

CHAPTER 6: Guiding Principles and Criteria for Coastal Barrier Resources System Modifications

This chapter contains a set of guiding principles and criteria for assessing modifications to the Coastal Barrier Resources System (CBRS). We developed these guiding principles and criteria after careful consideration of the CBRA's statutory language and legislative history, our reports to and testimony before Congress, historical background records for individual CBRS units, notices published in the *Federal Register*, and lessons learned through the pilot project and other remapping projects.

Overview of Guiding Principles and Criteria for Removals from the CBRS

The Service receives numerous requests from property owners and their representatives from Congress who seek to remove areas from the CBRS based on an alleged “technical mapping error.”

The Service generally will not apply a literal interpretation of the statutory definition of a coastal barrier to our review of alleged mapping errors. The fact that an area may not precisely fit the definition of a coastal barrier does not, by itself, constitute a mapping error. When assessing whether an area may be appropriate for removal from the CBRS, the Service considers the following guiding principles:

- (1) whether the area may reasonably be considered to be a coastal barrier feature, or related to a coastal barrier ecosystem (this generally includes areas that are inherently vulnerable to coastal hazards such as flooding, storm surge, wind, erosion, and sea level rise) and
- (2) whether inclusion of the area within the CBRS is rationally related to the purposes of the CBRA (i.e., to minimize the

loss of human life, wasteful expenditure of Federal revenues, and damage to fish, wildlife, and other natural resources).

The Service considers a technical mapping error to be a mistake in the delineation of the CBRS boundaries that was made as a result of incorrect, outdated, or incomplete information (often stemming from inaccuracies on the original base maps). We generally will not recommend a removal from the CBRS unless there is clear and compelling evidence that an error in boundary delineation was made. When assessing whether an area may be appropriate for removal, the Service considers the following criteria:

- (1) the level of development on-the-ground at the time the area was included within the CBRS (i.e., the number of structures or complement of infrastructure on-the-ground exceeded the threshold for the area to be considered undeveloped)¹ and/or
- (2) the location of geomorphic, cultural, and development features on-the-ground at the time the area was included within the CBRS (i.e., the CBRS boundary lines on the maps do not precisely follow the underlying features they were intended to follow on-the-ground).

See the “Guiding Principles for CBRS Modifications” and “Criteria for CBRS Modifications” sections below for additional information regarding how the Service assesses potential removals from the CBRS.

Overview of Guiding Principles and Criteria for Additions to the CBRS

The 2006 CBRRA directs the Secretary to recommend additions when carrying out digital mapping

for the remainder of the CBRS.² This directive is consistent with the comprehensive mapping approach the Service and Congress have followed for most revisions to the CBRS in recent years. Through the pilot project and other comprehensive remapping projects over the past several years, the Service has assessed areas adjacent to the existing units being revised to identify undeveloped areas that were not currently within the CBRS, but were appropriate for inclusion within the CBRS based on the CBRA criteria for an undeveloped coastal barrier. In future comprehensive remapping projects, the Service will not only recommend additions in areas located immediately adjacent to existing CBRS units, but will also identify other relatively undeveloped areas along the coast that are appropriate for inclusion within the CBRS. When assessing whether an area may be appropriate for addition to the CBRS, the Service considers the following guiding principles:

- (1) whether the area may reasonably be considered to be a coastal barrier feature or related to a coastal barrier ecosystem (this generally includes areas that are inherently vulnerable to coastal hazards such as flooding, storm surge, wind, erosion, and sea level rise) and
- (2) whether inclusion of the area within the CBRS is rationally related to the purposes of the CBRA (i.e., to minimize the loss of human life, wasteful expenditure of Federal revenues, and damage to fish, wildlife, and other natural resources).

When assessing potential additions to the CBRS, the Service also considers the following criteria:

- (1) the level of development on-the-ground (i.e., whether the number of structures and

complement of infrastructure exceed the threshold for the area to be considered undeveloped) and

- (2) in the case of certain additions to existing units, the location of geomorphic, cultural, and development features on-the-ground at the time the adjacent area was included within the CBRS (i.e., the CBRS boundary lines on the maps do not precisely follow the underlying features they were intended to follow on-the-ground).

See the “Guiding Principles for CBRS Modifications” and “Criteria for CBRS Modifications” sections below for additional information regarding how the Service assesses potential additions to the CBRS.

Overview of Protocol for CBRS Unit Classification

The CBRS contains two types of units, System Units and OPAs. System Units are generally comprised of privately held areas. OPAs are generally comprised of areas held for wildlife refuge, sanctuary, recreational, or natural resource conservation purposes. However, there are cases throughout the CBRS where areas held for conservation and/or recreation are located within System Units, as well as cases where privately held areas (that are not inholdings) are located within OPAs. One of the significant lessons learned through the course of the pilot project and other comprehensive remapping efforts over the past several years is that the level of effort necessary to research, classify, and in some cases, reclassify, small discrete areas as System Unit or OPA based on ownership at the time they were included in the CBRS is impractical, complicated, and cost prohibitive.

The Service has determined that CBRS boundaries should generally be drawn to correspond with underlying geomorphic, development, and cultural features and include the entire coastal barrier ecosystem. Areas that qualified as undeveloped coastal barriers at the time of their inclusion within the CBRS should generally

be classified as System Unit or OPA based on the predominant ownership of the coastal barrier area at the time of inclusion within the CBRS. This approach is a notable departure from the Service’s protocol, first established in 1999,³ of mapping OPA boundaries as closely as possible to an underlying conservation and/or recreation area (regardless of whether the area was undeveloped at the time it was added to the OPA). As a result, some areas held for conservation and/or recreation will now be retained (or added in the case of new additions) within a System Unit, while some private areas will be retained (or added in the case of additions) within an OPA. The Service’s updated general protocol for determining CBRS unit classification (both for new additions and the reclassification of existing areas) is described in Chapter 4 (Issue 11).

Guiding Principles for CBRS Modifications

The sections below describe the guiding principles the Service will apply to its assessment of potential modifications to the CBRS.

Purposes of the CBRA

When considering modifications to add areas to or remove areas from the CBRS, the Service considers the purposes of the CBRA as stated in the statute:

The Congress declares that it is the purpose of this Act to minimize the loss of human life, wasteful expenditure of Federal revenues, and the damage to fish, wildlife, and other natural resources associated with the coastal barriers along the Atlantic and Gulf coasts by restricting future Federal expenditures and financial assistance which have the effect of encouraging development of coastal barriers, by establishing a Coastal Barrier Resources System, and by considering the means and measures by which the long-term conservation of

*these fish, wildlife, and other natural resources may be achieved.*⁴

On December 5, 1983, the Department published a notice in the *Federal Register* outlining the process for how the Department would implement Section 10 of the CBRA of 1982, which required a report to Congress that included, among other things, recommendations for additions, deletions, or other modifications to the CBRS. This notice states the following regarding boundary changes:

*The legislative history provides little guidance on the subject of boundary changes except to state explicitly that development of a unit subsequent to the CBRA is not grounds for removal from the System. The fundamental guide for the Department in recommending changes to the System will be derived from the purposes of the CBRA ... It is our opinion that reducing or eliminating units of the System will generally violate the purposes of the CBRA unless there are mistakes in the original designation or mapping process.*⁵

The Service continues to apply the purposes of the CBRA as a fundamental guide in recommending changes to the CBRS. If the inclusion of an area is rationally related to the purposes of the Act, and in the absence of clear and compelling evidence that the area did not qualify as undeveloped at the time the area was included within the CBRS, or that a mistake was made as a result of inaccuracies in the depiction of the underlying features on the base map, the Service generally will not recommend the removal of the area from the CBRS. Likewise, the Service continues to recommend for addition to the CBRS areas that are rationally related to the purposes of the CBRA and meet the CBRA criteria for an undeveloped coastal barrier (see “Definition of a Coastal Barrier” and “Level of Development” sections below).

Definition of a Coastal Barrier

When considering modifications to add areas to or remove areas from the CBRS, the Service considers whether the area can reasonably be considered a coastal barrier feature or related to a coastal barrier ecosystem. The CBRA includes the following definition of an “undeveloped coastal barrier”:

- (1) *The term “undeveloped coastal barrier” means—*
 - (A) *a depositional geologic feature (such as a bay barrier, tombolo, barrier spit, or barrier island) that—*
 - (i) *is subject to wave, tidal, and wind energies, and*
 - (ii) *protects landward aquatic habitats from direct wave attack; and*
 - (B) *all associated aquatic habitats, including the adjacent wetlands, marshes, estuaries, inlets, and nearshore waters; but only if such feature and associated habitats contain few manmade structures and these structures, and man’s activities on such feature and within such habitats, do not significantly impede geomorphic and ecological processes.*⁶

Through the pilot project and other comprehensive remapping projects over the past several years, the Service has found numerous areas located on the mainland that are behind undeveloped coastal barriers and their associated aquatic habitat, as well as other areas that do not clearly meet the CBRA’s statutory definition of an undeveloped coastal barrier but were still included within the CBRS. In some cases, there is evidence indicating that Congress intentionally included such areas within the CBRS (particularly with the CBIA of 1990).⁷

The legislative history of the CBRA states that “the term ‘coastal barrier’ is included in the legislation

for informational purposes only,” and that “this definition is designed to demonstrate the values [*sic*] of coastal barriers and provide a logical basis for identifying them.”⁸ The Service has found nothing in the legislative history of the CBRA indicating that Congress intended the Service to analyze whether an area literally meets the statutory definition of a coastal barrier when making recommendations to Congress for additions to or removals from the CBRS. The only directive that Congress has specifically given the Service when conducting such reviews is that we shall consider whether the area in question met the development criteria at the time that it was (or is) first included in the CBRS (see “Level of Development” section below).

Areas that may reasonably be considered to be coastal barrier features, or related to coastal barrier ecosystems, which are inherently vulnerable to coastal hazards (e.g., flooding, storm surge, wind, erosion, and sea level rise) are, in most cases, rationally related to the purposes of the CBRA. Therefore, these areas may be appropriate for inclusion in the CBRS, even if they do not meet all elements of the literal definition of a coastal barrier under CBRA. Generally, the Service will not recommend the removal of such areas from the CBRS unless there is compelling evidence that a mistake in the delineation of the CBRS boundaries was made as a result of incorrect, outdated, or incomplete information. In addition, the Service may recommend adding such coastal areas to the CBRS because they would achieve the purposes of the CBRA and are not unlike areas that have previously been included in the CBRS by Congress.

Criteria for CBRS Modifications

The sections below describe the criteria the Service will apply to its assessment of potential modifications to the CBRS, with consideration of the guiding principles described above.

Level of Development

With the passage of the 2000 CBRRA, Congress codified the set of development criteria for the Secretary to “consider” when making recommendations to Congress for additions to or removals from the CBRS.⁹ These criteria are as follows:

In making any recommendation to the Congress regarding the addition of any area to the System or in determining whether, at the time of the inclusion of a System Unit within the System, a coastal barrier is undeveloped, the Secretary shall consider whether within the area -

- (A) *the density of development is less than one structure per five acres of land above mean high tide; and*
- (B) *there is existing infrastructure consisting of*
 - (i) *a road, with a reinforced road bed, to each lot or building site in the area;*
 - (ii) *a wastewater disposal system sufficient to serve each lot or building site in the area;*
 - (iii) *electric service for each lot or building site in the area;*
 - and (iv) *a fresh water supply for each lot or building site in the area.*¹⁰

The legislative history of the 2000 CBRRA makes it clear that Congress codified the density of development and infrastructure criteria specifically to set a high bar for areas to be removed from the CBRS. One of the Congressional reports associated with the 2000 CBRRA states that “the criteria will make it easier for Congress to oppose the removal of undeveloped coastal areas from the CBRS.”¹¹ When reviewing an area to determine whether an addition to or removal from the CBRS is warranted, the Service assesses the level of development on-the-ground at the time the area was (or is) included within the CBRS.¹²

• **Density of Development**

When determining whether an area was undeveloped and appropriately included in the CBRS (or is appropriate for inclusion), the Service inspects aerial imagery for the presence of walled and roofed structures and considers whether the density of development on-the-ground at the time of inclusion was (or is) less than one structure per five acres of land above mean high tide. On August 16, 1982, the Department published a notice in the *Federal Register* that included the proposed definitions and delineations criteria of undeveloped coastal barriers. This notice states:

A density threshold of roughly one structure per five acres of fastland is used for categorizing a coastal barrier as developed. This threshold is cited by the House Committee in their report on the Omnibus Budget Reconciliation Act (House Report 97-158, Volume 1, page 100) and was used in previous Department of the Interior delineations. It is based on scientific considerations and empirical observations. At densities greater than this threshold, the number of structures and the associated levels of human activity tend to interfere with natural processes which build and shape (i.e., stabilize the surface of) coastal barriers. Below the threshold, existing development usually results in little or no interference with natural processes. Of even greater importance, above this density threshold a strong commitment to rebuild after major storm damage exists thereby assuring the area will be stabilized in perpetuity.¹³

The CBRA does not specify how density should be calculated. However, in the same *Federal Register* notice, the Department stated the following regarding density:

To be considered in determining density of structures..., a man-made structure must:

- *be located on the fastland portion of the coastal barrier;*
- *have a foundation, an enclosed ground area, or, if elevated, a projected ground area exceeding 200 square feet;*
- *be a walled and roofed building as described previously, and*
- *be constructed in conformance with all Federal, State, or local legal requirements (i.e. only legally authorized structures will be counted).*

Structures that appear to have been constructed primarily to avoid designation as an undeveloped coastal barrier will be evaluated on a case-by-case basis. An appurtenant structure will be counted as a separate structure provided it satisfies the above criteria and is completely detached from any other structure.

In a number of instances coastal barrier units are complexes with more than one discrete segment (i.e. areas separated by inlets or intervening areas that are otherwise protected or clearly developed). When applying the “density threshold” rule to such complexes, density calculations will be for each discrete segment individually, not the entire unit.¹⁴

Through the pilot project and other comprehensive remapping projects over the past several years, the Service has recognized the need to clarify what constitutes a “discrete segment” for the purposes of calculating the density of structures on-the-ground at the time an area was (or is) included within the CBRS. The Service typically considers a

discrete segment to be one piece of a unit that is comprised of many disconnected pieces. These segments are separated either by areas not included within the CBRS, or by areas that are within different units of the CBRS. For example, Prudence Island Complex D02B in Rhode Island is comprised of 16 discrete segments that are broken up by areas that are not included in the CBRS (see Figure 29).

When conducting density of development assessments, the Service does not consider only the acreage of individual parcels or subdivisions, but rather considers the total fastland acreage of the discrete segment of the CBRS unit (e.g., a single structure on a three acre lot will still meet the criteria for inclusion so long as the density of the discrete segment of the CBRS unit in which the structure is located has a density of development of less than one structure per five acres of land above mean high tide).

• **Level of Infrastructure On-the-Ground**

When determining whether an area was undeveloped and appropriately included in the CBRS (or is appropriate for inclusion), the Service considers whether a full complement of infrastructure (i.e., reinforced roads, potable water, wastewater disposal, and electric lines) was (or is) on-the-ground at the time of inclusion within the CBRS. The Service only conducts infrastructure assessments in cases where the density threshold would have been exceeded had the construction of the associated structures been fully completed.

Infrastructure Review Process (Removals):

The Service receives numerous requests for removals from the CBRS based on an assertion that infrastructure was present at the time of inclusion. When reviewing such claims, the Service carefully assesses whether a full complement

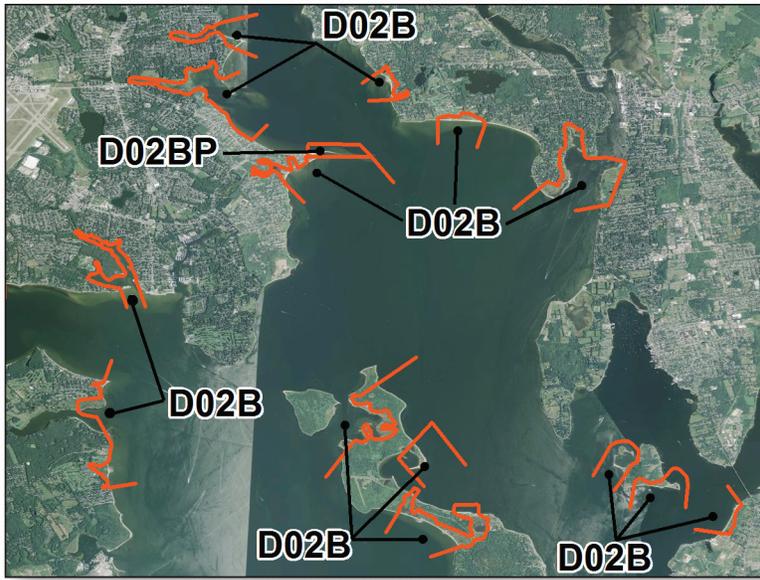


Figure 29. Rhode Island Unit D02B is comprised of many discrete segments, some of which are shown here.



Figure 30. Historic imagery of North Carolina Unit L06 shows an undeveloped coastal barrier with a main road and few scattered structures. The Service does not consider the presence of a single road such as this, plus associated electric transmission and water and sewer lines in the highway corridor to constitute a full complement of infrastructure.

of infrastructure was on-the-ground and available to each lot or building site at the time of inclusion. Because water, sewer, and electric infrastructure is typically placed in roadbeds, the Service reviews historic aerial imagery (from as close to the time of inclusion as possible) for the presence of improved road networks (i.e., paved roads) laid out in a pattern similar to roads in developed areas in the vicinity. The Service does not consider the presence of a single road, or even a through highway, plus associated electric transmission and water and sewer lines in the highway corridor to constitute a full complement of infrastructure¹⁵ (see Figure 30). If the road was just a throughway with no radials, unimproved (e.g., gravel or dirt), or revegetating, the Service does not consider the area to have met the development threshold (see Figure 31).¹⁶ Areas that were lacking an intensive level of infrastructure on-the-ground at the time of inclusion are generally not proposed for removal from the CBRS based on the infrastructure criterion.

Many infrastructure claims cannot be substantiated due to the lack of available historic aerial imagery from the appropriate time period, and therefore require historical documentation (e.g., inspection documents and record drawings) to support the claim that a full complement of infrastructure was on-the-ground at the time the area was included within the CBRS (in many cases two to three decades prior). Obtaining such historical documentation can be difficult and burdensome for the Service; therefore we generally rely on property owners or other interested parties who seek a removal to provide the necessary documentation to support their infrastructure claim.



Figure 31. Historic imagery of Florida Unit P30 shows that the subdivision to the north did not have paved roads and therefore did not have a full complement of infrastructure. However, the subdivision to the south did have paved roads. Additional research would be necessary to determine if this subdivision had the other components necessary to constitute a full complement of infrastructure.



Figure 32. A review of recent aerial imagery shows a network of dredged canals in this recommended addition to Florida Unit FL-45. An analysis of historical imagery shows that there has been no change in the development status of this area for more than 20 years. The Service does not consider this type of incomplete development to be indicative of imminent development.

Infrastructure Review Process

(Additions): To determine whether an area that is proposed for addition to the CBRS meets the infrastructure threshold, recent aerial imagery is reviewed to identify the presence of infrastructure (as described in the prior section) (see Figure 32). The Service generally does not conduct a detailed assessment of the infrastructure status beyond this level of visual inspection due to the limitations of available information and resources. However, when landowners or other interested parties provide evidence of a full complement of infrastructure (e.g., inspection documents and record drawings), this additional information is reviewed and considered by the Service.

Public versus Private

Infrastructure: Another key factor that the Service considers when conducting an infrastructure assessment is whether the existing infrastructure was publicly or privately capitalized. The Department’s 1982 definitions and delineation criteria state that, “The existence of intensive private capitalization on-the-ground within a coastal barrier area is the most significant indicator of its development status.”¹⁷ The Department’s 1982 *Undeveloped Coastal Barriers: Report to Congress* states that:

Implicit in this criterion is the requirement that the developer must have expended private capital to make these services available. Only those areas that are clearly being developed or capitalized “on the ground” have been deleted. The entire development concept rests on this premise. A general availability of utilities, particularly if provided at little or no expense to the property owner, does not meet this critical requirement; the

*determinant is the level of private capital involvement on the ground. Development is not inevitable until direct private construction begins in earnest.*¹⁸

The maps adopted by Congress in 1982 and in 1990 sought to exclude intensively capitalized, privately financed development with many lots where a full complement of infrastructure was already available to each lot. The rationale in excluding these subdivisions was that when private funds were used to provide a full complement of infrastructure throughout the subdivision, it was expected the construction of the structures was imminent.¹⁹

Infrastructure Supporting Prior Uses: When conducting assessments of areas for potential removal from or addition to the CBRS, the Service sometimes encounters areas that contain infrastructure that was put in place long ago to support prior uses (e.g., military facilities, energy facilities, or structures that have since been destroyed by a storm or removed). While future development could potentially access such infrastructure, the Service believes that the intent of the infrastructure criterion is to exclude from the CBRS areas where there is intensive private capitalization for development that is underway (e.g., a subdivision funded by a developer that is under construction). Therefore, the Service may consider for inclusion within the CBRS (and maintaining within the CBRS) areas where infrastructure was put in place to support a prior use.

Additionally, the Service may consider for inclusion within the CBRS (and maintaining within the CBRS) areas where infrastructure was put in place long ago, but structures are still not present and the passage of time has demonstrated that

further development is not imminent.

- **Clusters of Structures**
When determining whether an area was undeveloped and appropriately included (or is appropriate for inclusion) in the CBRS, the Service considers whether a “cluster” of approximately ten or more closely related structures was on-the-ground at the time of inclusion. Volume 1 of the Department’s 1988 Report to Congress states:

*Clusters of approximately 10 or more structures are specifically excluded from the unit where the impact of the development on geological and ecological processes is local and confined primarily to the fastland on which the structures are located. A boundary is drawn around the cluster of development to exclude it from the unit.*²⁰

- **On-the-Ground Versus Planned Development**
The Service receives many requests for the removal of areas from the CBRS based on the assertion that development was planned and permitted at the time of inclusion. The Department’s 1982 definitions and delineation criteria state that:

*Commitments or legal arrangements necessary for and leading toward construction of either structures or infrastructure will not be considered relevant to the development status of coastal barriers except to the degree that they are actually reflected in the existence of structures or infrastructure on the coastal barrier, or portion thereof.*²¹

We have found nothing in the legislative history indicating that Congress intended for the Service to consider permits, approved development plans, or

other legal indicators of intent to develop when proposing areas for inclusion within the CBRS. In lieu of providing for the consideration of such plans, the CBRA of 1982 and CBIA of 1990 provided a delay in the date for terminating the availability of new Federal flood insurance as a means of dealing with structures that were already under development on-the-ground at the time of inclusion within the CBRS.²² The Service continues to consider only development that existed (or exists for new additions) on-the-ground at the time of inclusion.

Base Map Inaccuracies along the CBRS Boundaries

When reviewing an area to determine whether a removal from or addition to the CBRS is warranted, the Service assesses whether the geomorphic, cultural, and/or development features of the area at the time that it was added to the CBRS were depicted with reasonable accuracy on the original base map. If there was a clear error in the depiction of the underlying features on the original base map that resulted in the unintentional inclusion of an area in the CBRS, then the Service may propose that the area be removed (see Figure 33). Similarly, the Service may determine that an addition to the CBRS is warranted in cases where there is a clear error in the depiction of the underlying features on the original base map.

If the underlying features in an area were depicted on the base map with reasonable accuracy, the Service generally will not recommend a removal unless there is clear and compelling evidence that the area did not meet the development criteria (see Figure 34). This criterion only applies along the margins of the units where base map errors affect boundary placement, as any base map errors within the unit will be reviewed according to the development criteria as described above.

Figure 33. This is an example of an area on the mainland in Florida Unit P21 that was inaccurately depicted as mangroves on the original base map (upper right) and was therefore included within the CBRS on the premise that it was part of the associated aquatic habitat of the coastal barrier system. Historical imagery and information provided to the Service by Charlotte County shows that this mangrove symbology was inaccurate at the time the CBRS map for this area was created in 1990. This is a base map error, and the Service's final recommended boundary (shown in purple) would remove the area that was misrepresented as mangroves in the northern part of the unit and add additional qualifying undeveloped areas to the south (lower right).



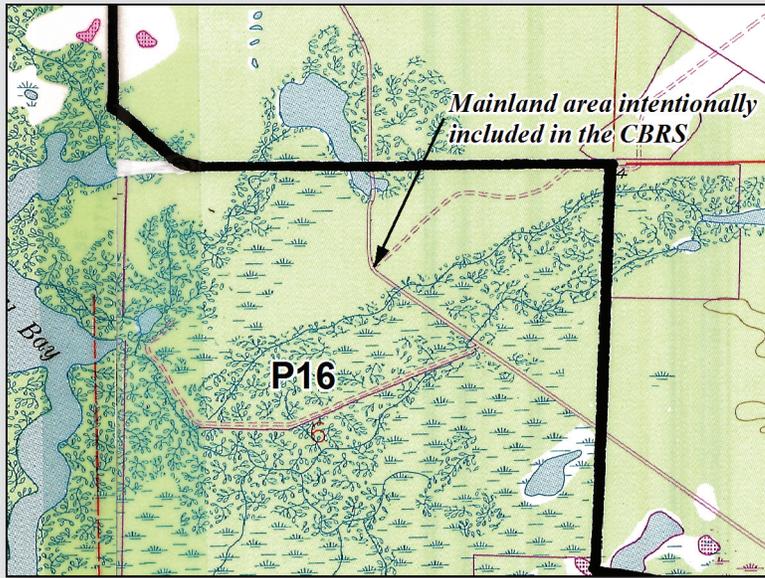
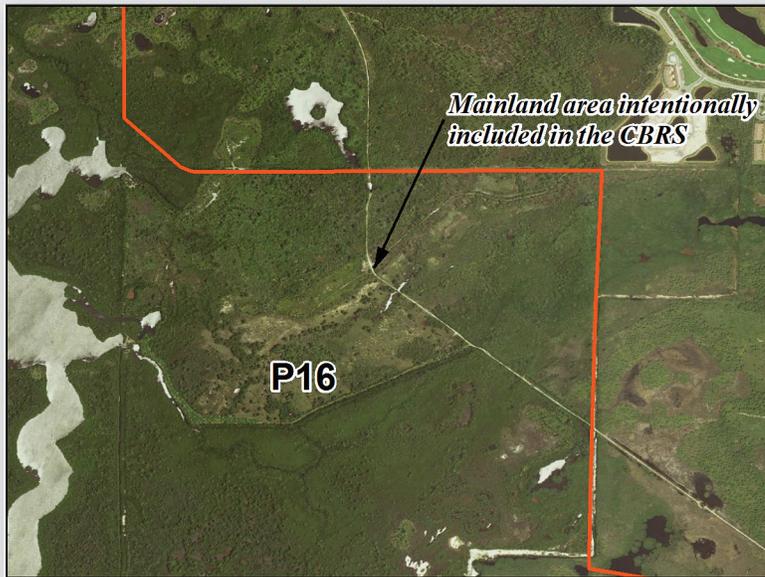


Figure 34. This is an example of an area on the mainland in Florida Unit P16 that was depicted on the original base map (upper left) with reasonable accuracy and was purposefully included within the CBRS. In such cases, a removal may not be appropriate so long as the development criteria were appropriately applied.



¹ See endnote 15 in Chapter 4.

² Section 4(e)(3)(D) of Pub. L. 109-226

³ See endnote 14 in Chapter 4.

⁴ See endnote 1 in Chapter 4.

⁵ 48 FR 54542

⁶ 16 U.S.C. 3502(1)

⁷ The Service's records include copies of the majority of the maps from the 1988 Report to Congress: Coastal Barrier Resources System, recommending modifications to the CBRS that were reviewed by Congress in 1990, just prior to enactment of the CBIA. Many of these maps contain evidence of additional modifications made to the boundaries by the Congressional committees, some of which included mainland areas within the CBRS (e.g., Units SC-03, VA-55, VA-58, and PR-41).

⁸ House Report 97-841, Part 1

⁹ Prior to the enactment of the CBRA, the Department was tasked with mapping undeveloped coastal barriers for Congressional consideration. The definitions and delineation criteria were published on August 16, 1982, in the *Federal Register* (47 FR 35696). These criteria were later codified by Pub. L. 106-514.

¹⁰ See endnote 15 in Chapter 4.

¹¹ Senate Report 106-252

¹² The Service generally considers the on-the-ground conditions at the time the area was included within the CBRS (either by an act of Congress or by an administrative action of the Service that is published in the *Federal Register*). However, in the case of areas that were included by the CBRA of 1982 (Pub. L. 97-348), the Service uses March 15, 1982, as the cutoff date for its analysis of ground conditions as specified in guidance published in the *Federal Register* on August 16, 1982 (47 FR 35696).

¹³ See endnote 3 in Chapter 5.

¹⁴ See endnote 3 in Chapter 5.

¹⁵ See endnote 3 in Chapter 5.

¹⁶ Page 102 of: DOI, Coastal Barriers Study Group. 1988. Report to Congress: Coastal Barrier Resources System with recommendations as required by Section 10 of the Public Law 97-348, the Coastal Barrier Resources Act of 1982. Volume 1 in Report to Congress: Coastal Barrier Resources System. U.S. Department of the Interior, Washington, D.C. 265 pp.

¹⁷ See endnote 3 in Chapter 5.

¹⁸ DOI. 1982. Inventory of Undeveloped and Unprotected Barrier Beaches of the U.S. Atlantic and Gulf Coasts.

¹⁹ Page II-9 of the Department's 1988 Final Supplemental Legislative Environmental Impact Statement on the Proposed Changes to the Coastal Barrier Resources System reiterates this policy: "Physical evidence that infrastructure is in place to each unit in the development must be present before an area is considered developed. This infrastructure must be provided by the developer, thereby demonstrating his commitment to imminent construction."

²⁰ Page 113 of: DOI, Coastal Barriers Study Group. 1988. Report to Congress: Coastal Barrier Resources System with recommendations as required by Section 10 of the Public Law 97-348, the Coastal Barrier Resources Act of 1982. Volume 1 in Report to Congress: Coastal Barrier Resources System. U.S. Department of the Interior, Washington, D.C. 265 pp.

²¹ See endnote 3 in Chapter 5.

²² Section 3(3)(E) of Pub. L. 97-348 and Section 9 of Pub. L. 101-591