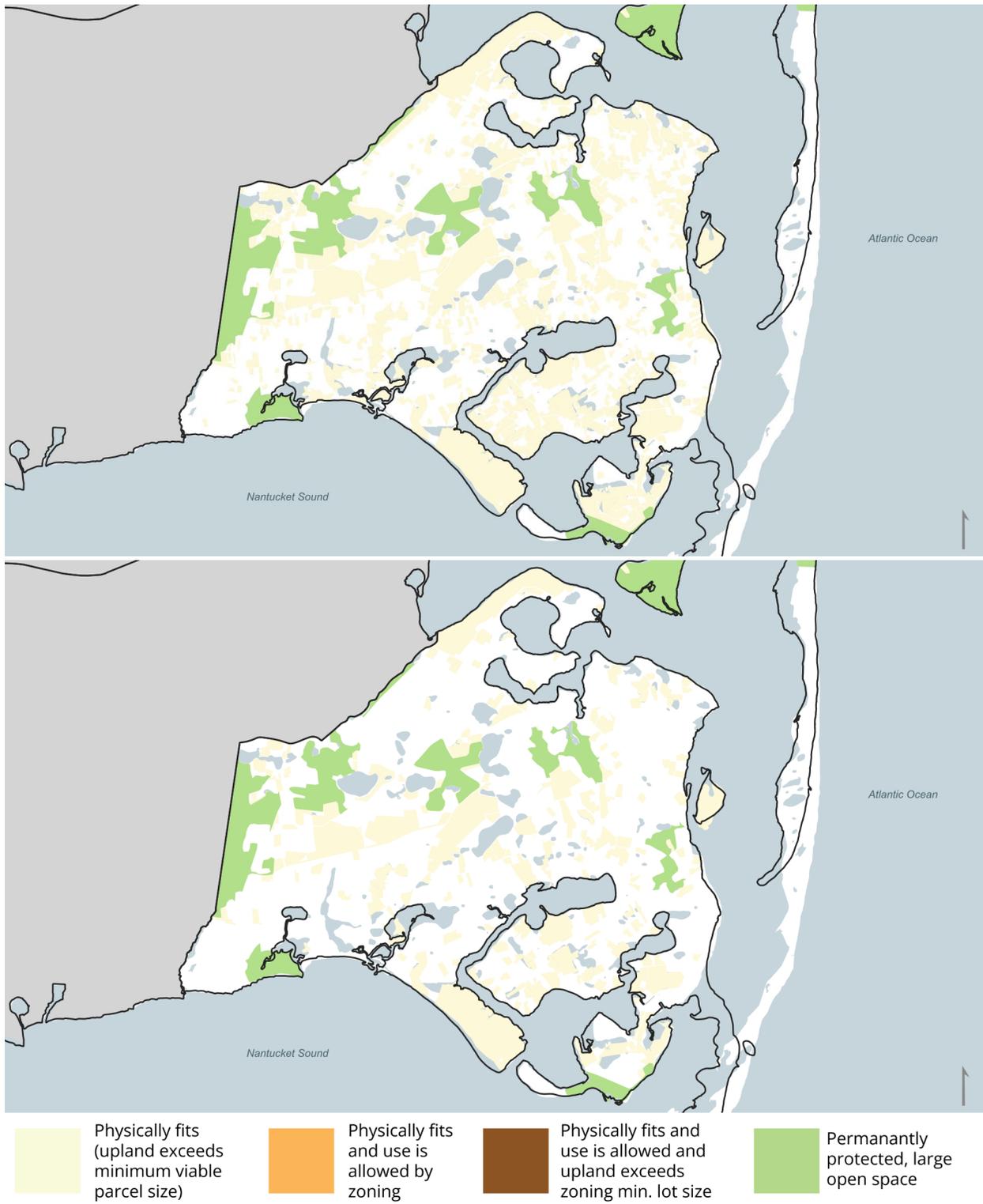
Cape Cod Zoning for Housing Assessment

Chatham medium multifamily housing fit criteria, small (top) and large (bottom) versions



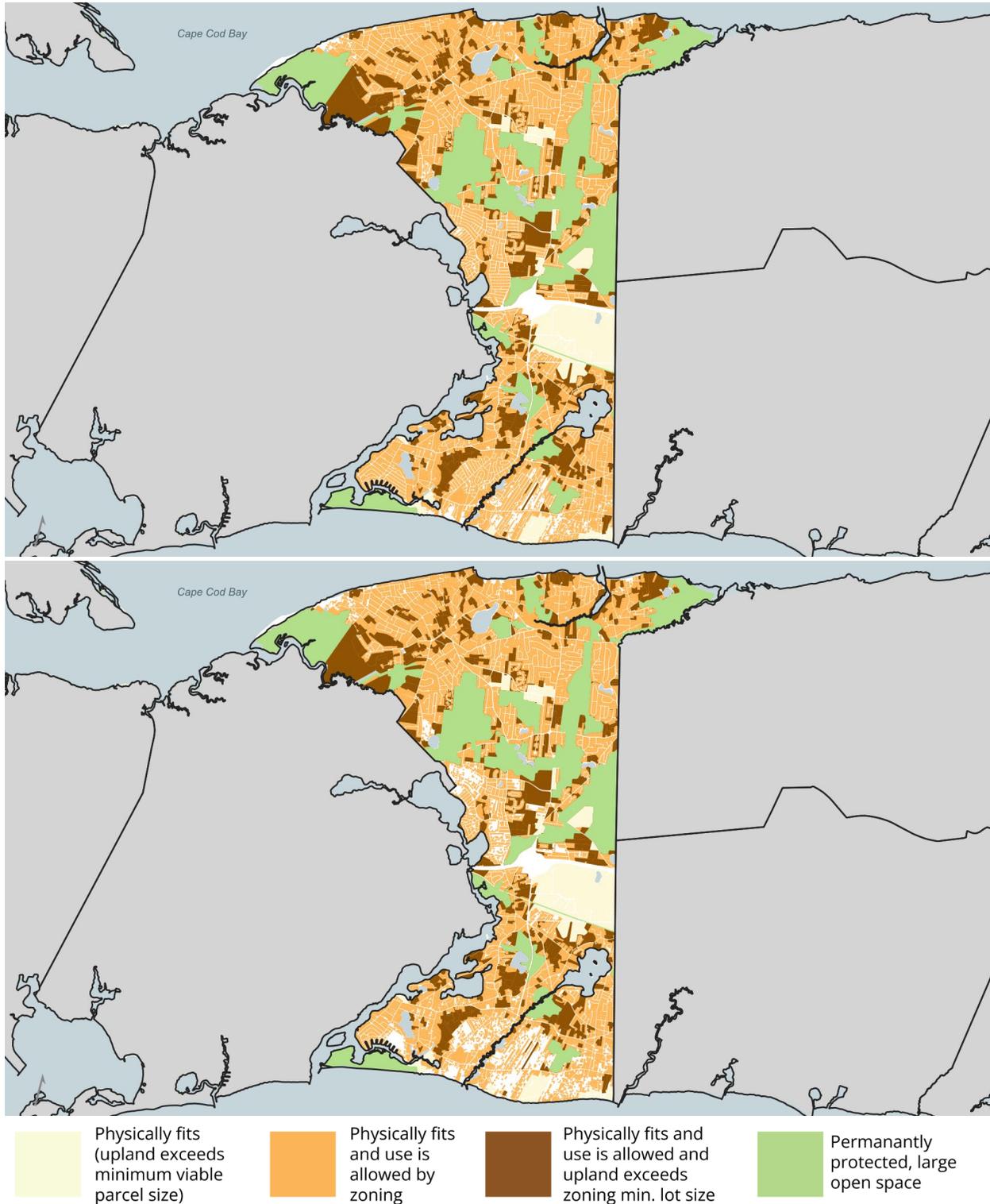
Cape Cod Zoning for Housing Assessment

Chatham corridor building fit criteria, small (top) and large (bottom) versions



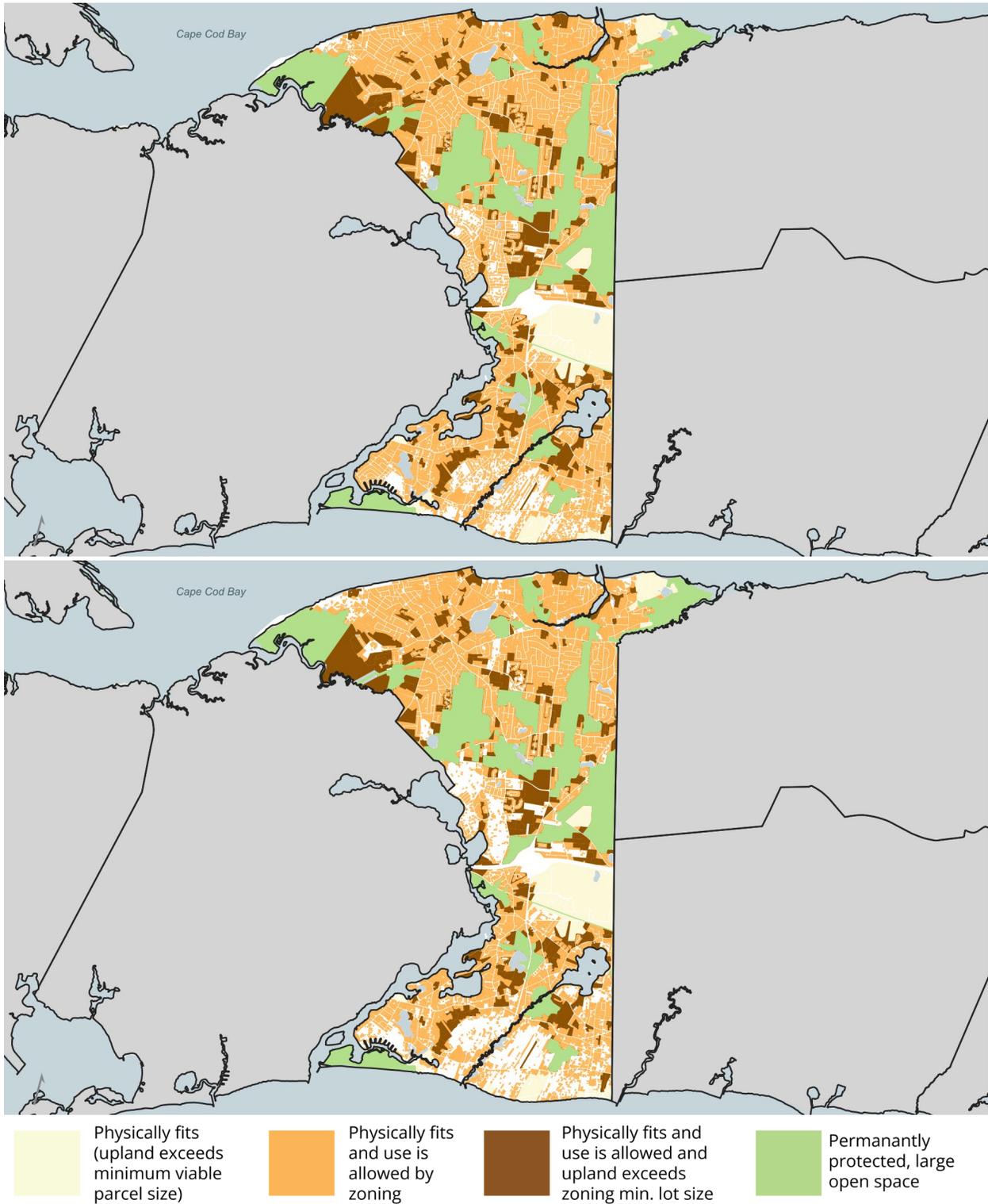
Dennis

Dennis duplex fit criteria, small (top) and large (bottom) versions



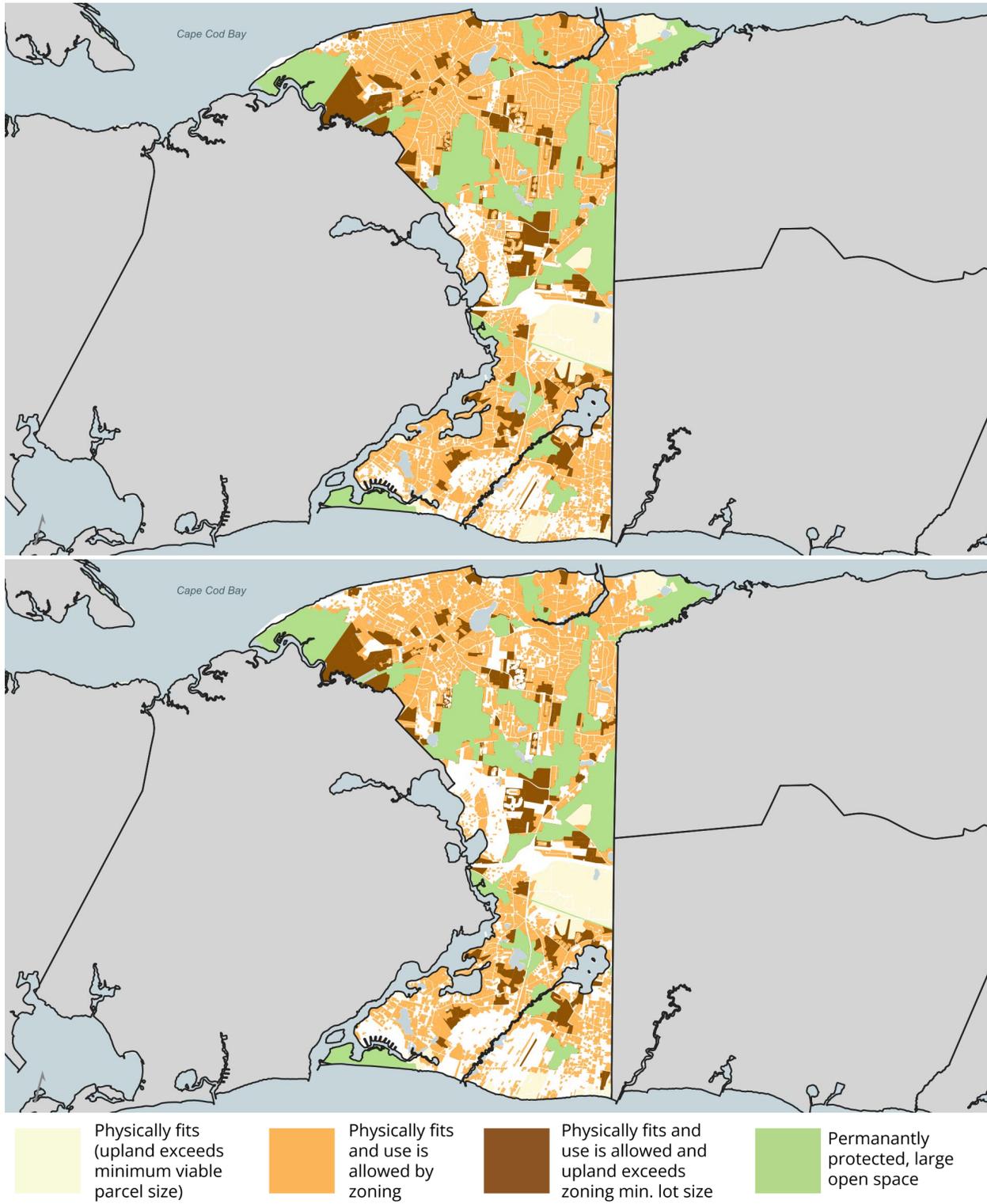
Cape Cod Zoning for Housing Assessment

Dennis triplex fit criteria, small (top) and large (bottom) versions



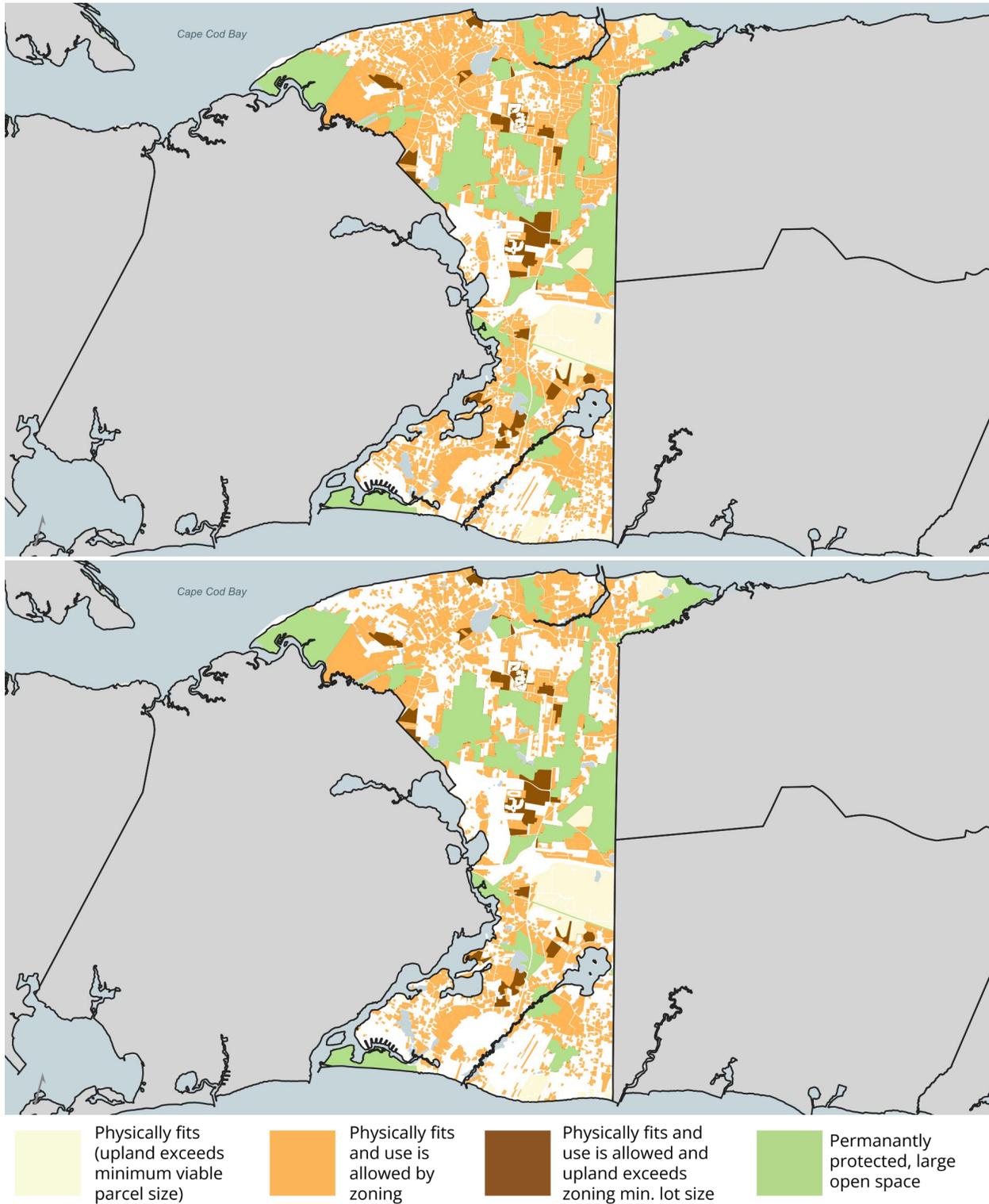
Cape Cod Zoning for Housing Assessment

Dennis small multifamily fit criteria, small (top) and large (bottom) versions



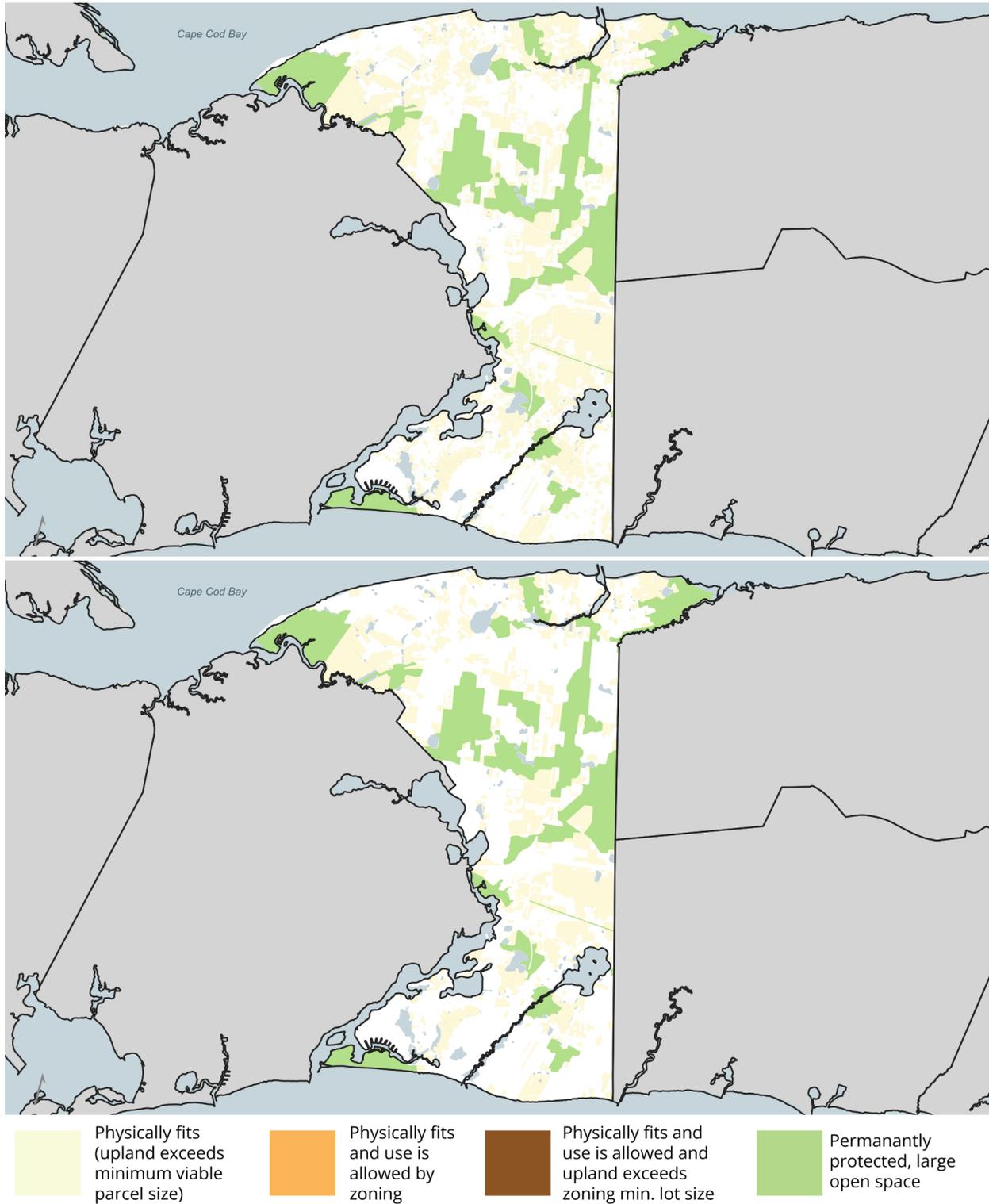
Cape Cod Zoning for Housing Assessment

Dennis medium multifamily housing fit criteria, small (top) and large (bottom) versions



Cape Cod Zoning for Housing Assessment

Dennis corridor building fit criteria, small (top) and large (bottom) versions



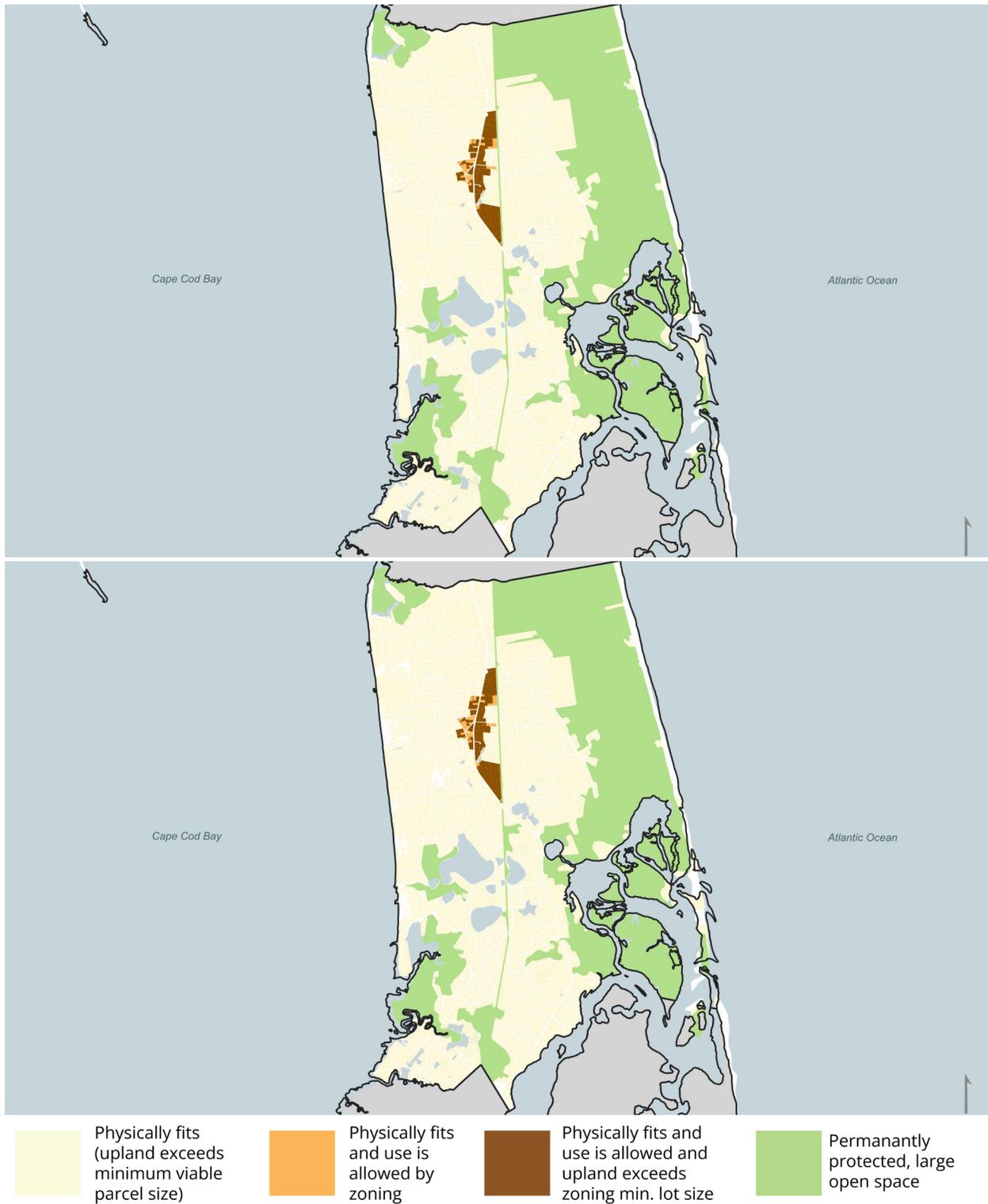
Eastham

Eastham duplex fit criteria, small (top) and large (bottom) versions



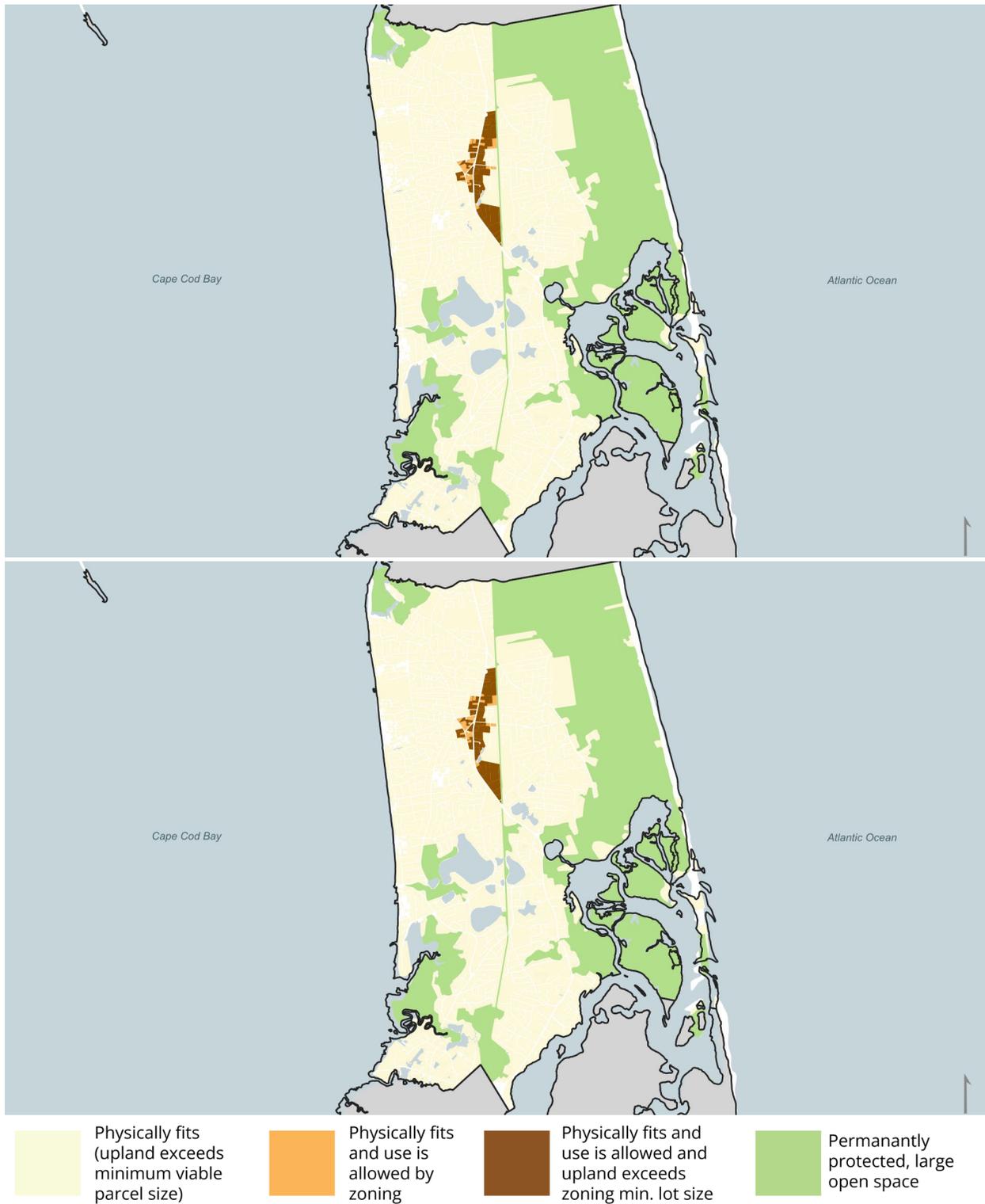
Cape Cod Zoning for Housing Assessment

Eastham triplex fit criteria, small (top) and large (bottom) versions



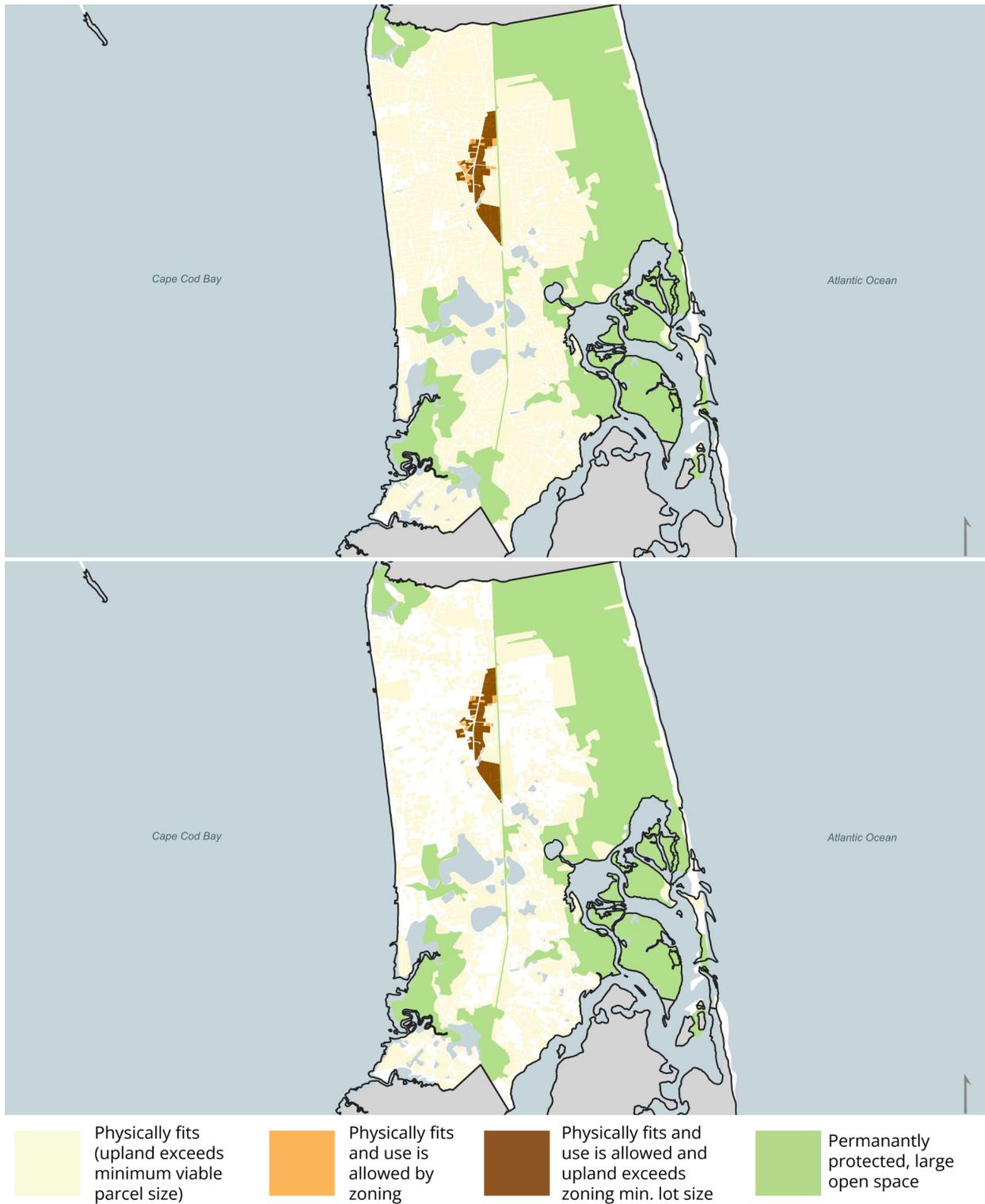
Cape Cod Zoning for Housing Assessment

Eastham small multifamily fit criteria, small (top) and large (bottom) versions



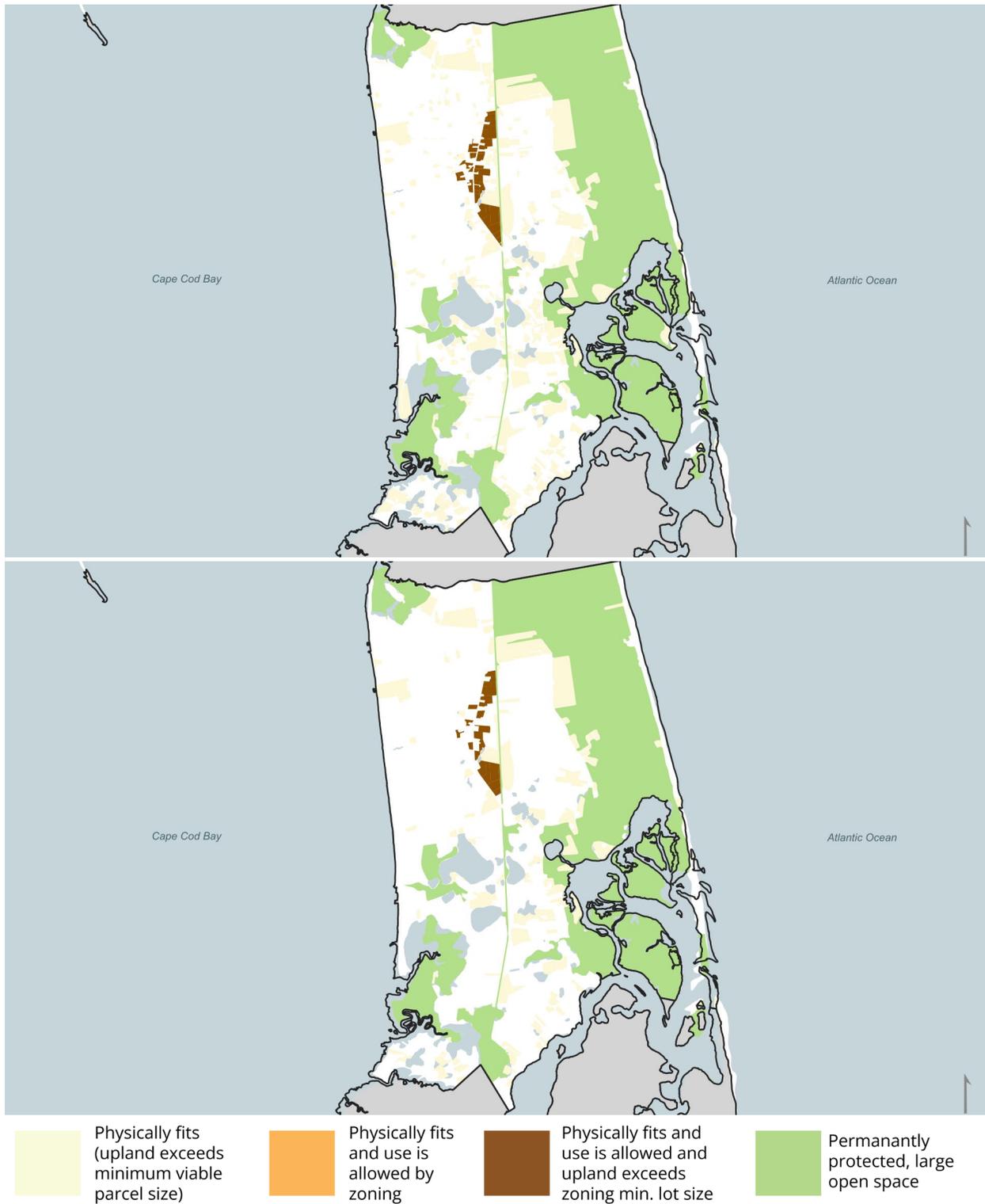
Cape Cod Zoning for Housing Assessment

Eastham medium multifamily housing fit criteria, small (top) and large (bottom) versions



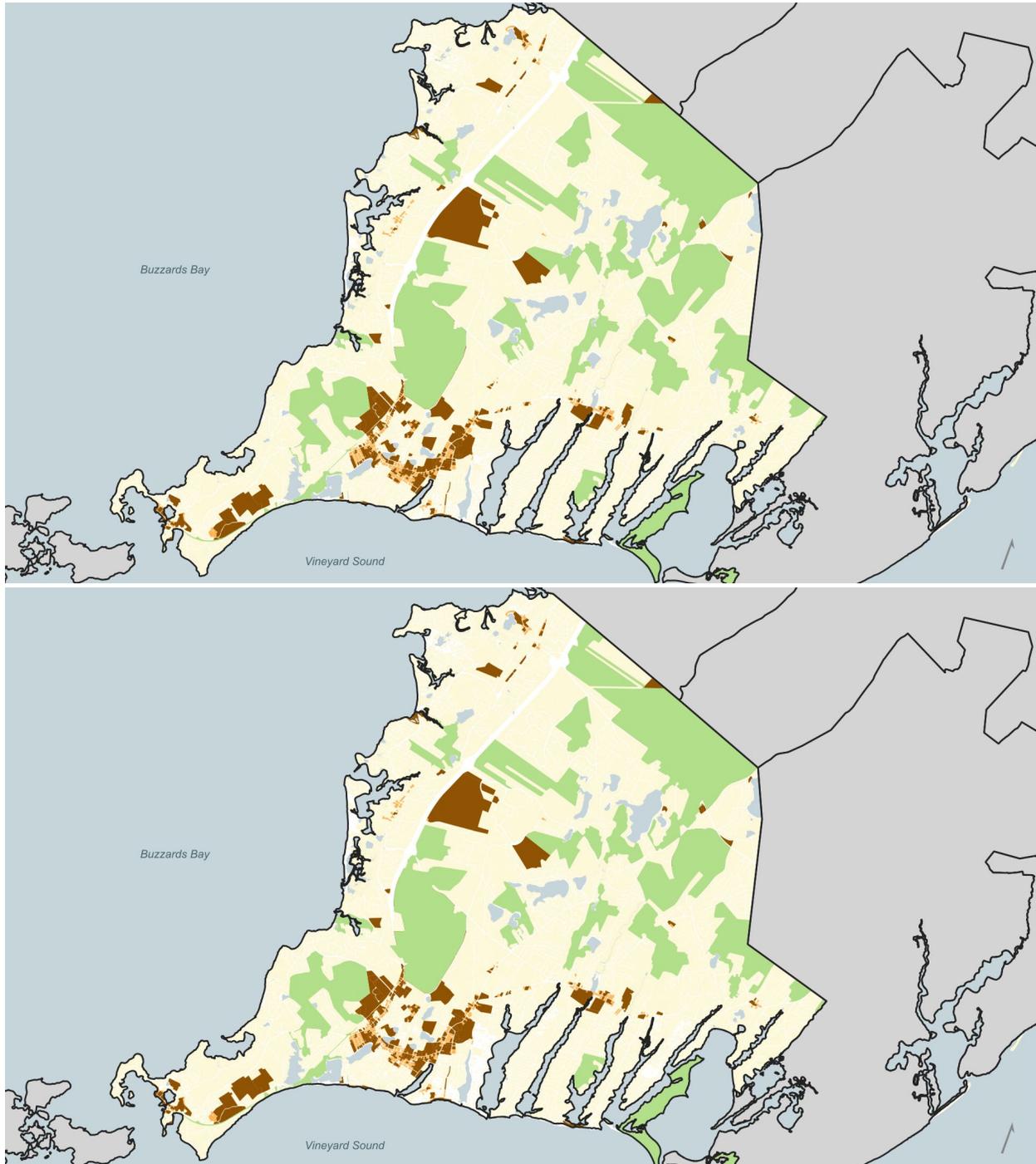
Cape Cod Zoning for Housing Assessment

Eastham corridor building fit criteria, small (top) and large (bottom) versions



Falmouth

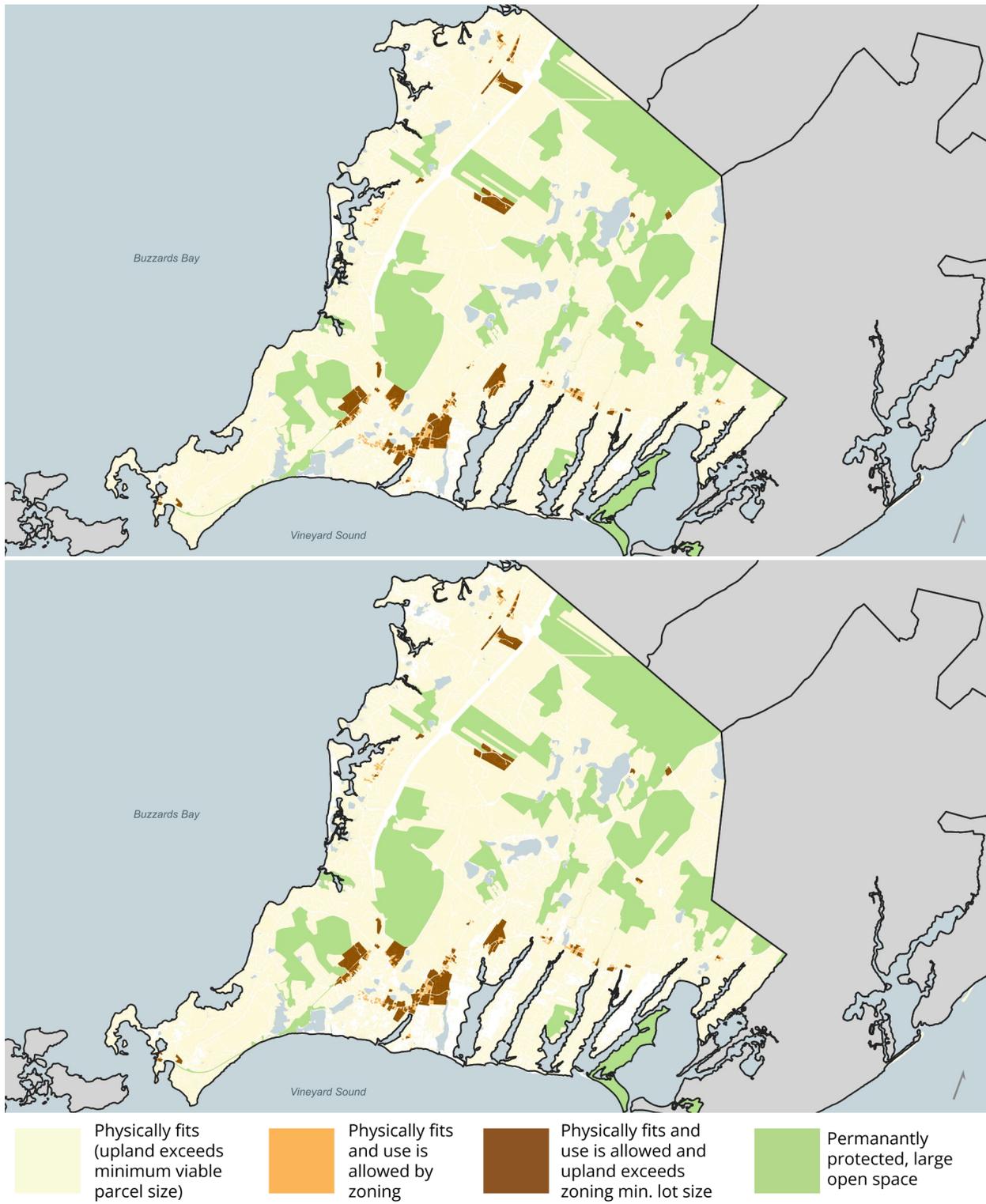
Falmouth duplex fit criteria, small (top) and large (bottom) versions



-  Physically fits (upland exceeds minimum viable parcel size)
-  Physically fits and use is allowed by zoning
-  Physically fits and use is allowed and upland exceeds zoning min. lot size
-  Permanantly protected, large open space

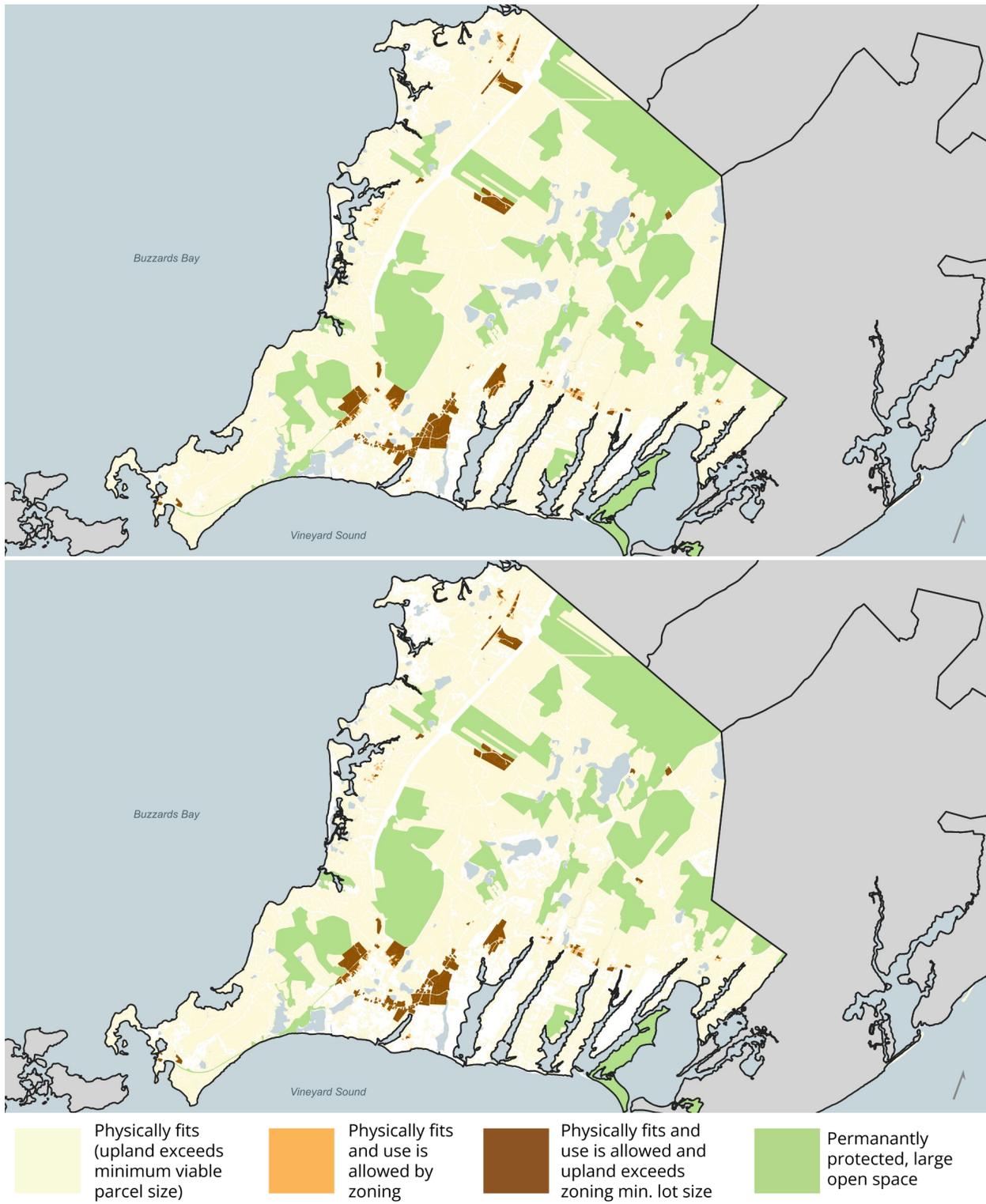
Cape Cod Zoning for Housing Assessment

Falmouth triplex fit criteria, small (top) and large (bottom) versions



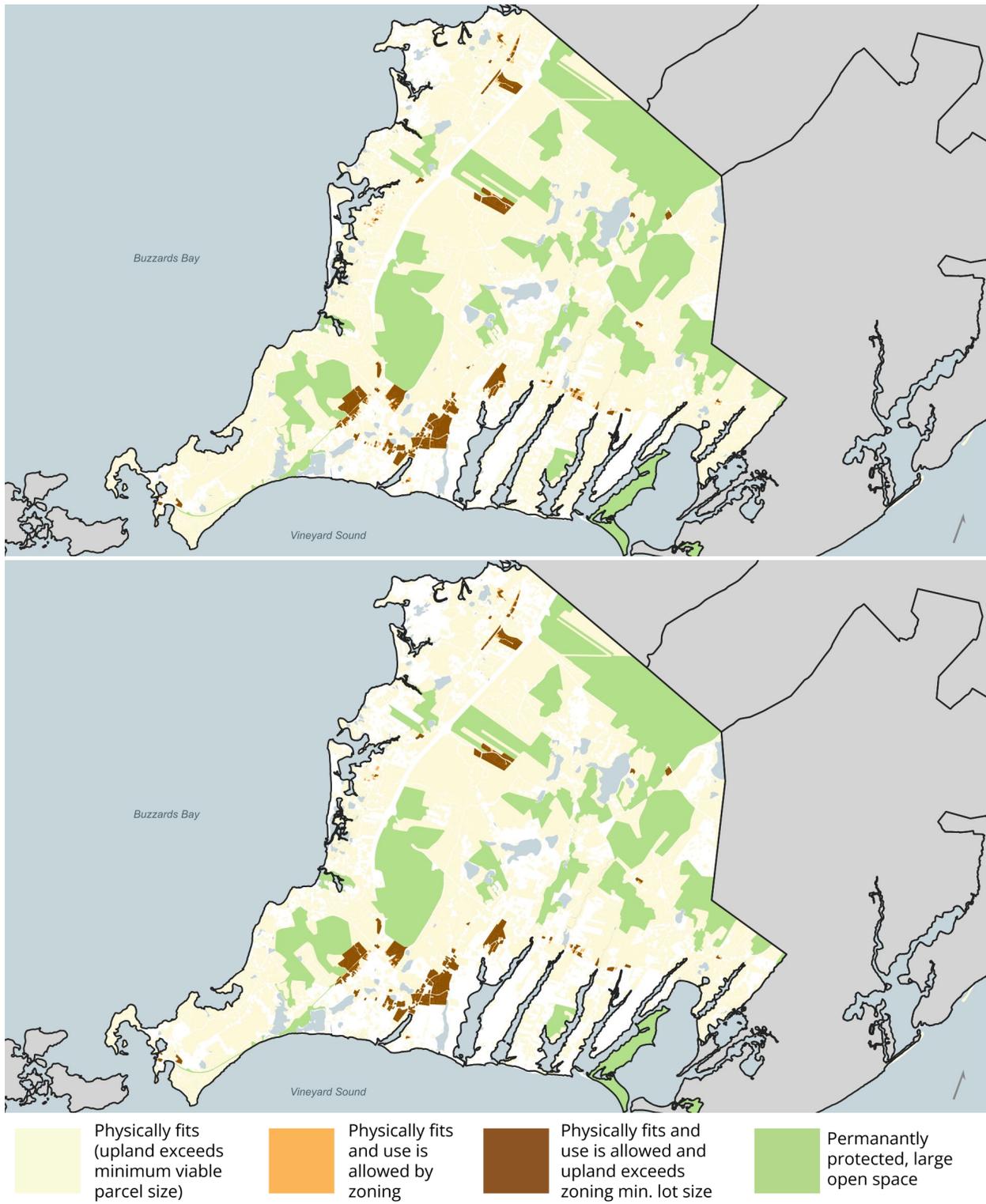
Cape Cod Zoning for Housing Assessment

Falmouth small multifamily fit criteria, small (top) and large (bottom) versions



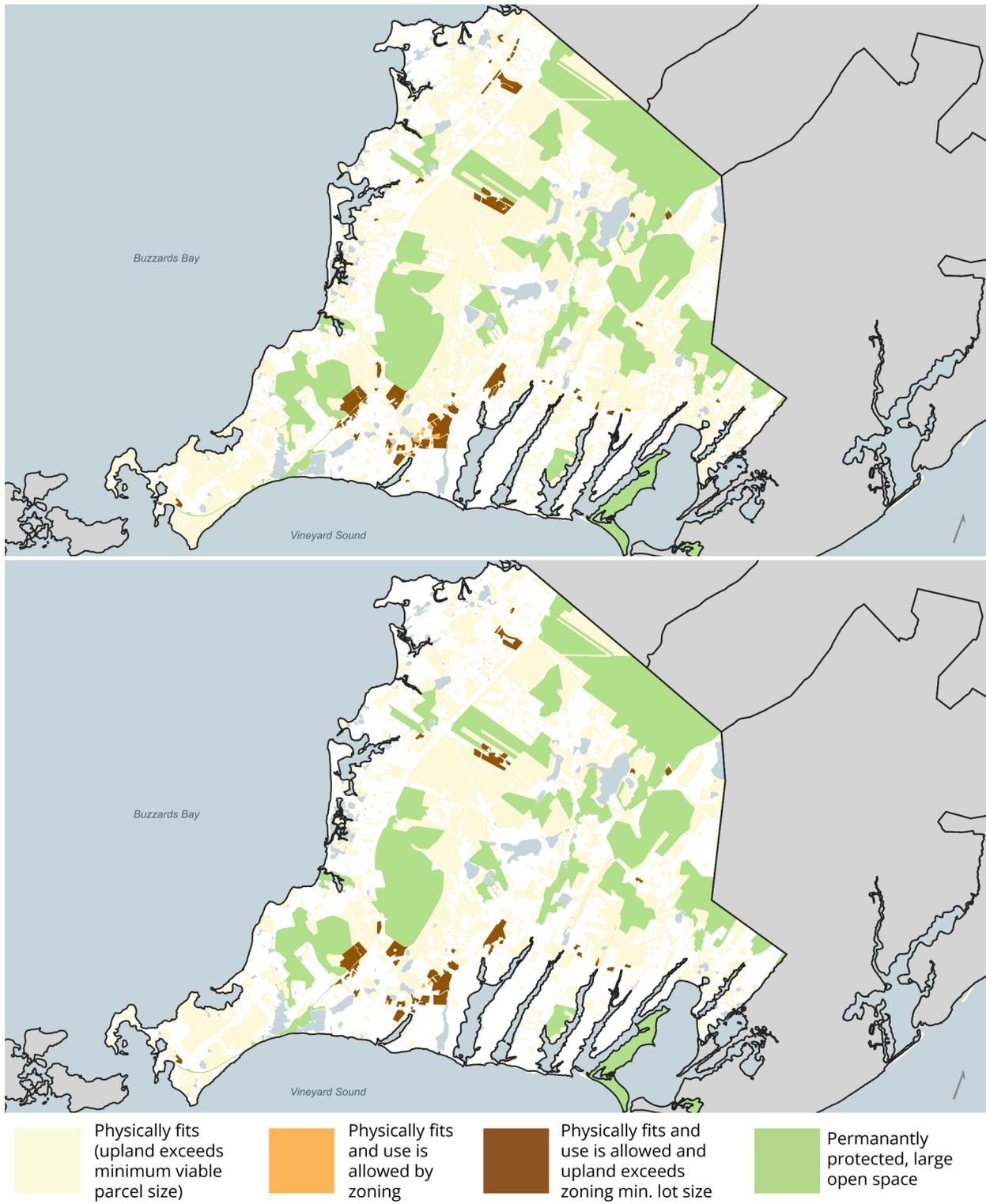
Cape Cod Zoning for Housing Assessment

Falmouth medium multifamily housing fit criteria, small (top) and large (bottom) versions



Cape Cod Zoning for Housing Assessment

Falmouth corridor building fit criteria, small (top) and large (bottom) versions



Harwich

Harwich duplex fit criteria, small (top) and large (bottom) versions



Cape Cod Zoning for Housing Assessment

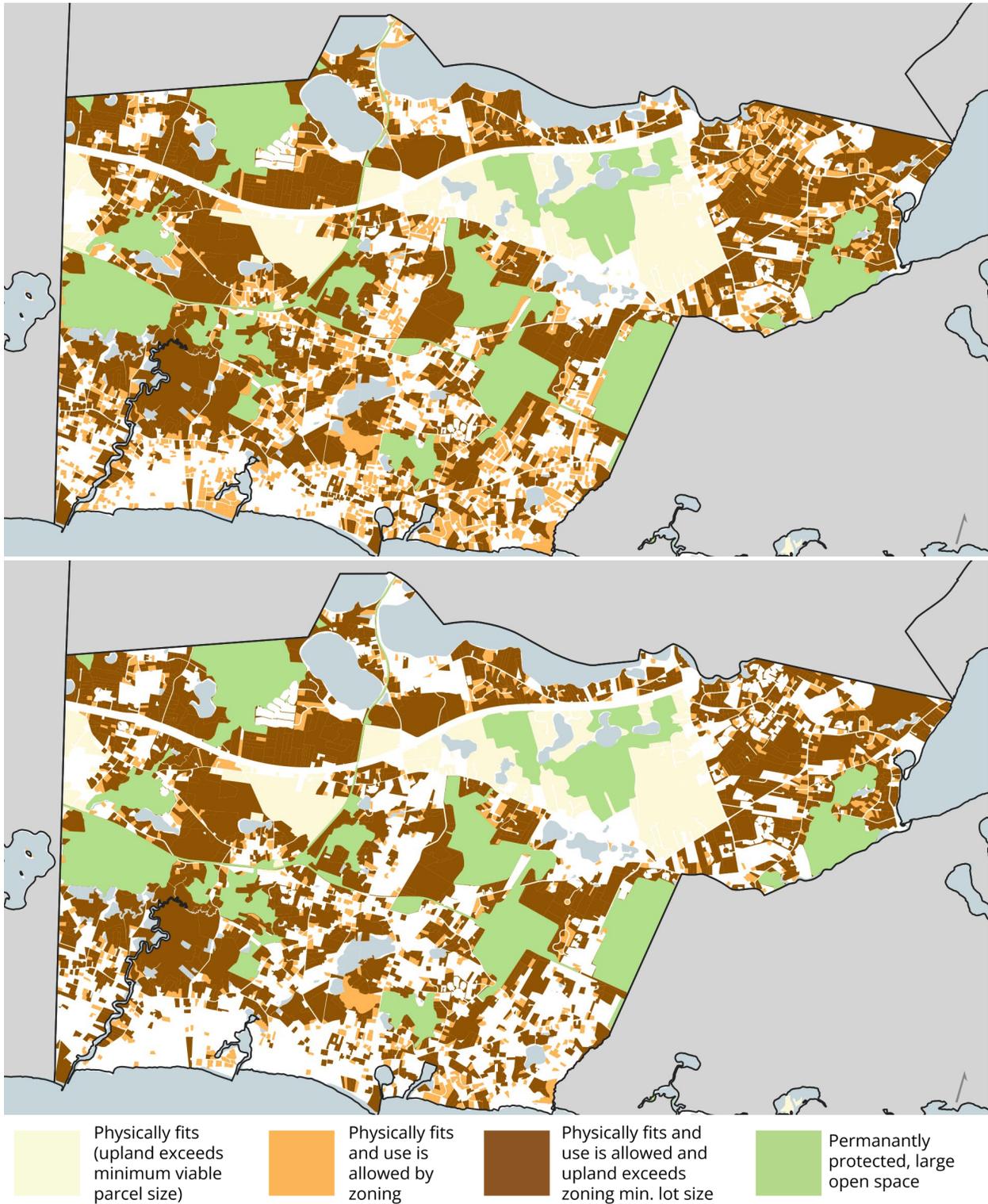
Harwich triplex fit criteria, small (top) and large (bottom) versions



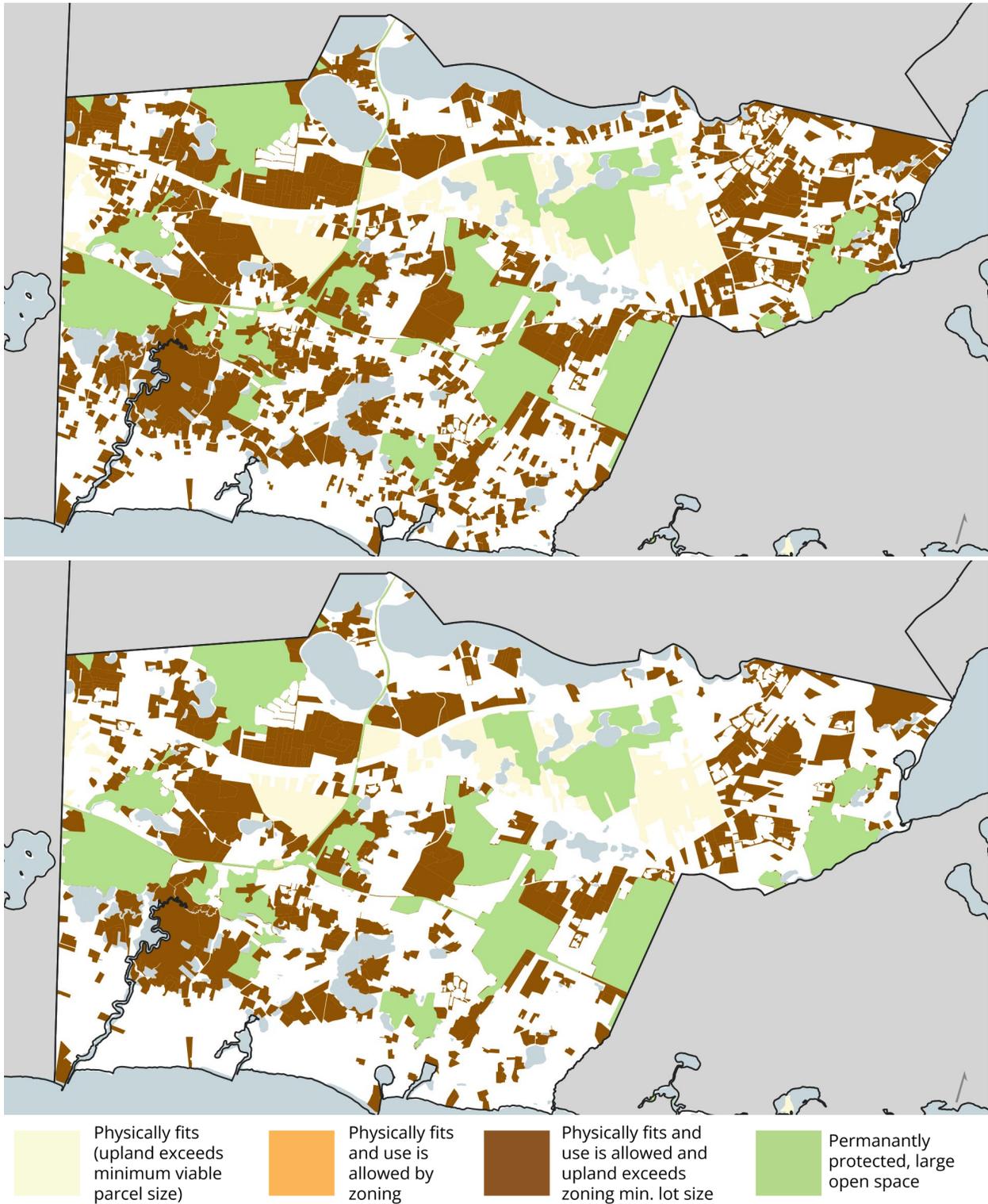
Harwich small multifamily fit criteria, small (top) and large (bottom) versions



Harwich medium multifamily housing fit criteria, small (top) and large (bottom) versions

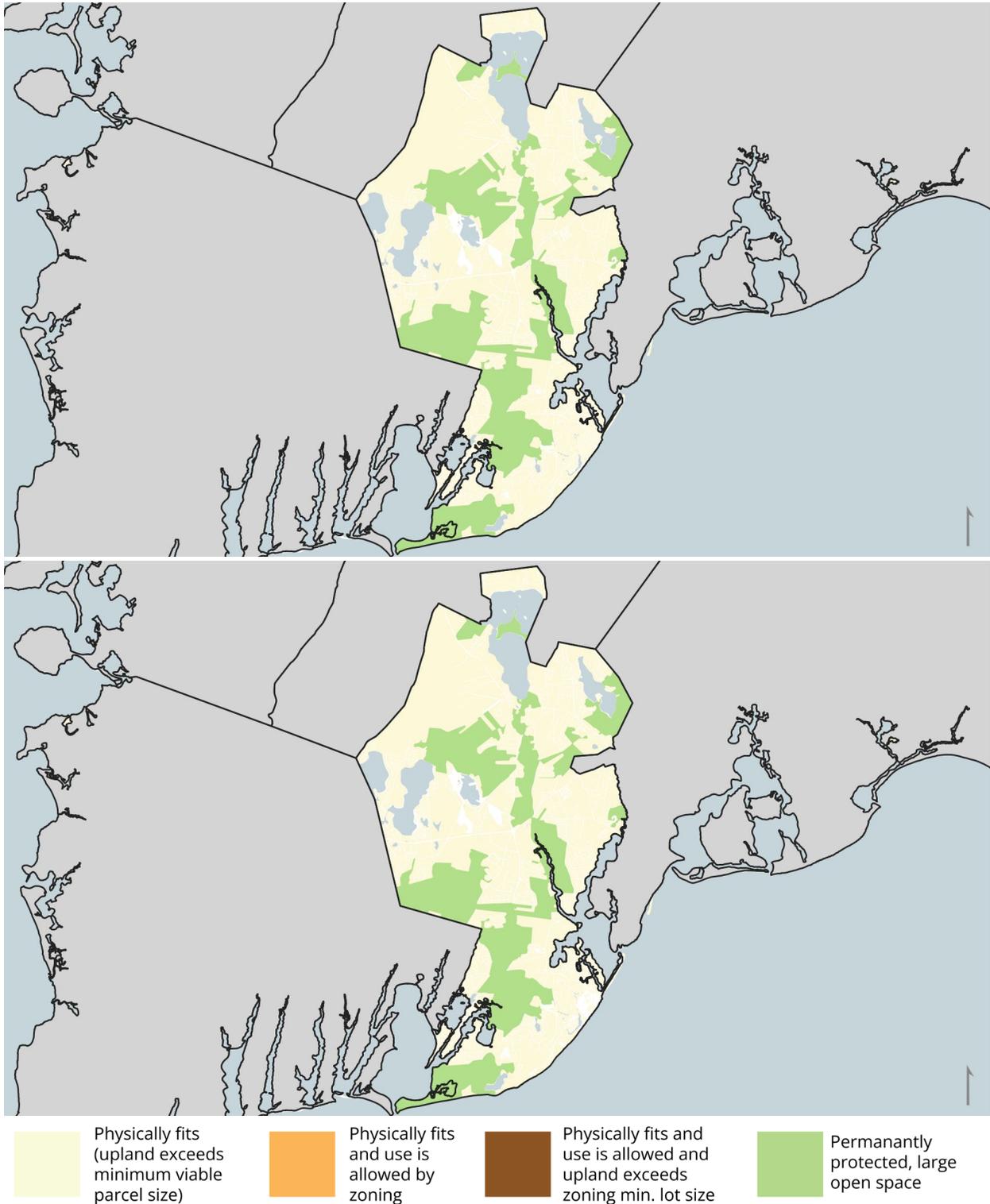


Harwich corridor building fit criteria, small (top) and large (bottom) versions

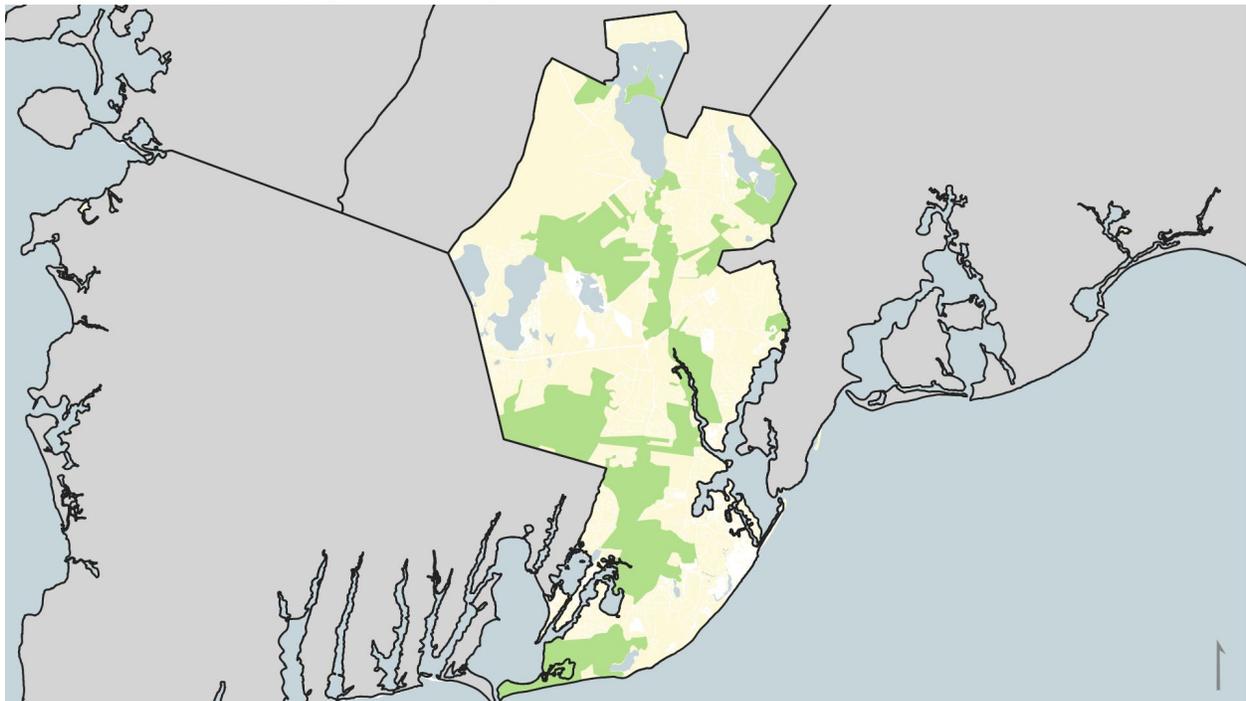
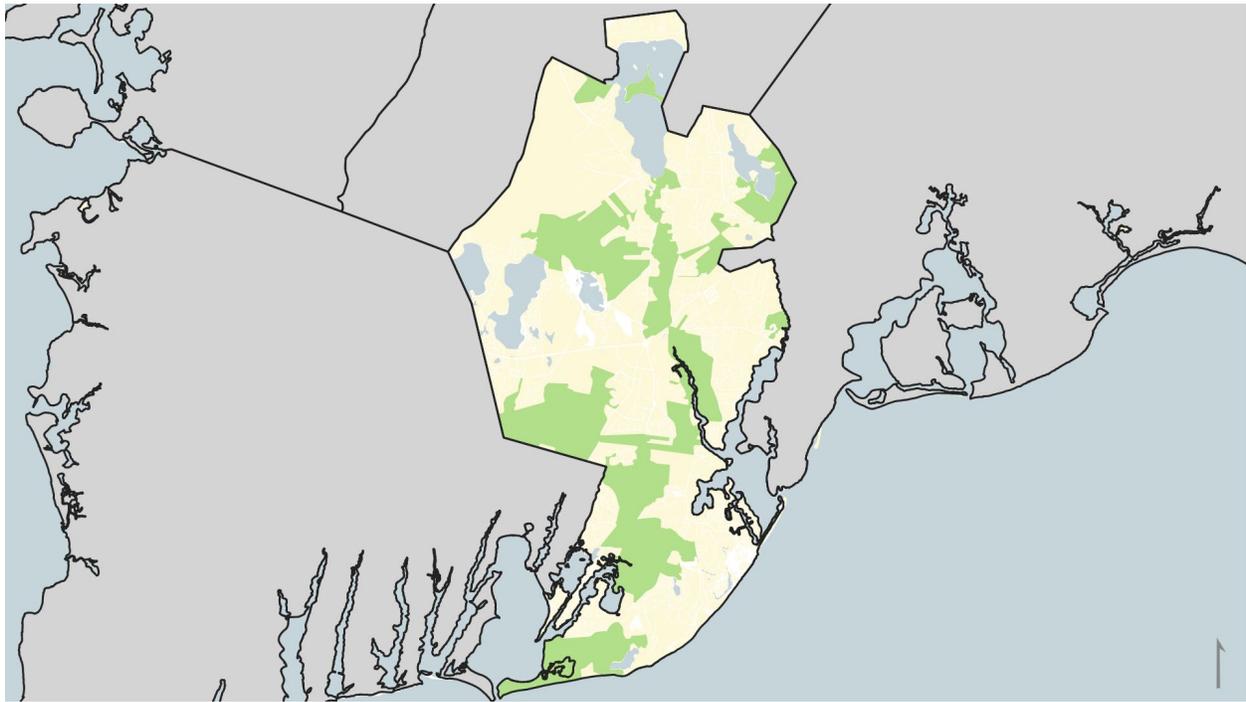


Mashpee

Mashpee duplex fit criteria, small (top) and large (bottom) versions

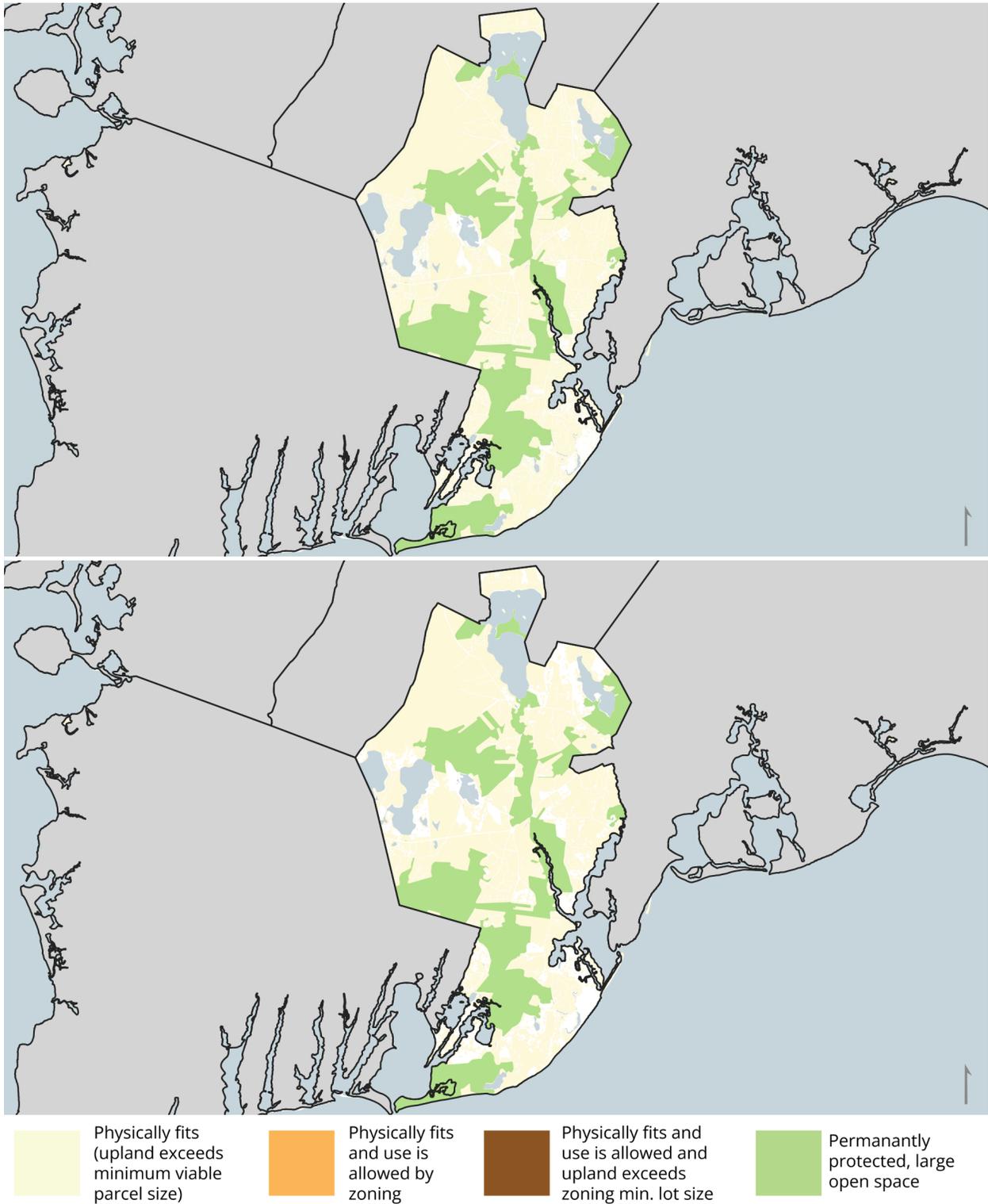


Mashpee triplex fit criteria, small (top) and large (bottom) versions

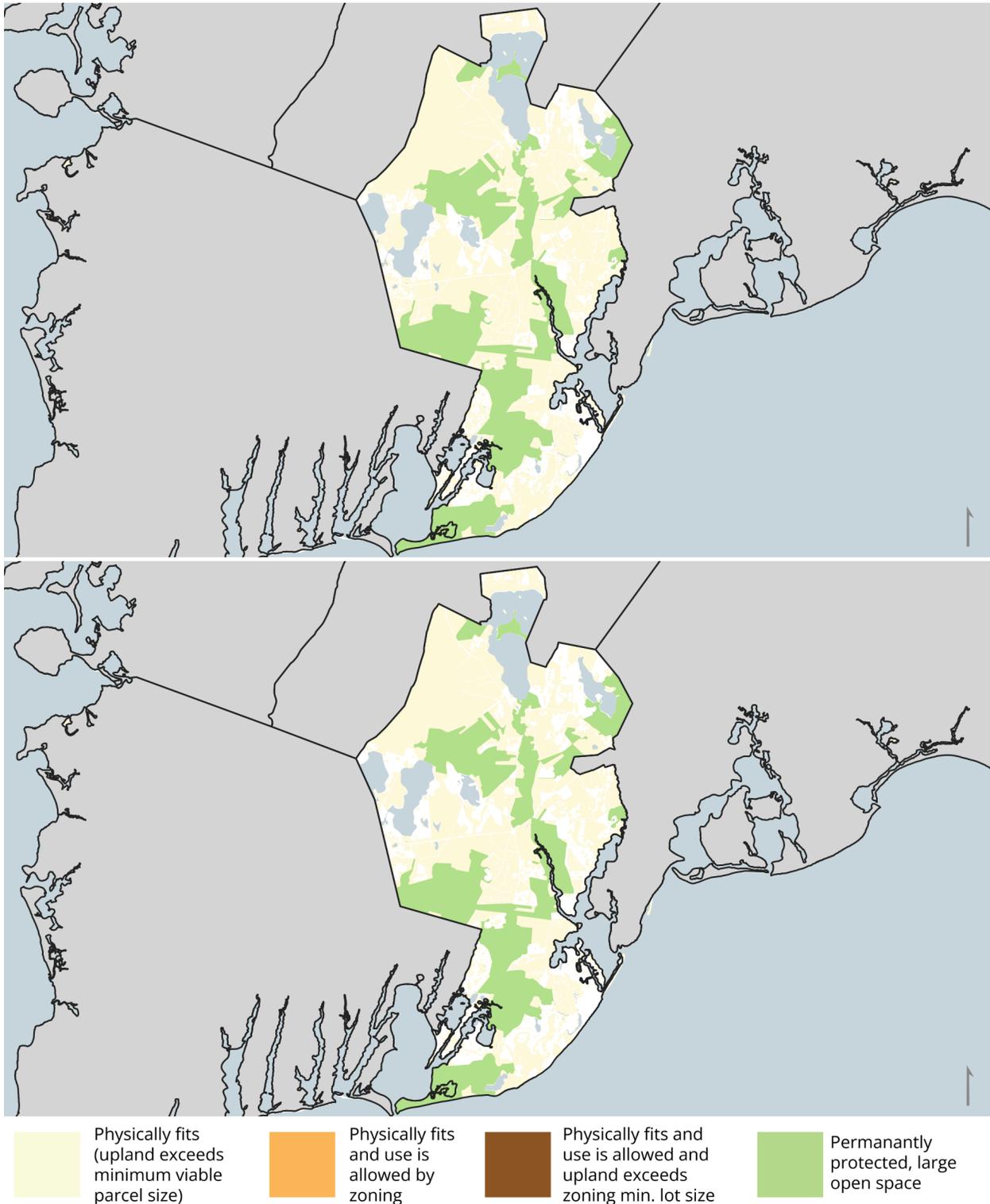


-  Physically fits (upland exceeds minimum viable parcel size)
-  Physically fits and use is allowed by zoning
-  Physically fits and use is allowed and upland exceeds zoning min. lot size
-  Permanently protected, large open space

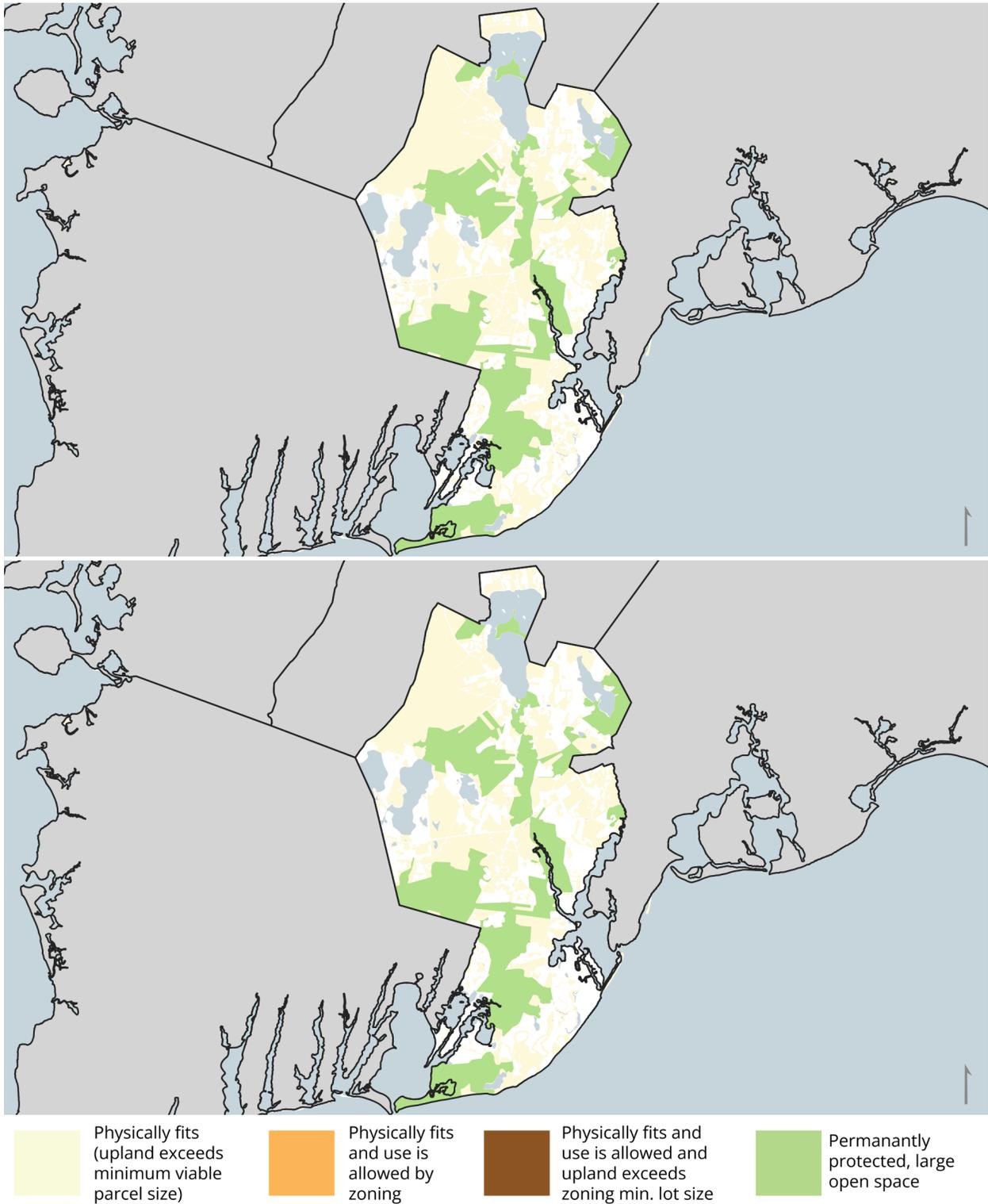
Mashpee small multifamily fit criteria, small (top) and large (bottom) versions



Mashpee medium multifamily housing fit criteria, small (top) and large (bottom) versions

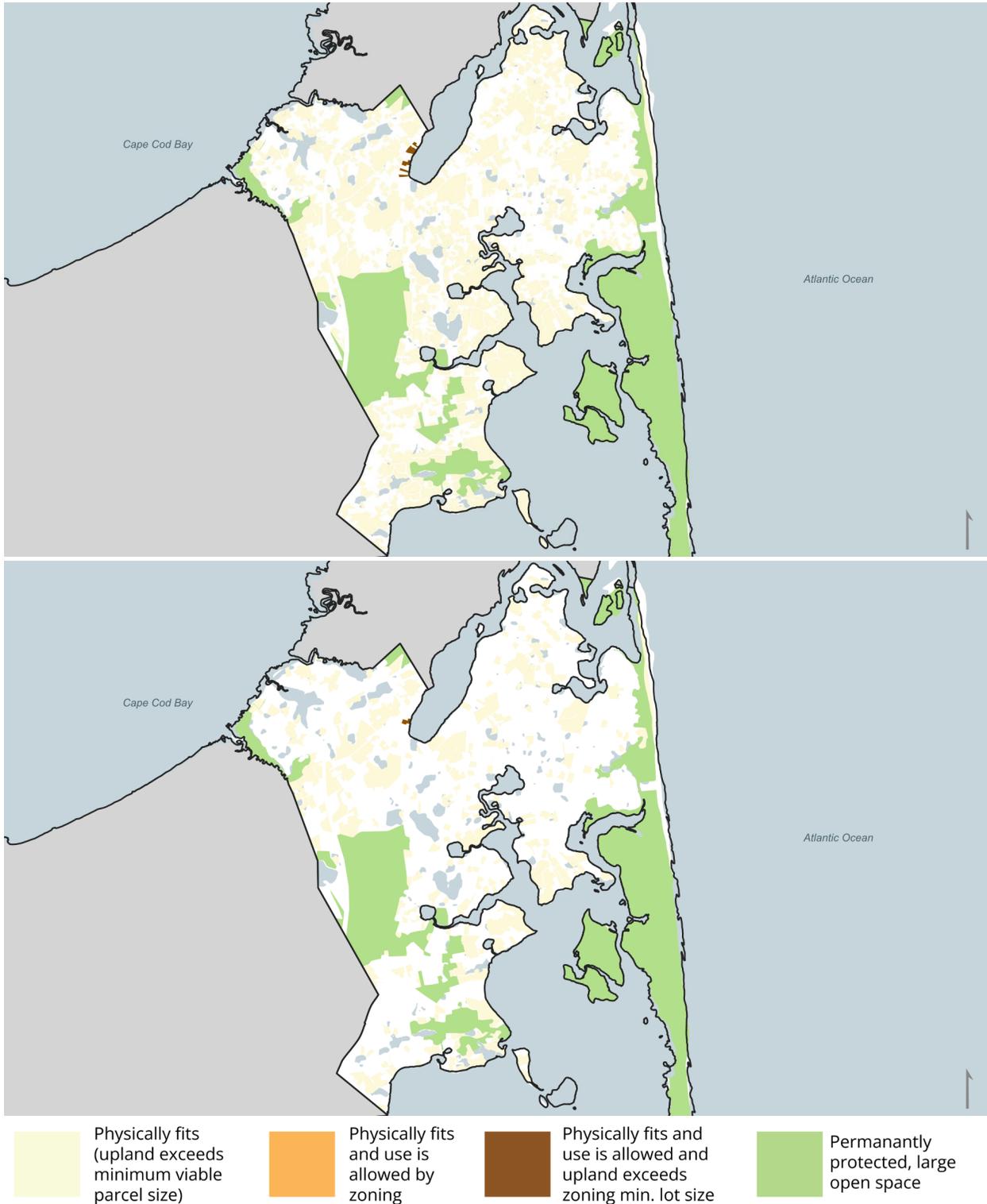


Mashpee corridor building fit criteria, small (top) and large (bottom) versions



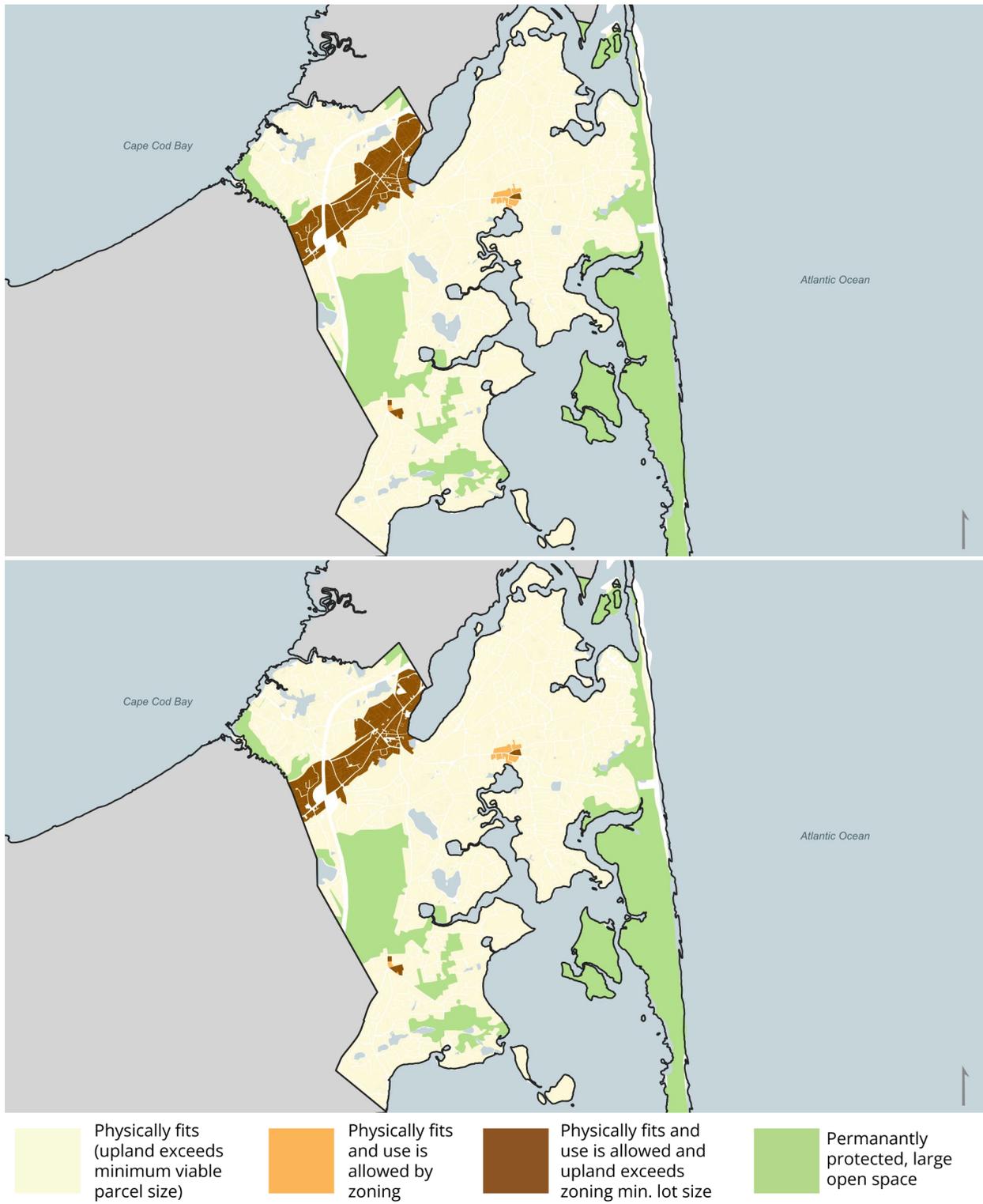
Orleans

Orleans duplex fit criteria, small (top) and large (bottom) versions



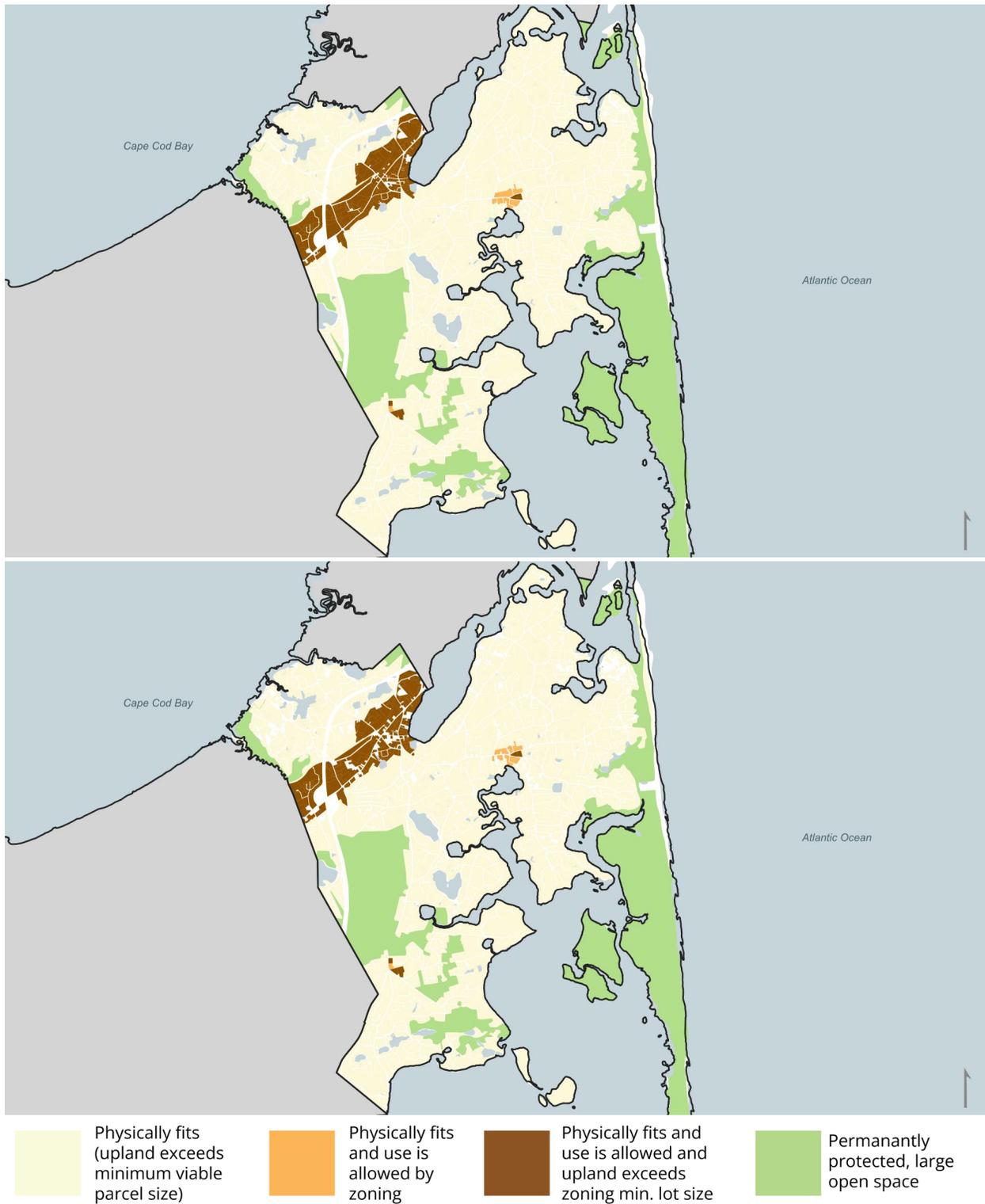
Cape Cod Zoning for Housing Assessment

Orleans triplex fit criteria, small (top) and large (bottom) versions



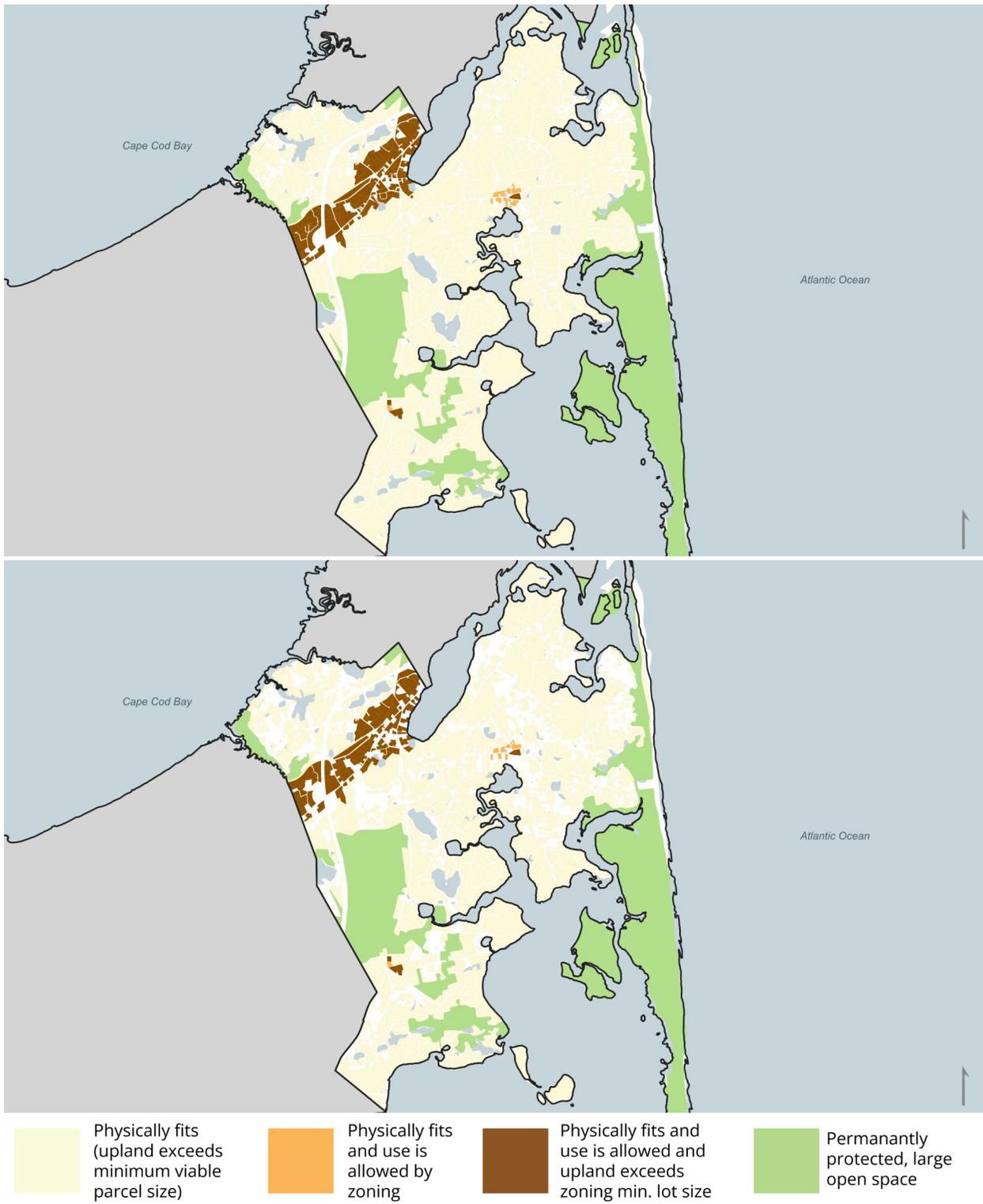
Cape Cod Zoning for Housing Assessment

Orleans small multifamily fit criteria, small (top) and large (bottom) versions



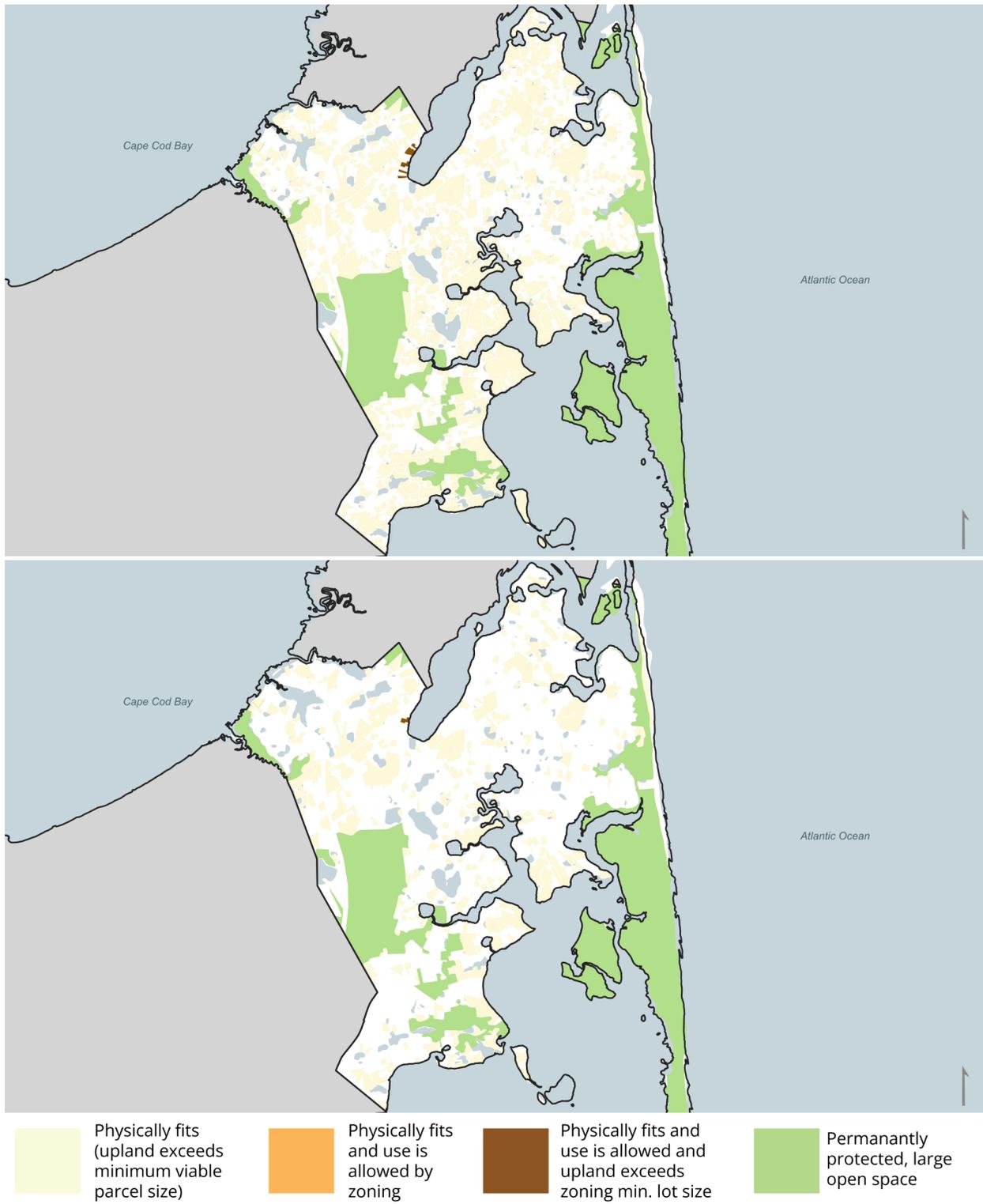
Cape Cod Zoning for Housing Assessment

Orleans medium multifamily housing fit criteria, small (top) and large (bottom) versions



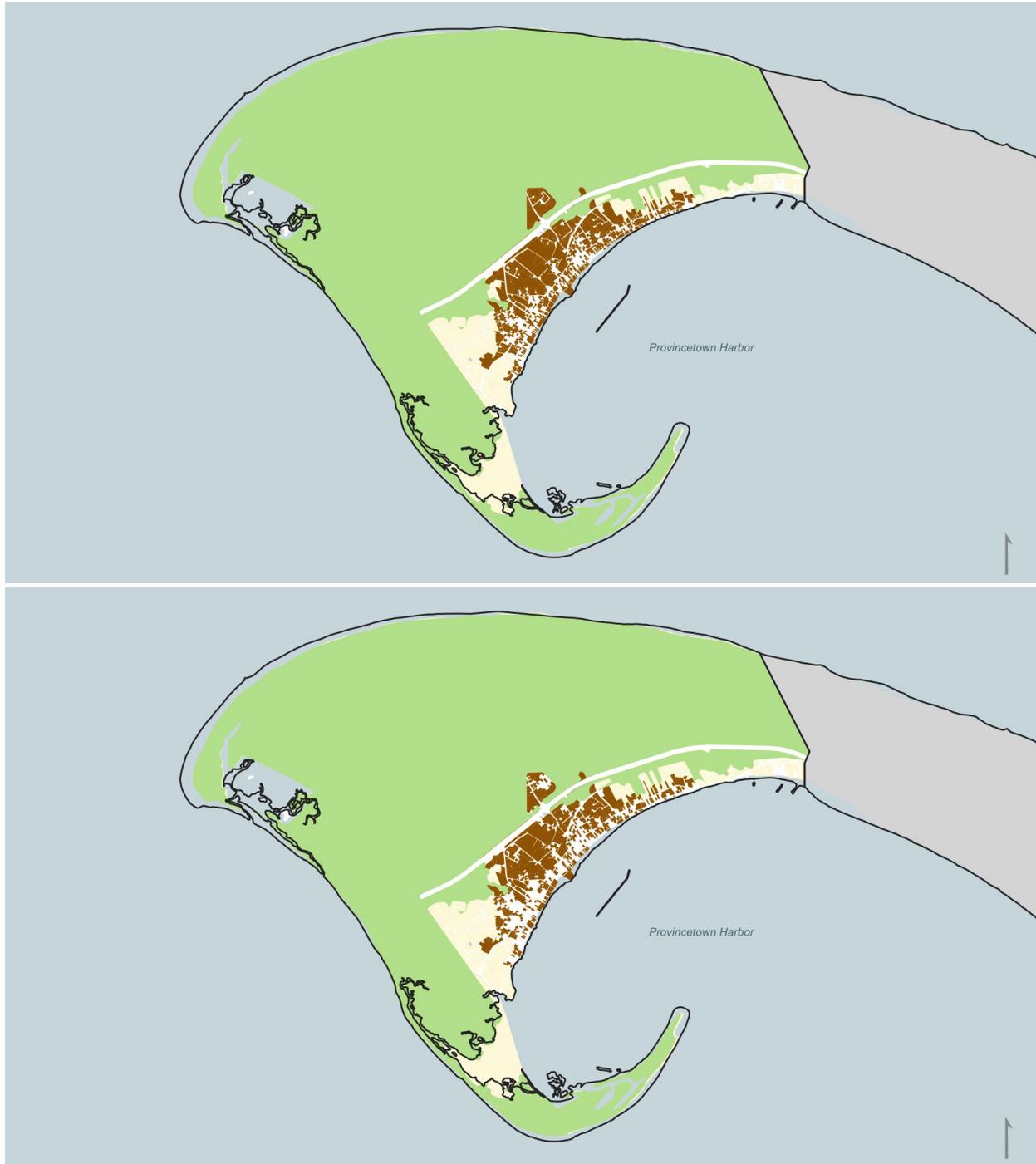
Cape Cod Zoning for Housing Assessment

Orleans corridor building fit criteria, small (top) and large (bottom) versions



Provincetown

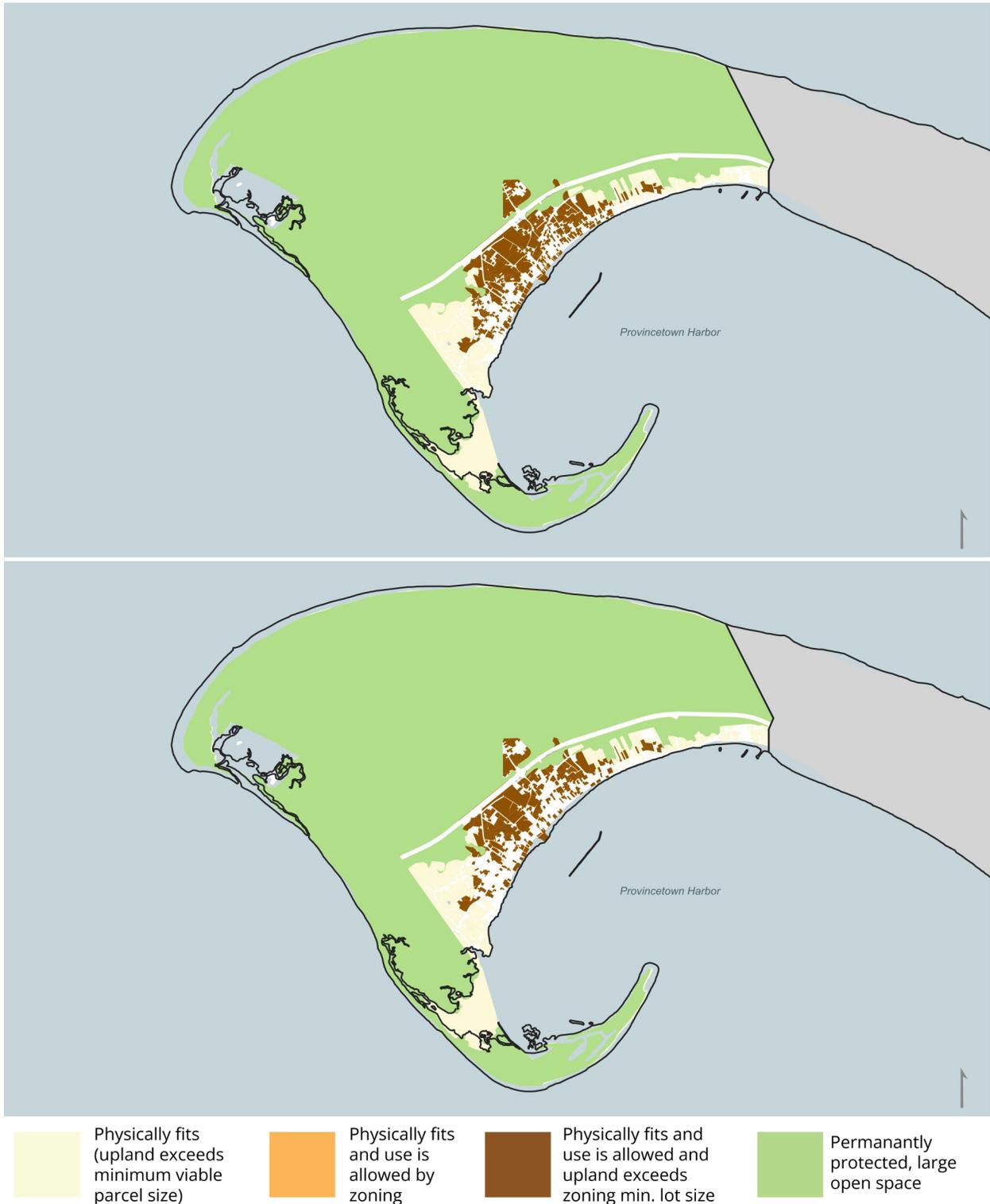
Provincetown duplex fit criteria, small (top) and large (bottom) versions



- | | | | | | | | |
|---|---|---|--|---|--|---|---|
|  | Physically fits (upland exceeds minimum viable parcel size) |  | Physically fits and use is allowed by zoning |  | Physically fits and use is allowed and upland exceeds zoning min. lot size |  | Permanently protected, large open space |
|---|---|---|--|---|--|---|---|

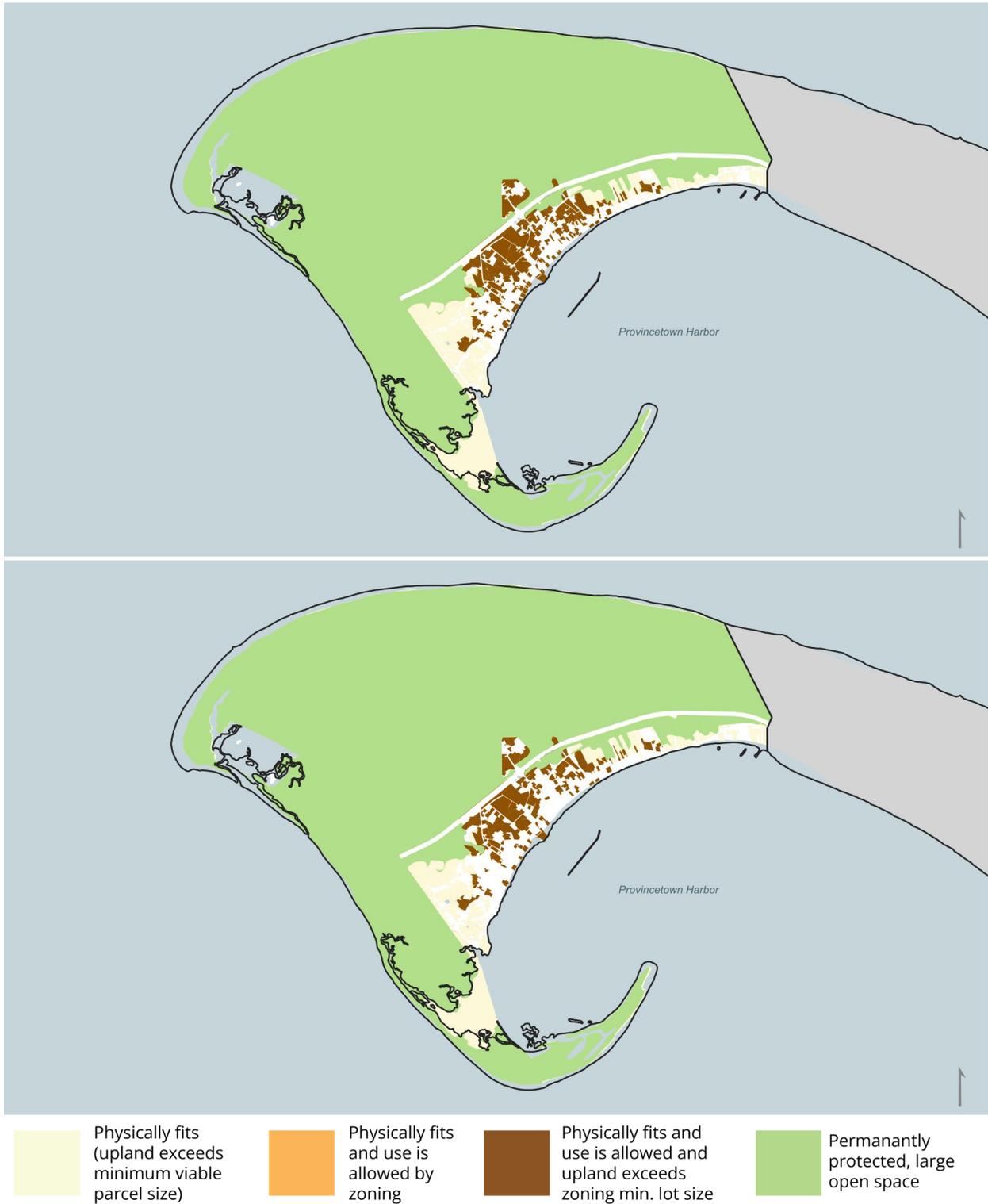
Cape Cod Zoning for Housing Assessment

Provincetown triplex fit criteria, small (top) and large (bottom) versions



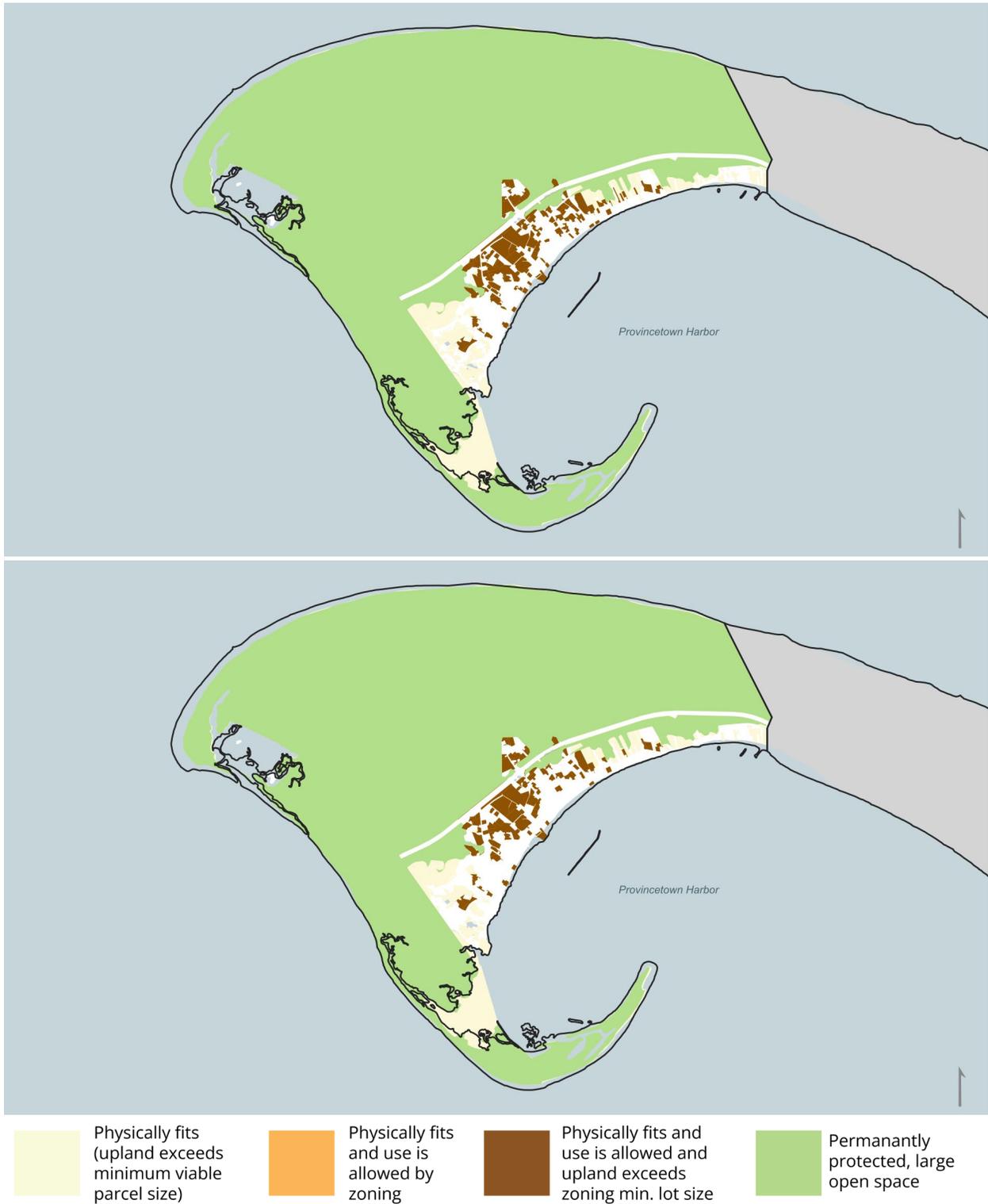
Cape Cod Zoning for Housing Assessment

Provincetown small multifamily fit criteria, small (top) and large (bottom) versions

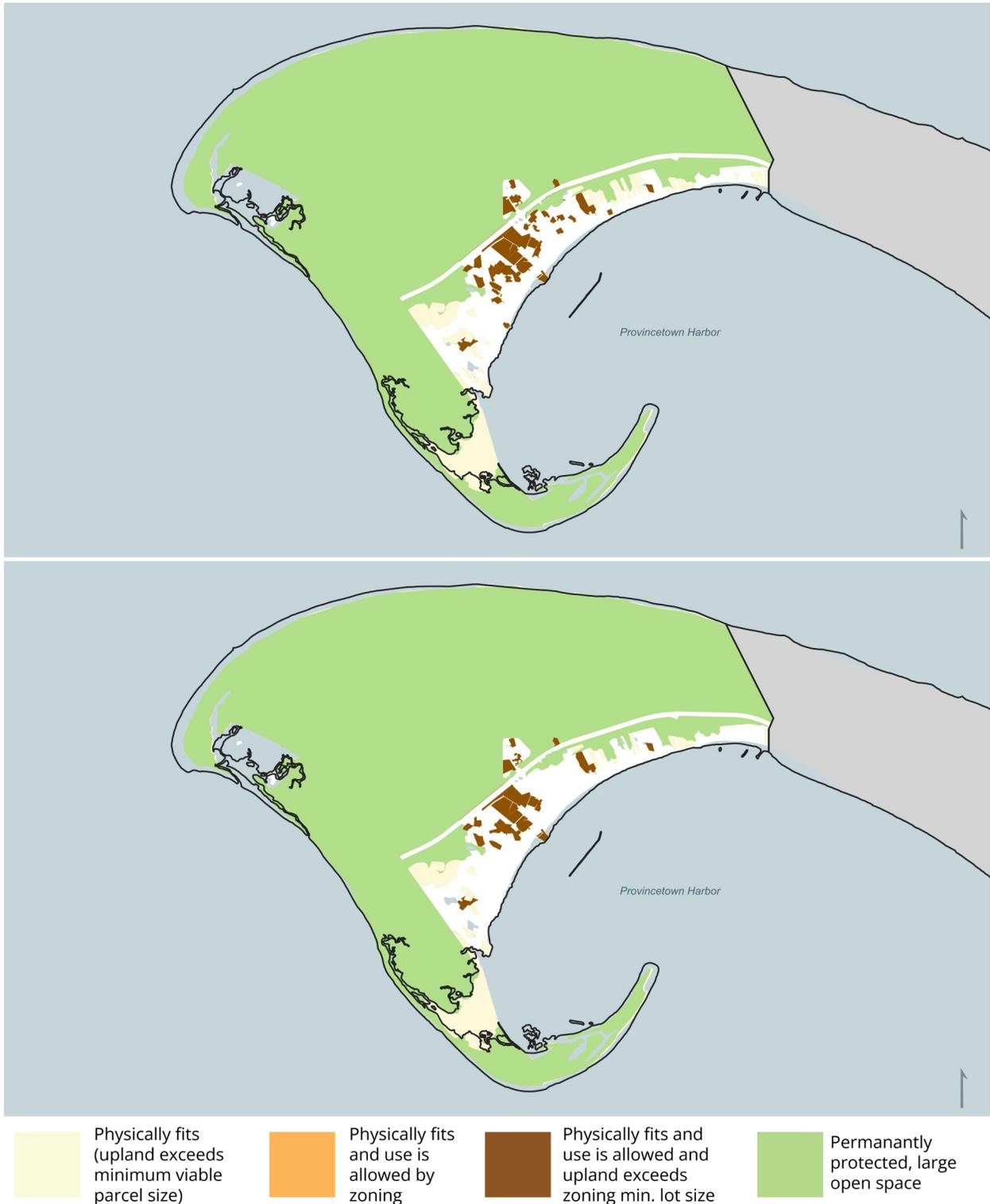


Cape Cod Zoning for Housing Assessment

Provincetown medium multifamily housing fit criteria, small (top) and large (bottom) versions

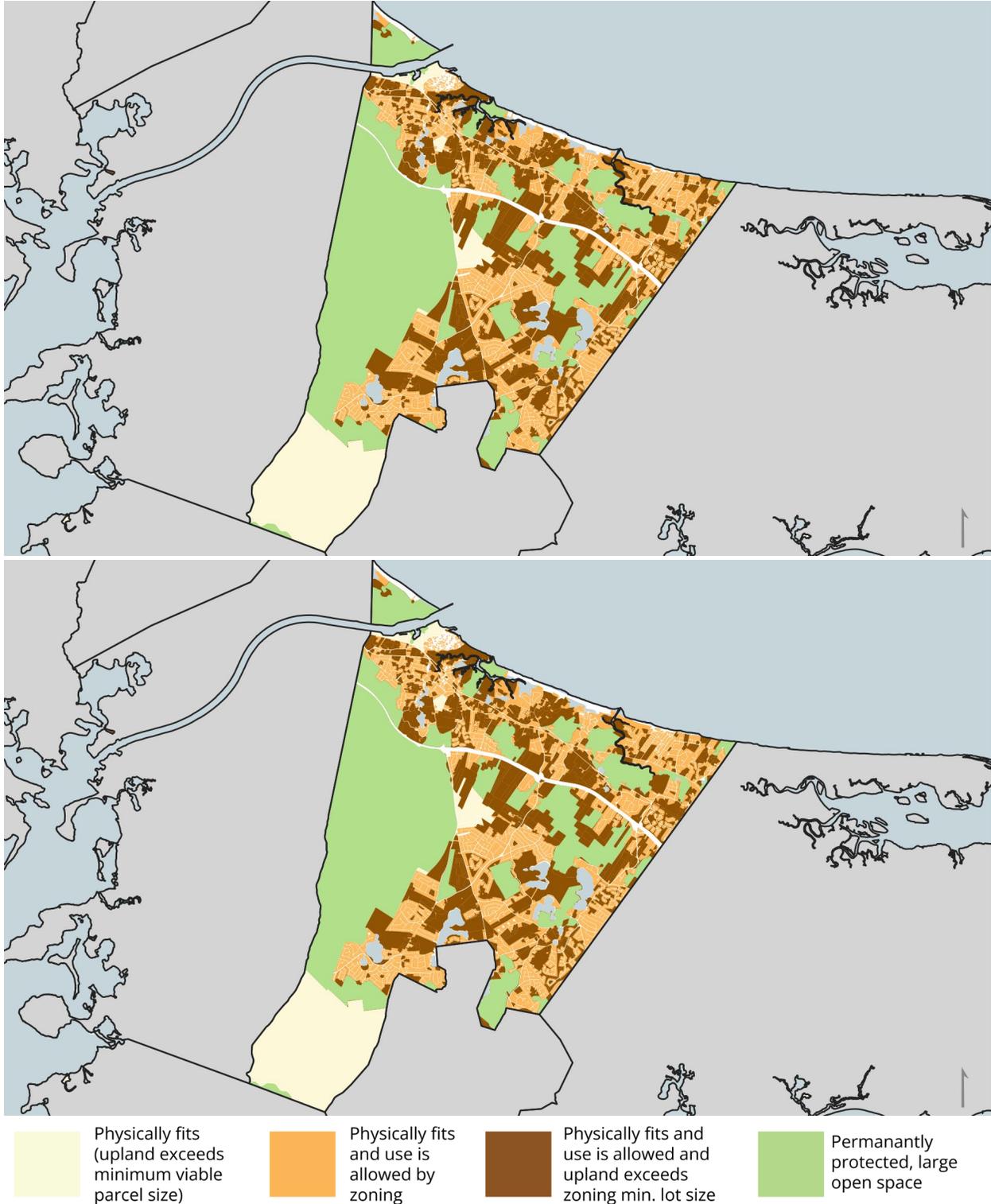


Provincetown corridor building fit criteria, small (top) and large (bottom) versions

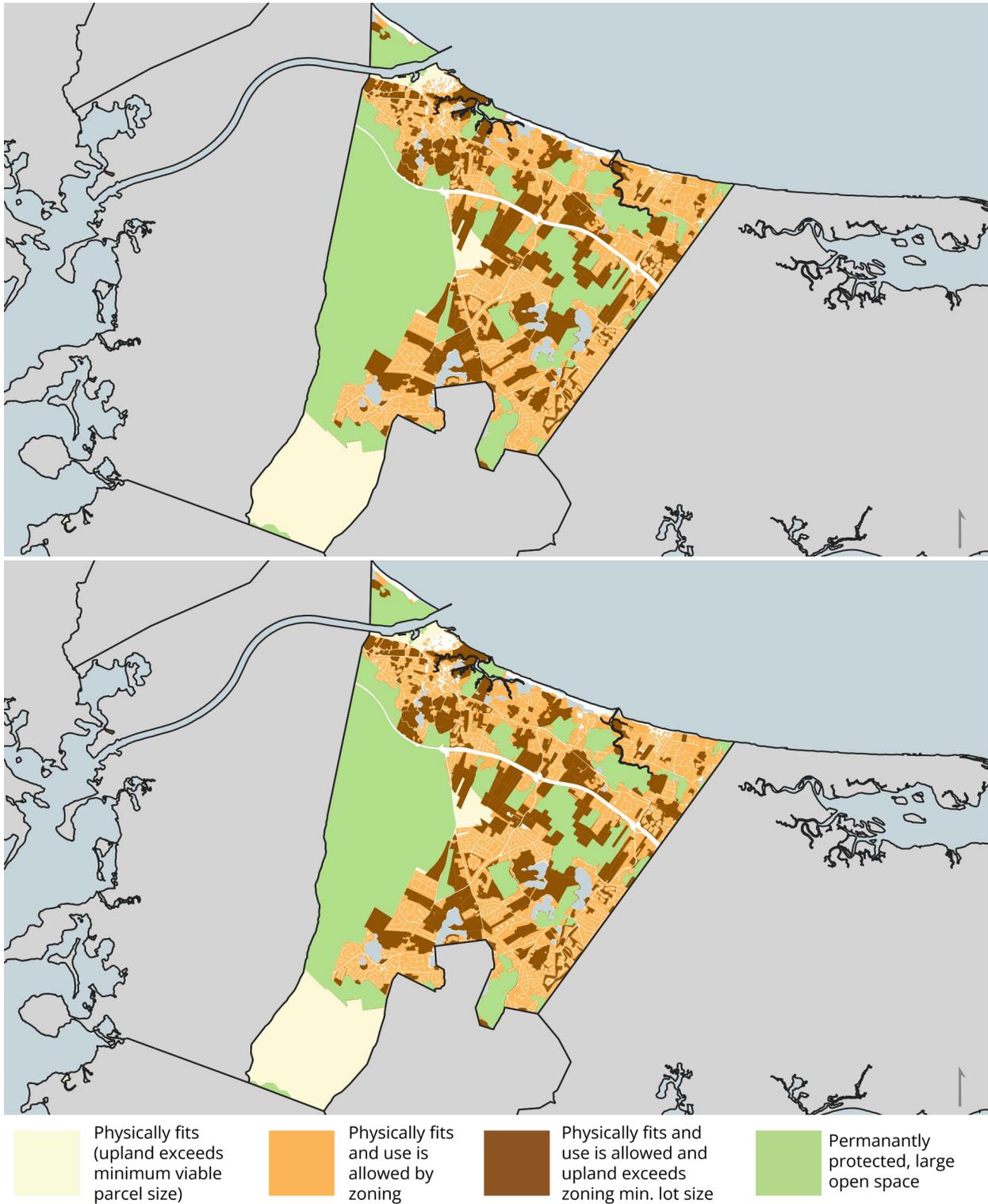


Sandwich

Sandwich duplex fit criteria, small (top) and large (bottom) versions

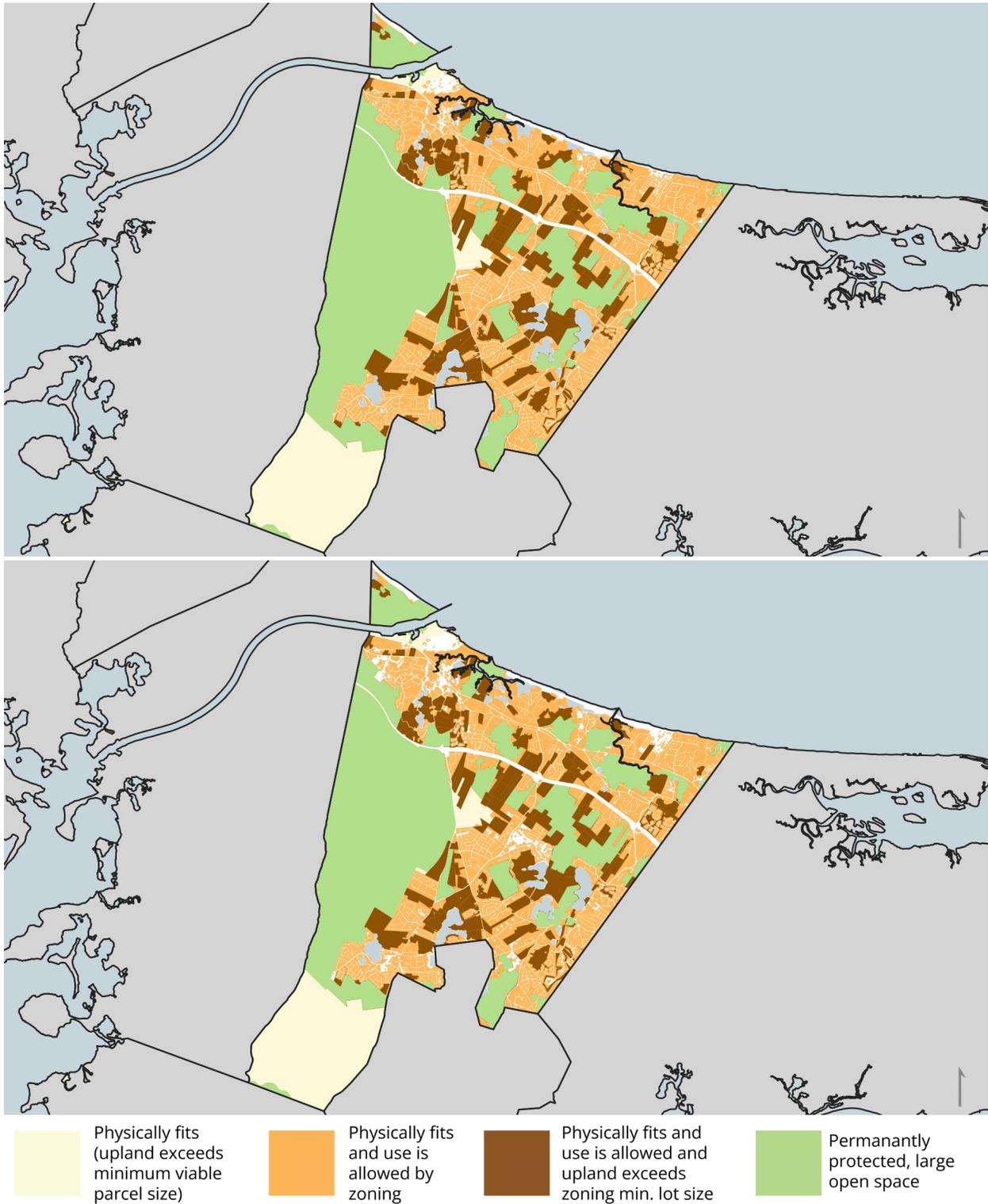


Sandwich triplex fit criteria, small (top) and large (bottom) versions



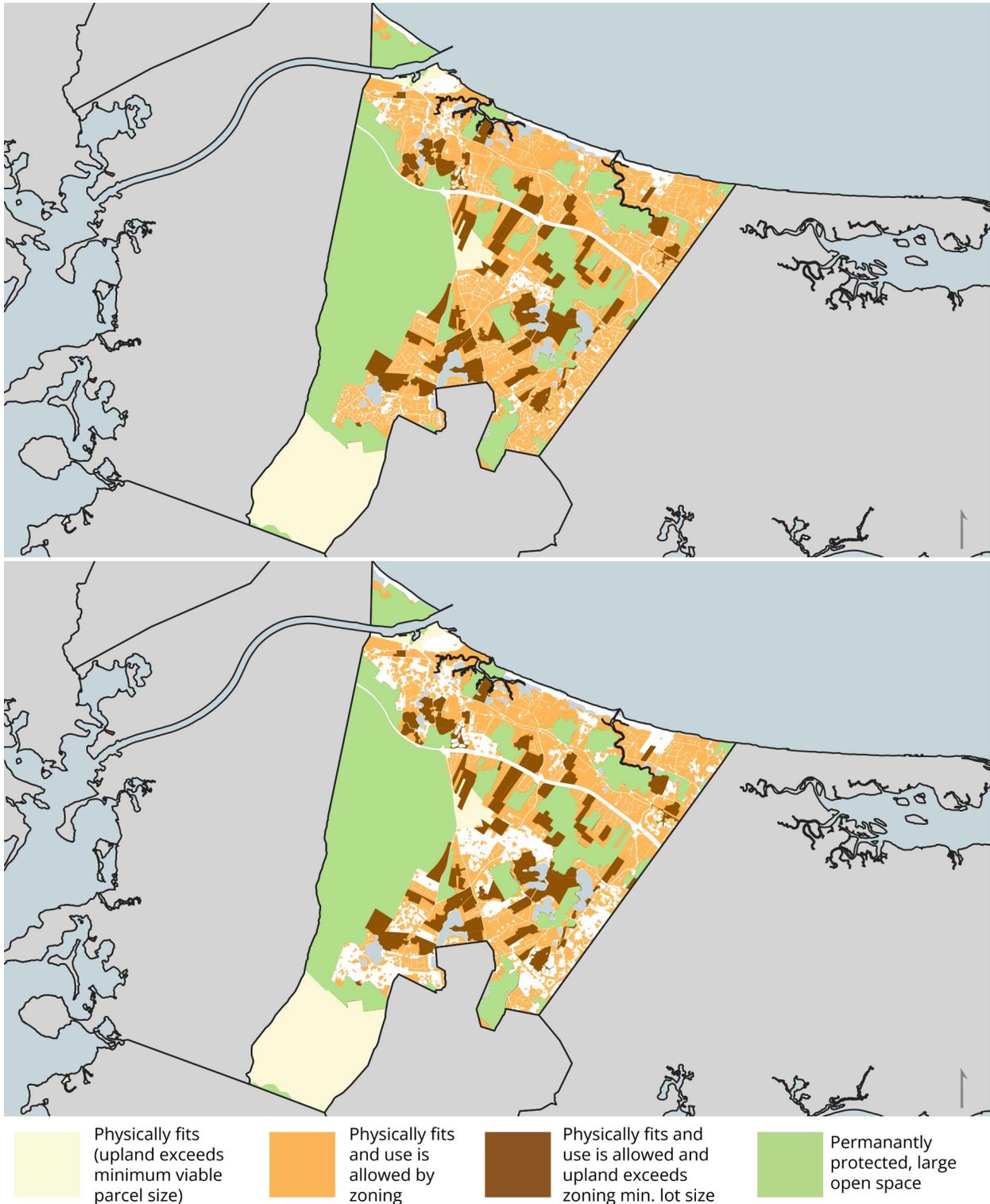
Cape Cod Zoning for Housing Assessment

Sandwich small multifamily fit criteria, small (top) and large (bottom) versions

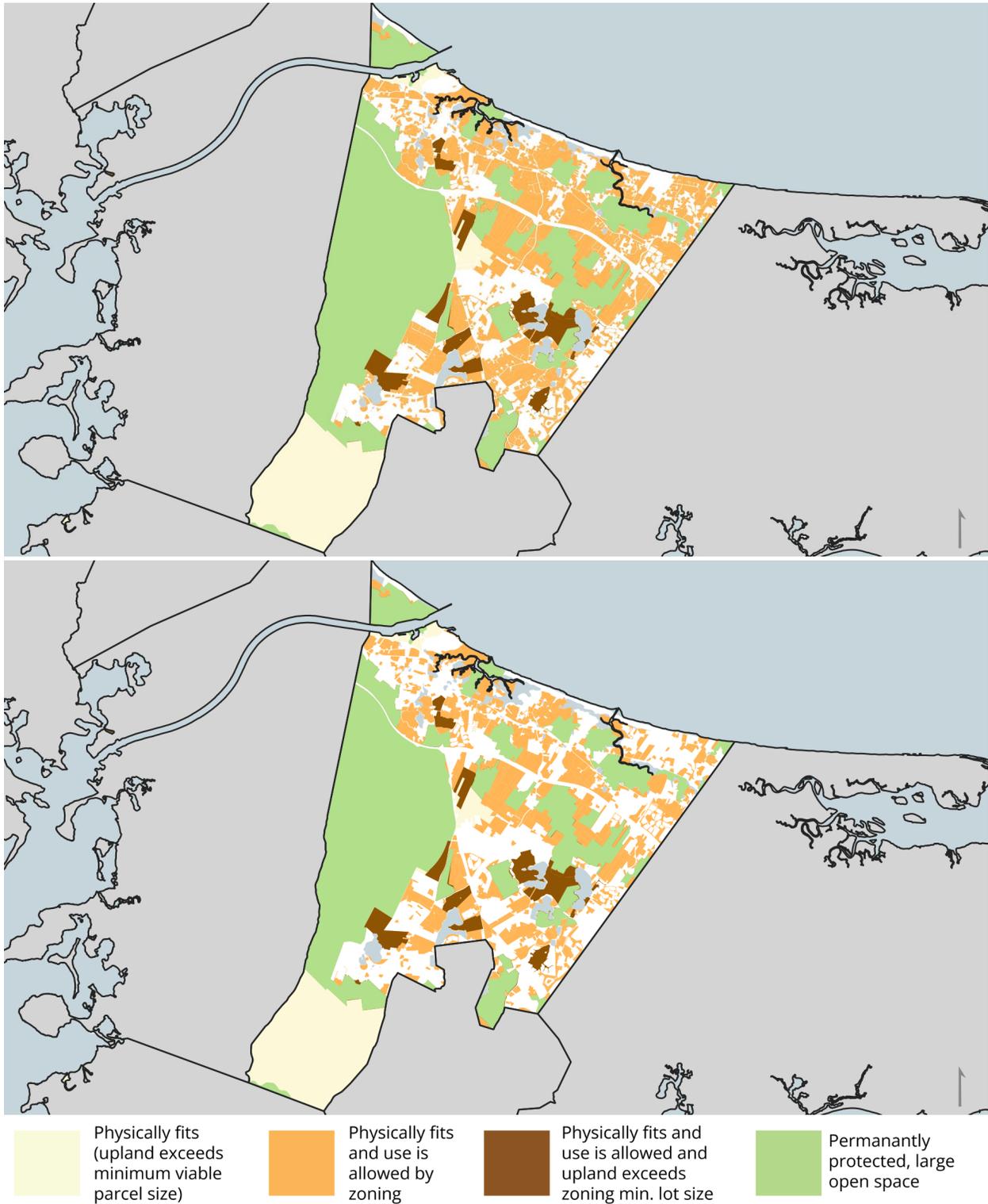


Cape Cod Zoning for Housing Assessment

Sandwich medium multifamily housing fit criteria, small (top) and large (bottom) versions

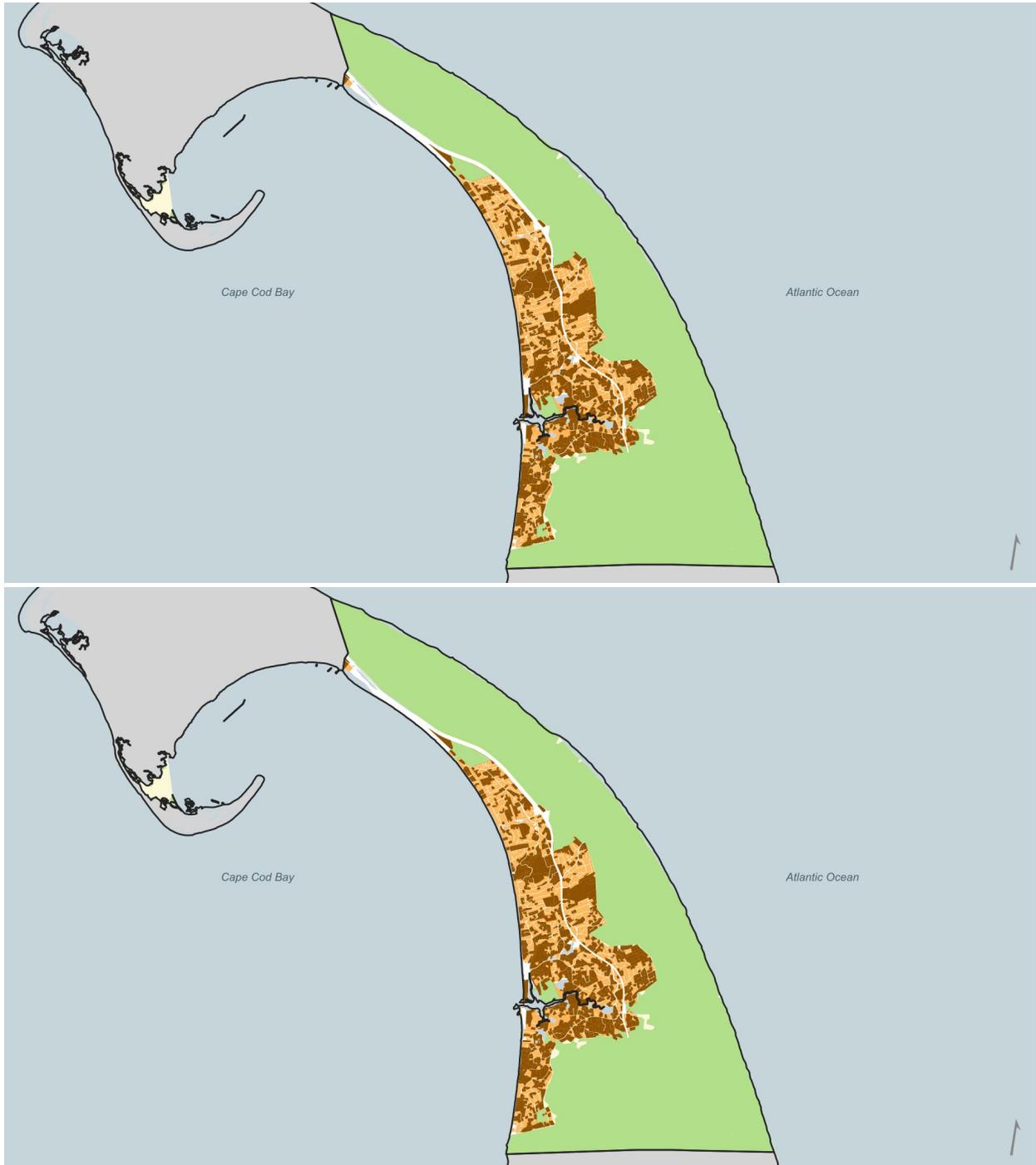


Sandwich corridor building fit criteria, small (top) and large (bottom) versions



Truro

Truro duplex fit criteria, small (top) and large (bottom) versions



-  Physically fits (upland exceeds minimum viable parcel size)
-  Physically fits and use is allowed by zoning
-  Physically fits and use is allowed and upland exceeds zoning min. lot size
-  Permanantly protected, large open space

Cape Cod Zoning for Housing Assessment

Truro triplex fit criteria, small (top) and large (bottom) versions



-  Physically fits (upland exceeds minimum viable parcel size)
-  Physically fits and use is allowed by zoning
-  Physically fits and use is allowed and upland exceeds zoning min. lot size
-  Permanently protected, large open space

Cape Cod Zoning for Housing Assessment

Truro small multifamily fit criteria, small (top) and large (bottom) versions



-  Physically fits (upland exceeds minimum viable parcel size)
-  Physically fits and use is allowed by zoning
-  Physically fits and use is allowed and upland exceeds zoning min. lot size
-  Permanently protected, large open space

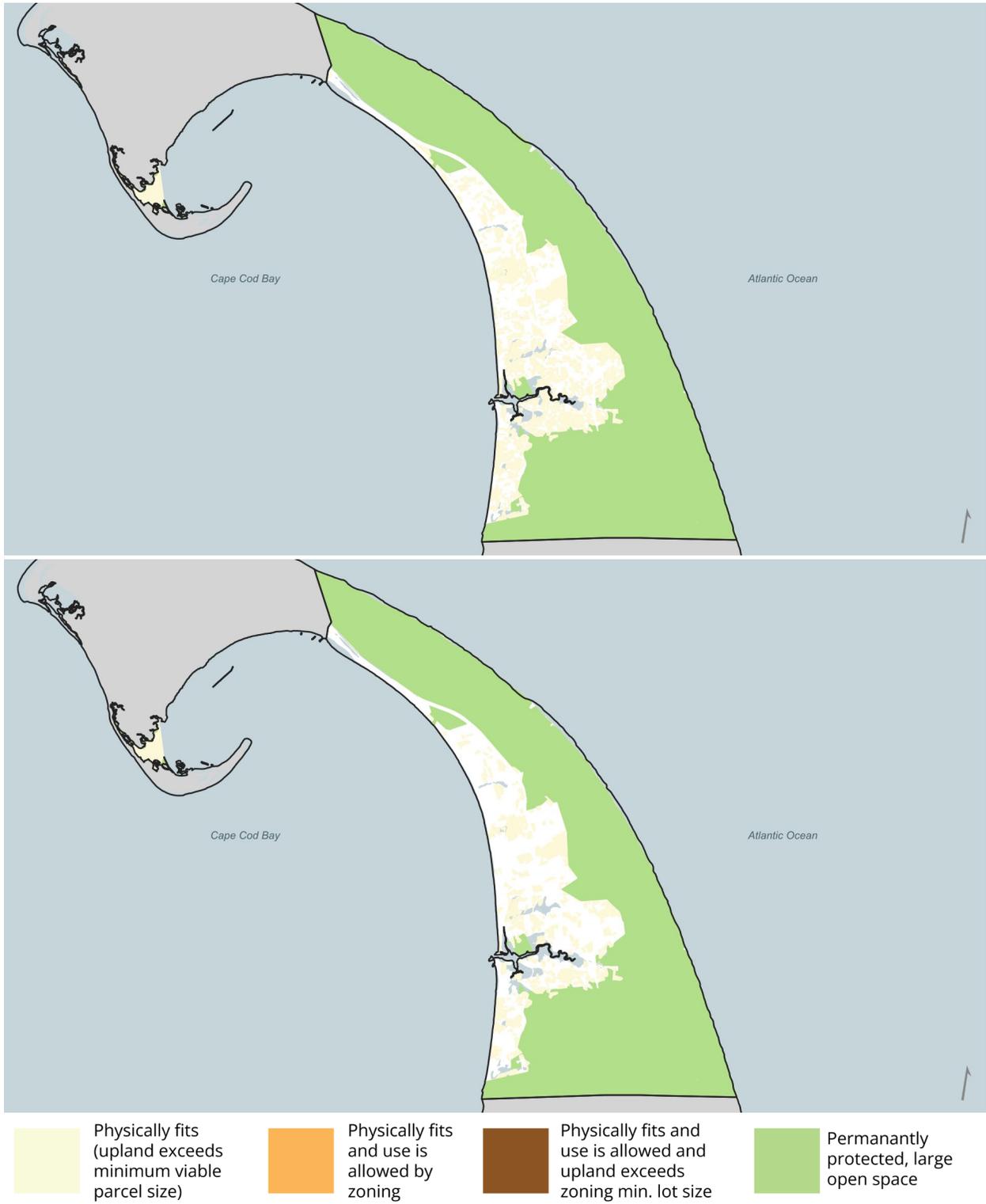
Cape Cod Zoning for Housing Assessment

Truro medium multifamily housing fit criteria, small (top) and large (bottom) versions



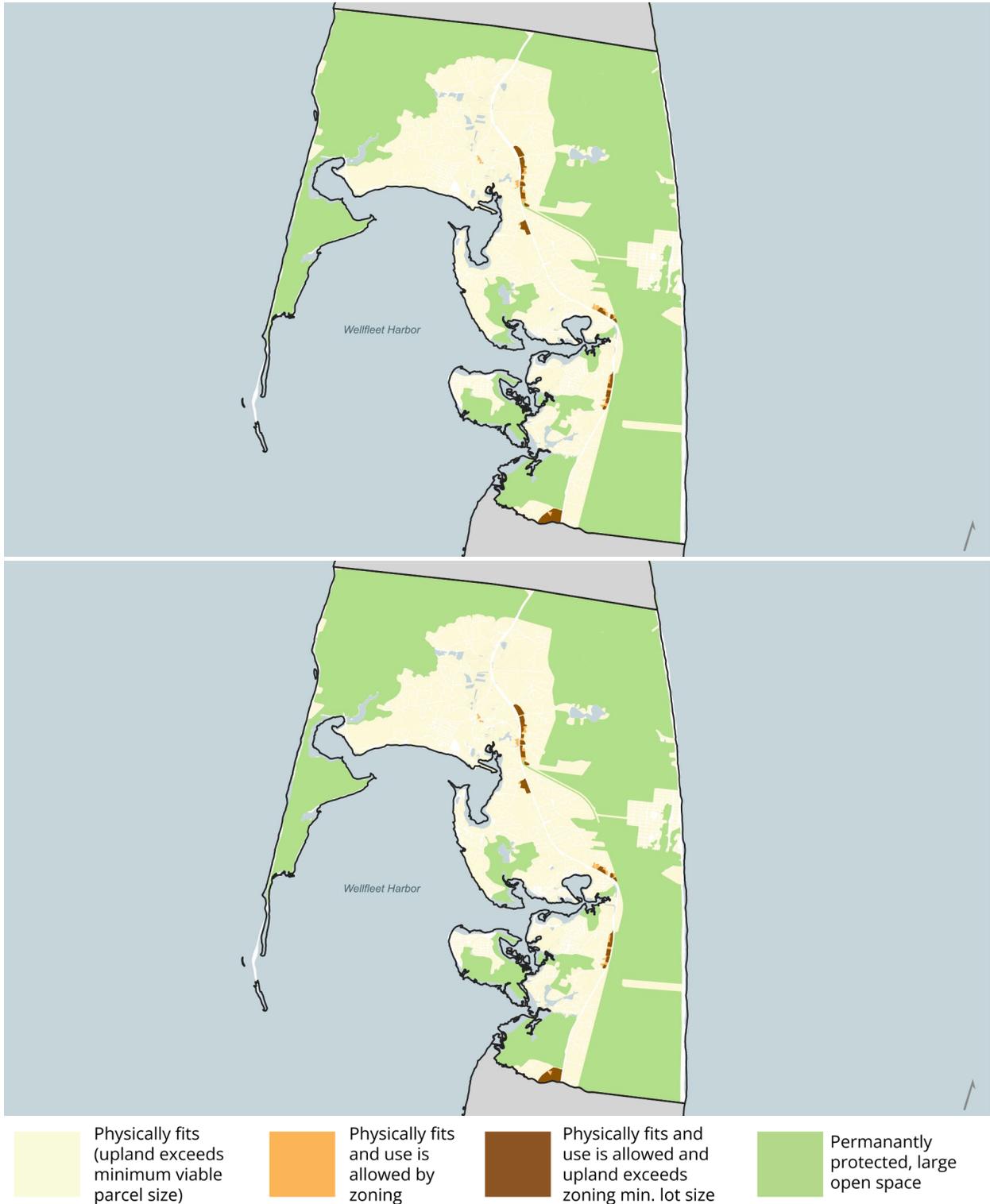
Cape Cod Zoning for Housing Assessment

Truro corridor building fit criteria, small (top) and large (bottom) versions

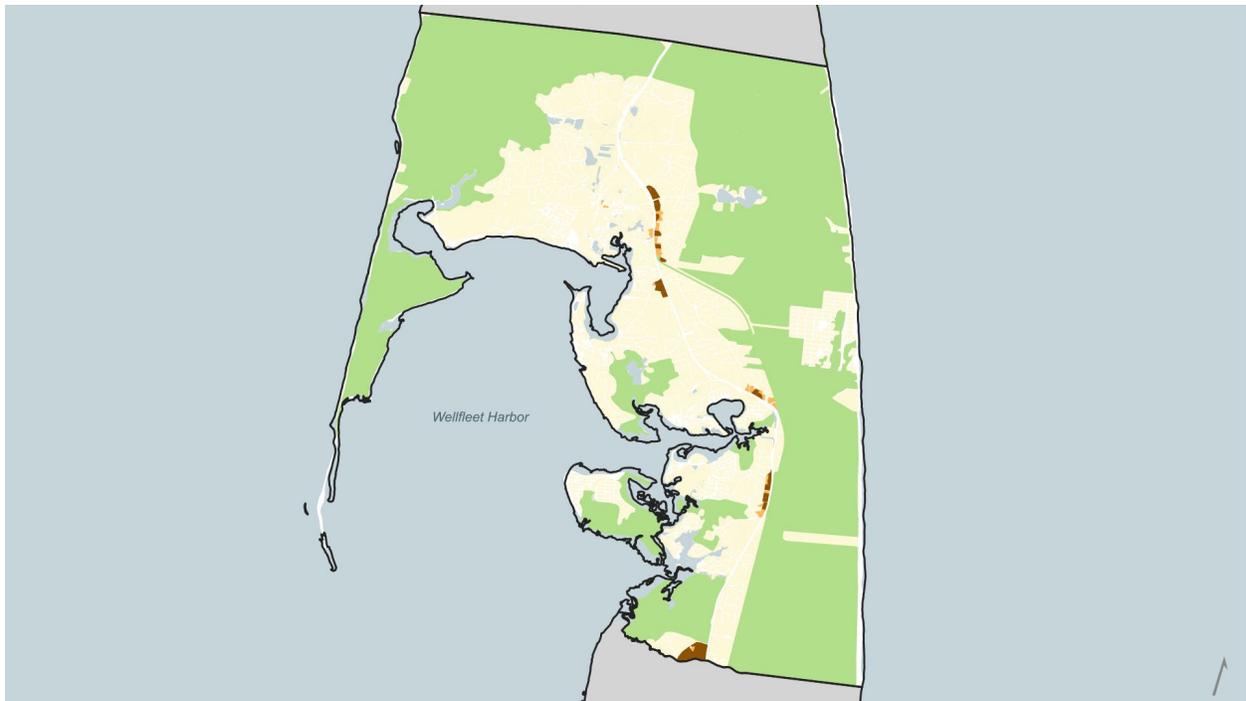
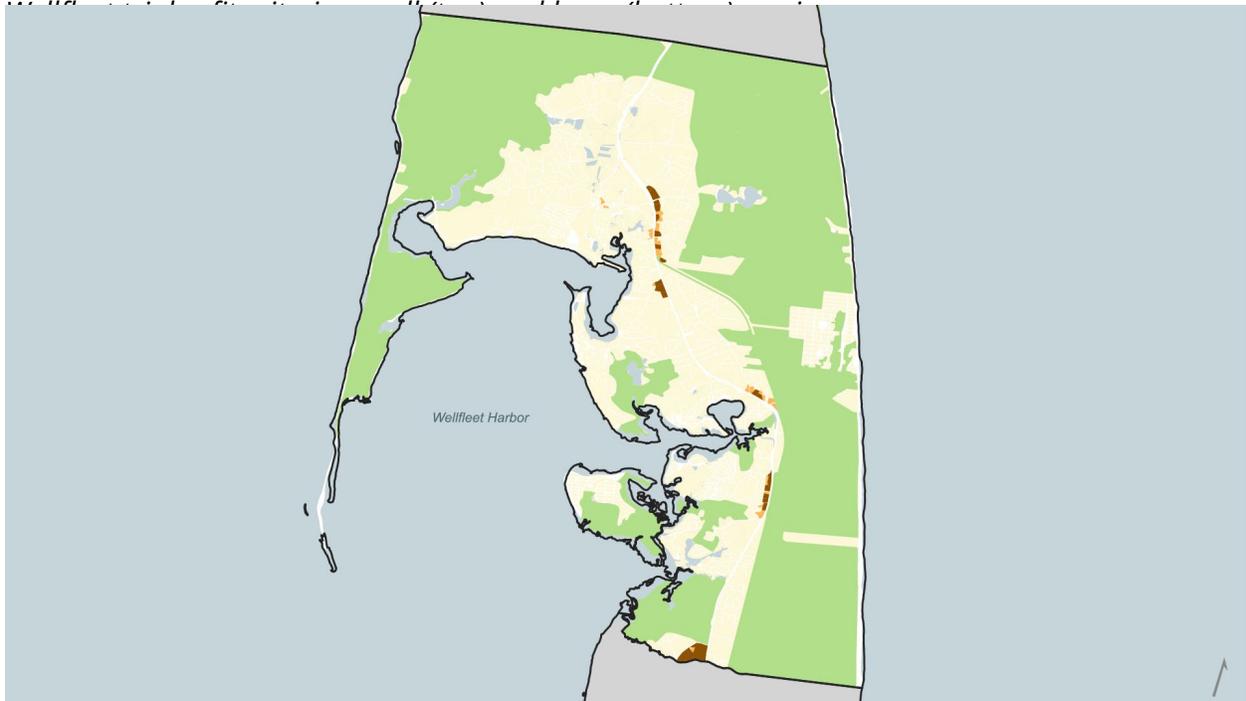


Wellfleet

Wellfleet duplex fit criteria, small (top) and large (bottom) versions



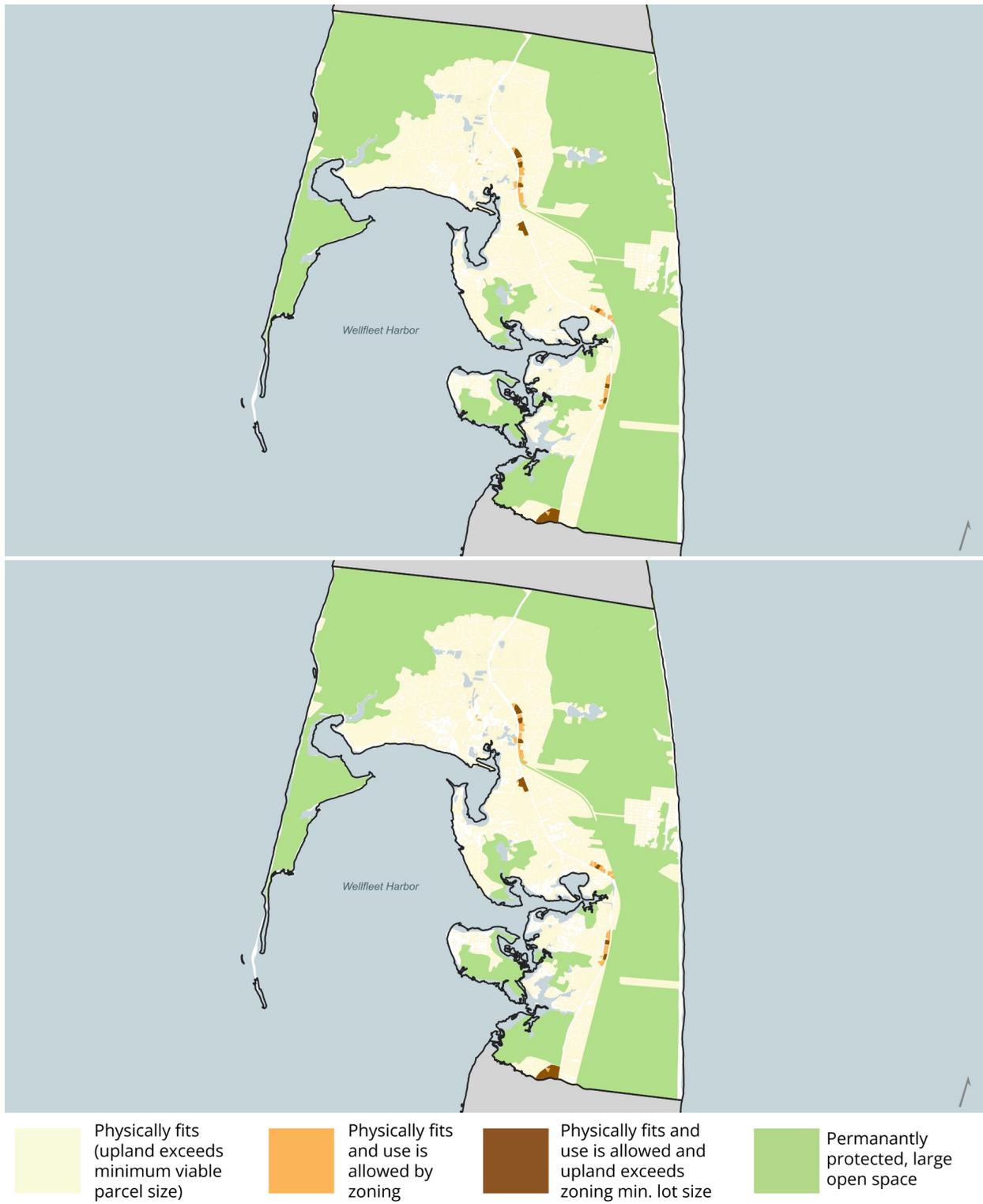
Cape Cod Zoning for Housing Assessment



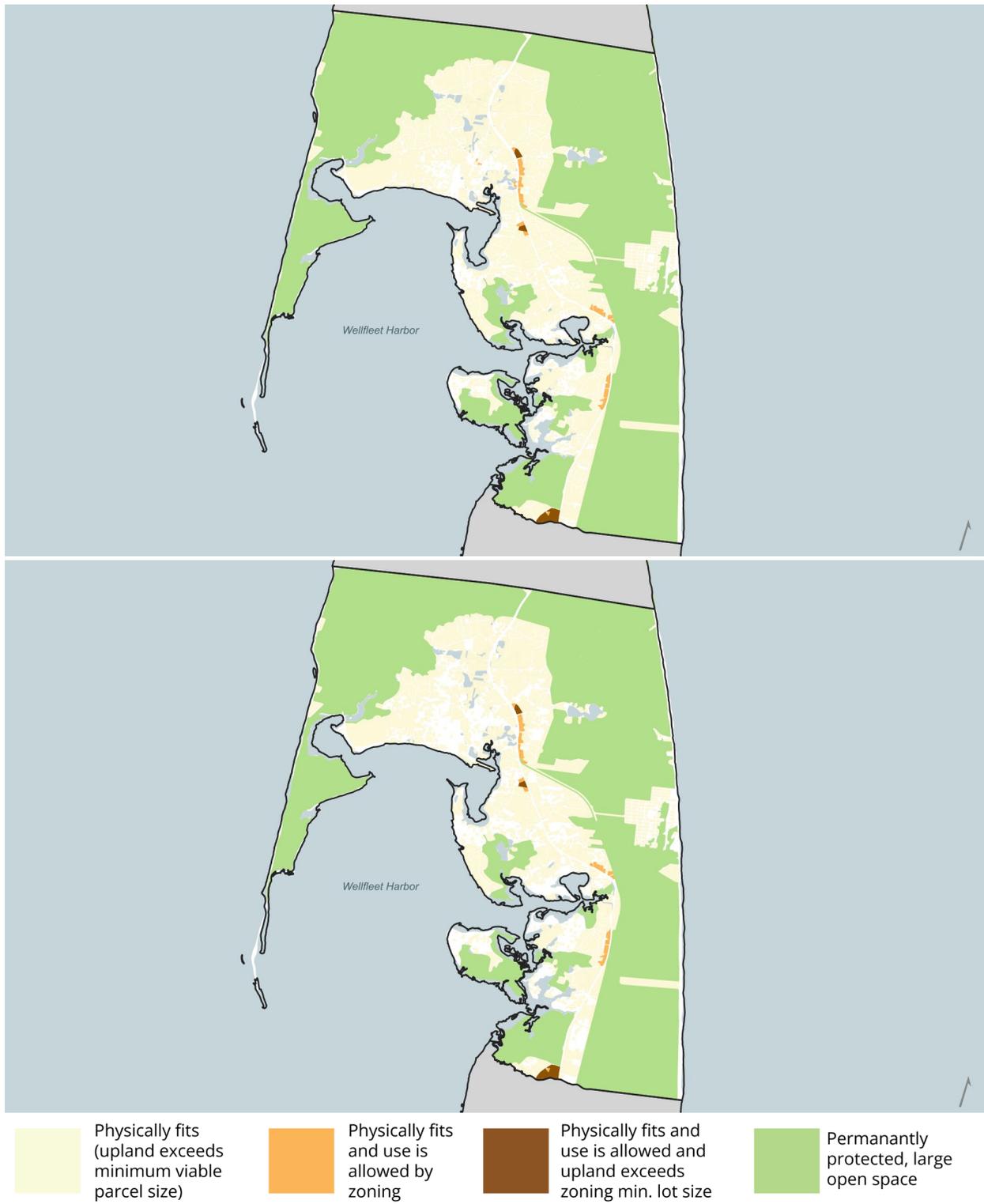
-  Permanently protected, large open space
-  Physically fits (upland exceeds minimum viable parcel size)
-  Physically fits and use is allowed by zoning
-  Physically fits and use is allowed and upland exceeds zoning min. lot size

Cape Cod Zoning for Housing Assessment

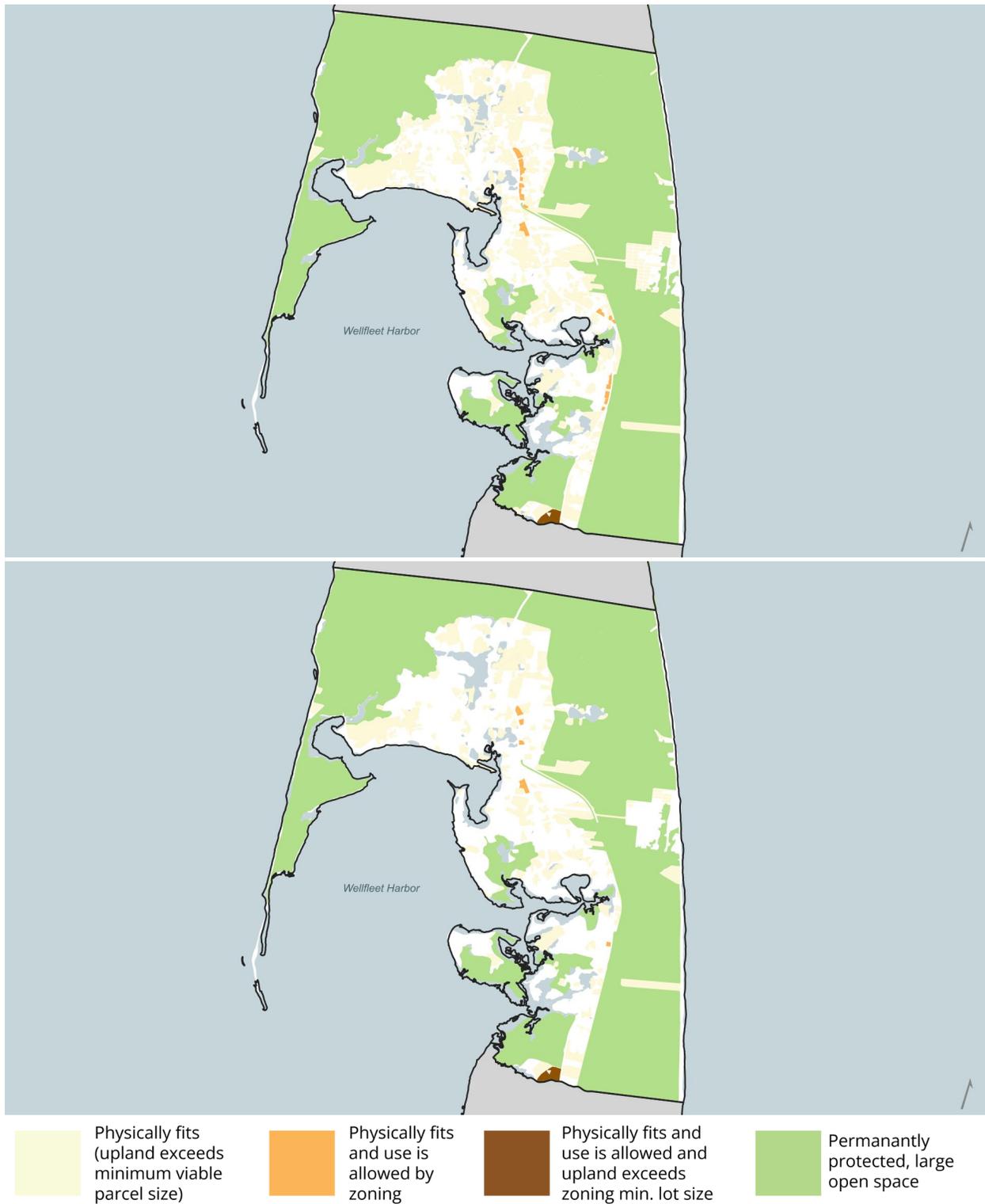
Wellfleet small multifamily fit criteria, small (top) and large (bottom) versions



Wellfleet medium multifamily housing fit criteria, small (top) and large (bottom) versions

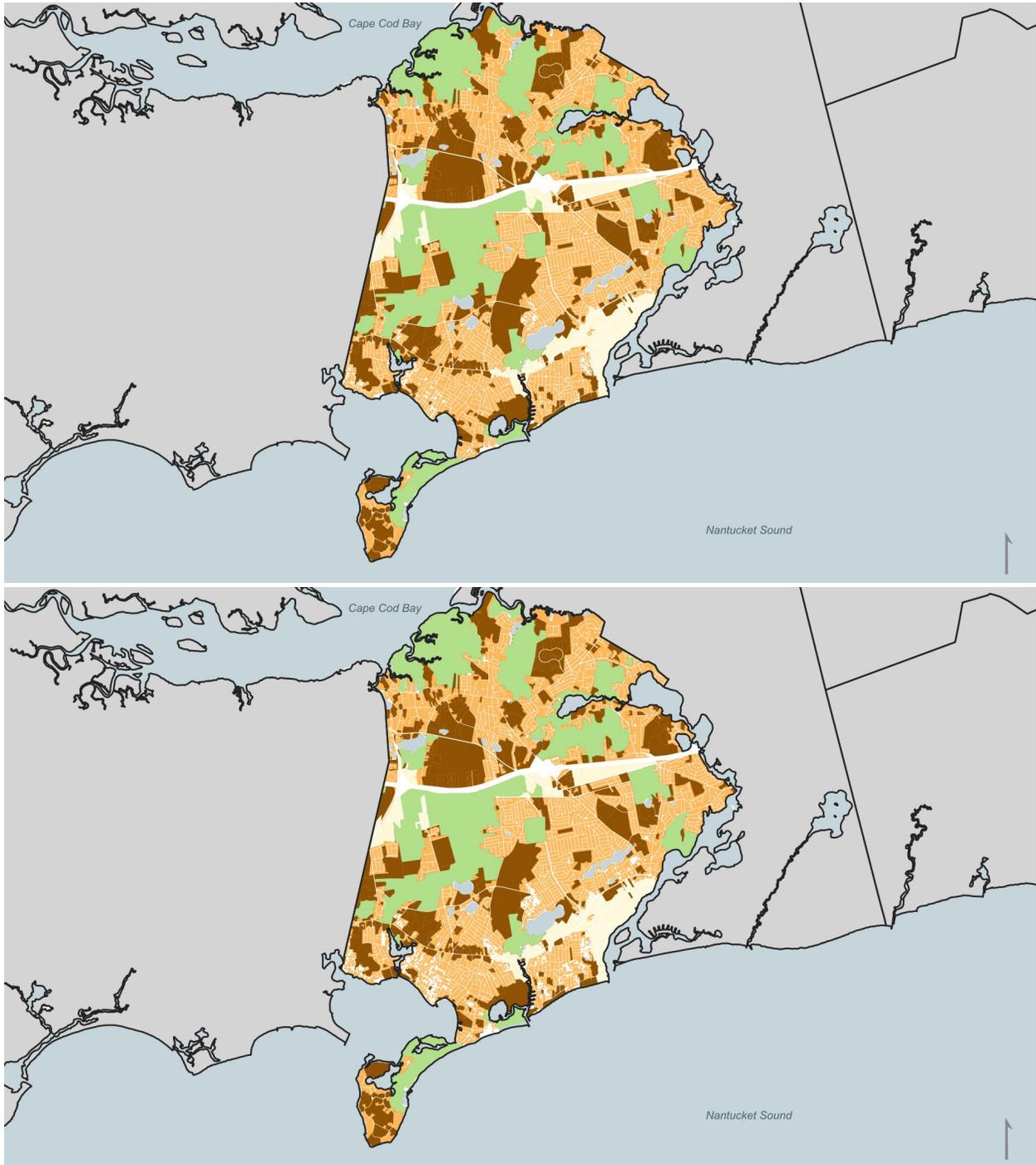


Wellfleet corridor building fit criteria, small (top) and large (bottom) versions



Yarmouth

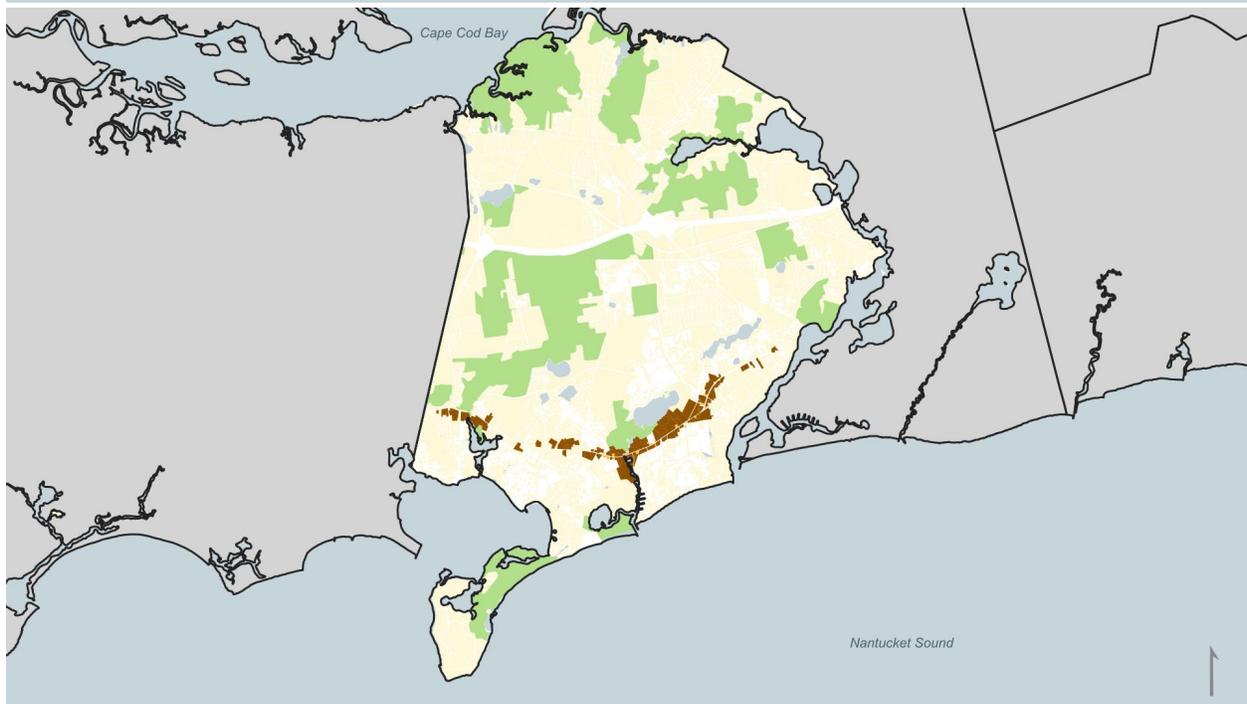
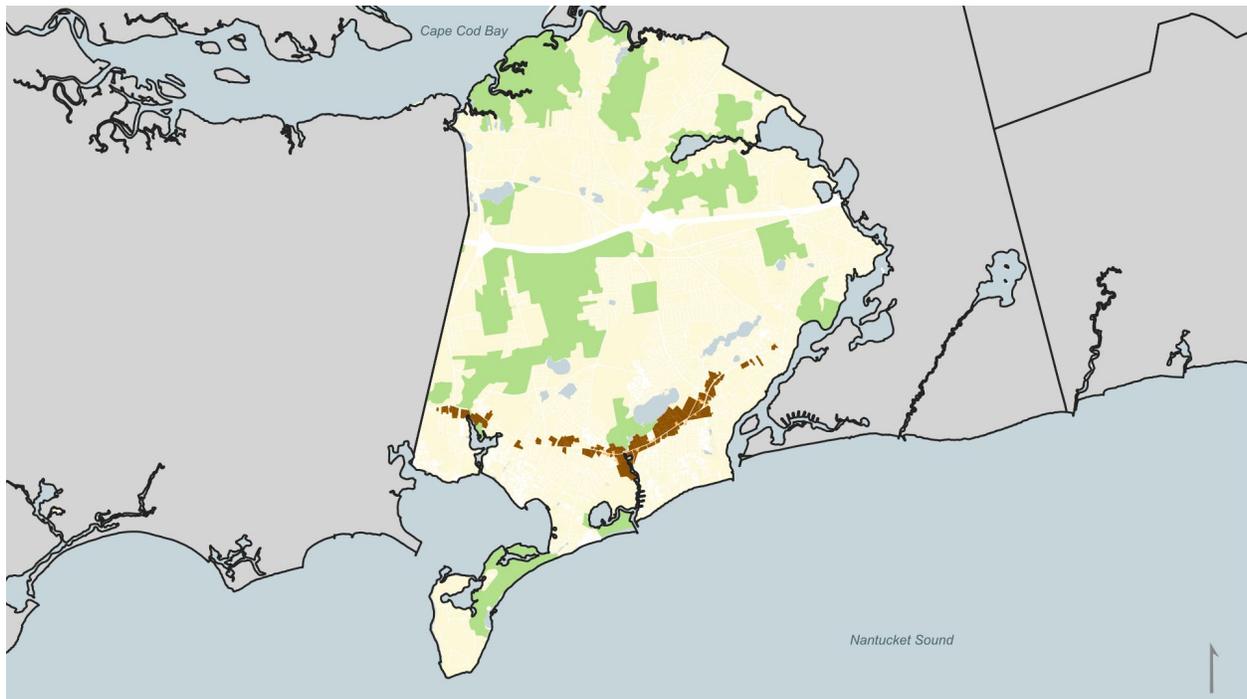
Yarmouth duplex fit criteria, small (top) and large (bottom) versions



-  Physically fits (upland exceeds minimum viable parcel size)
-  Physically fits and use is allowed by zoning
-  Physically fits and use is allowed and upland exceeds zoning min. lot size
-  Permanently protected, large open space

Cape Cod Zoning for Housing Assessment

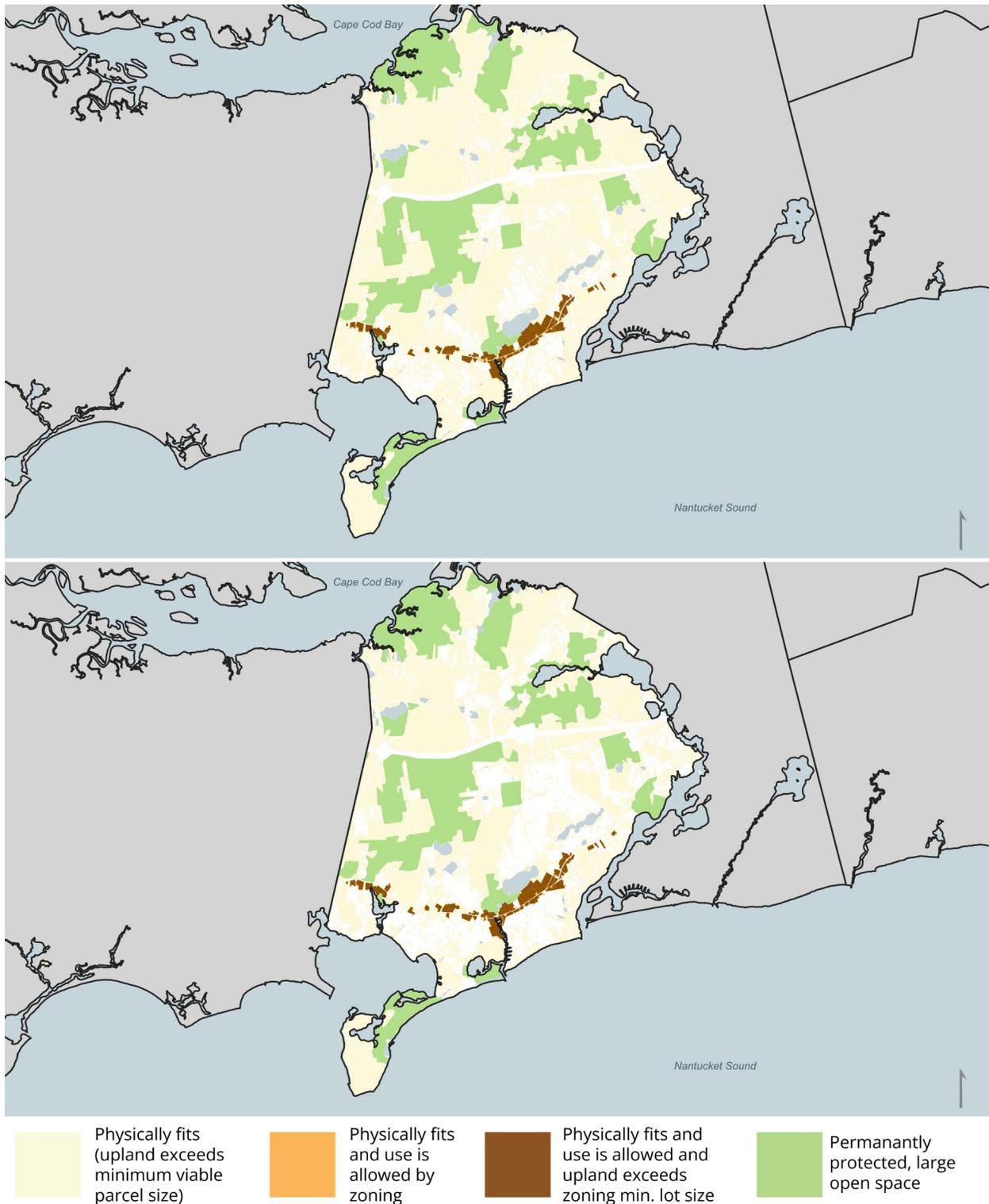
Yarmouth triplex fit criteria, small (top) and large (bottom) versions



-  Physically fits (upland exceeds minimum viable parcel size)
-  Physically fits and use is allowed by zoning
-  Physically fits and use is allowed and upland exceeds zoning min. lot size
-  Permanently protected, large open space

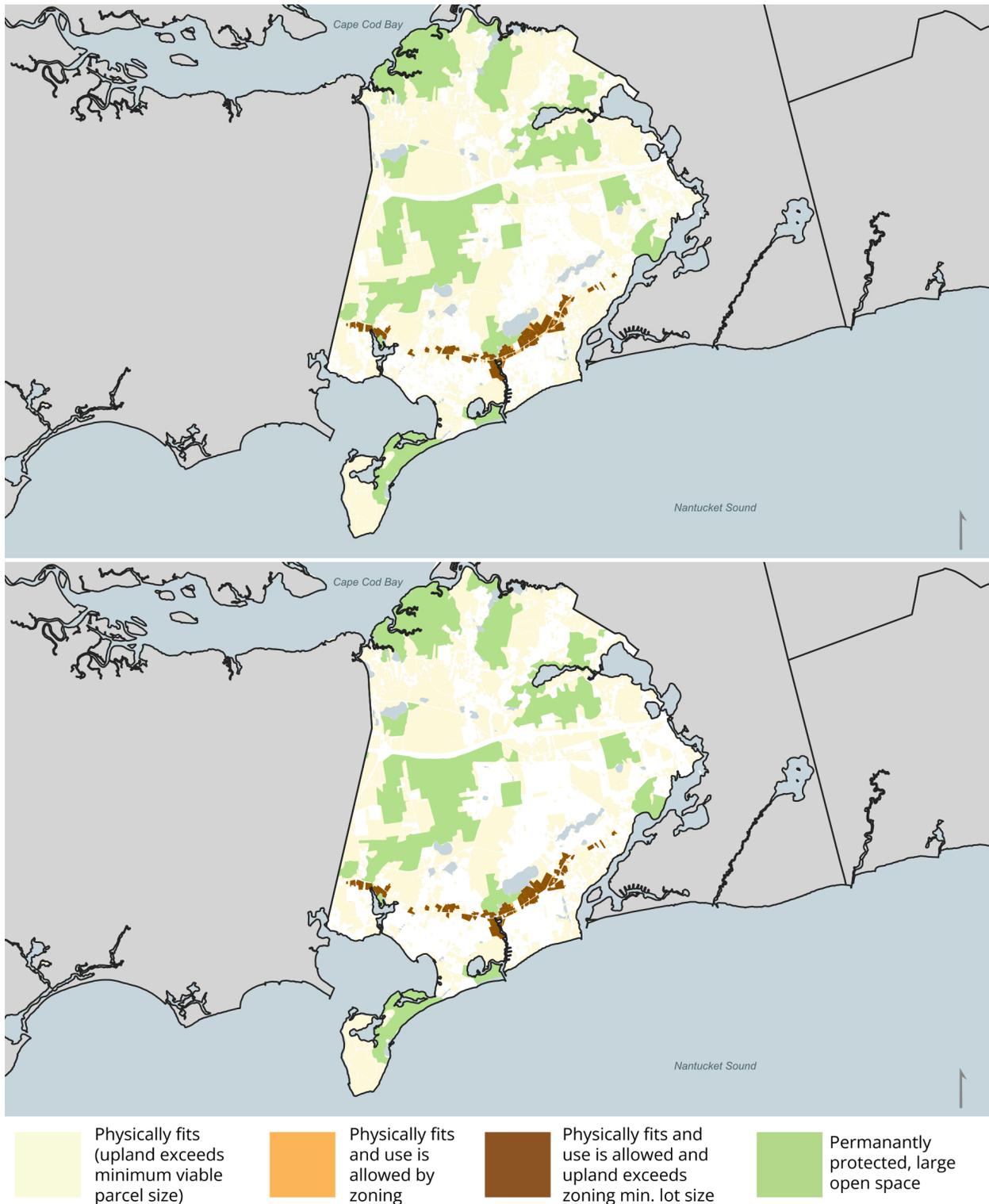
Cape Cod Zoning for Housing Assessment

Yarmouth small multifamily fit criteria, small (top) and large (bottom) versions



Cape Cod Zoning for Housing Assessment

Yarmouth medium multifamily housing criteria, small (top) and large (bottom) versions



Cape Cod Zoning for Housing Assessment

Yarmouth corridor building fit criteria, small (top) and large (bottom) versions

