

MEMORANDUM

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1/11/83

TO: IMPLEMENTATION AND STANDARDS COMMITTEE

FROM: RALPH CANTRAL

SUBJECT: INCREASED SETBACK FOR IMMOVABLE STRUCTURES

Over the past several years, the North Carolina coast has seen an unprecedented increase in high density oceanfront development. Much of this development has been positioned as close to the beach as allowed under present regulations. This construction pattern has caused significant concern, most notably at the Oceanfront Development Conference on December 2, where both Governor Hunt and Secretary Grimsley called for increased setbacks for larger structures.

Also at the conference, Dr. Neil Frank explained that 95 percent of the damage associated with recent hurricanes has occurred within the first 300 feet back from the beach.

In the case of Hurricane Frederick, all structures except four which were located between the beach and the first road were destroyed. Frederick was a moderate intensity (level 3) storm, and thus should not be used as the basis for designing rules. Rather, we must plan for even greater destructive forces as we establish rules to guide development on the oceanfront.

In addressing the issue of increased setback, four factors need to be examined: the susceptibility of development to damage from storms; the probability of damage from long term erosion; the special considerations of high density structures; and the difficulties of dealing with multiple owners in times of emergency.

Factors affecting setbacks

The present setback addresses both long-term erosion and the erosion which could be expected from a major storm. The 100 year storm recession line illustrates the amount of land itself which will be lost during a storm which has a one percent chance of occurring in any year. The area upon which buildings will be damaged and destroyed is much greater, however there is presently no way of precisely predicting how large this area will be, as the combination of water height, waves and wind can not yet be satisfactorily computed.

The average annual erosion rate has been computed for our oceanfront. The present AEC regulations provide that 30 times the past average annual erosion rate is the standard for setting structures back from the beach. The rules also provide for dune setbacks and a minimum setback of 60 feet. This setback was created to allow adequate room for natural dune processes to continue with as little disturbance as possible. The rule also provides a buffer between the active beach and permanent substantial structures to allow enough room for a substantial economic life for the structure prior to its being threatened by erosion.

High density or multi-family structures can be expected to have a longer life span than single family dwellings and would also cause greater impacts on the beach when the beach recedes. Their very magnitude also increases the risks to life and property from storm damage and the public expenses of disaster relief. There are also additional structural concerns associated with high density development which have been noted in other areas. Among these are an increase in the height of buildings. This increased height, when adjacent to the beach, can be extremely hazardous when subjected to storm surge. The size of the structures, with the increased intensity of uses, leads to more of a demand for public services, such as water and sewer, than exists with low density, movable structures. During quieter times, tall structures can also shade the beach at certain times of the day, creating a nuisance for beach users. Also, larger structures are more difficult to move should erosion become a problem. This immovable quality adds increased pressure for the construction of oceanfront erosion control structures, often accompanied by public expense. These factors indicate that a wider setback is needed for large structures.

A greater setback may also help alleviate potential problems associated with the new innovative methods of ownership which are becoming popular. Condominium and interval ownership techniques are making oceanfront property ownership available to more people than ever before, yet it is also spreading the responsibility for repairing or moving structures over more people. Accountability and notification of the need for action are thus becoming increasingly difficult. A larger setback would reduce or at least delay this problem.

#### Proposed solution

All of these factors indicate that higher density development should be kept back further from the oceanfront. With the approval of the new inlet hazard area regulations in October 1981, the Commission recognized a distinct difference between one and two family residences and higher density development. Those rules (15 NCAC 7H .0310) require that all development within the inlet hazard area must be on large lots (15,000 sq. ft. minimum) and must be readily movable (one or two unit structures only). To some extent, similar concerns were addressed to a limited extent with the erosion rate setback exemptions (15 NCAC 7H .0309(b), where the ground floor area of buildings inside the setback area is limited to 1,000 sq. ft. or 10% of the lot size.

Being as the erosion and damage hazard on the oceanfront is generally one dimensional (that is, receding back from the ocean rather than from several directions in inlet areas) an increased setback would accomplish most of the desired goals. It would reduce the risk of damage to the structure, reduce the need for oceanfront erosion control projects, and reduce the potential for damage to the public rights to the beach.

In examining the need for increased setbacks, it is necessary to choose a design criterion for regulations. In reviewing all of the above concerns, it appears that a doubling of the setback for multi-family dwellings is a reasonable solution. This would increase the probability that structures would be safe from erosion and storm damage for a longer period of time. It would also serve to reduce the risks to life and property as well as reduce the financial and other obligation of local governments. All of the setbacks designed to protect dunes will remain the same.

To accomplish this increased setback, three rules must be amended:

- 1) the AEC description must be amended to include 60 times the annual erosion rate from the vegetation line plus the 100 year storm recession line; so as to ensure that the developments would be within CAMA permit jurisdiction (7H .0304).
- 2) the general use standards must be amended to provide that structures of more than two units and immovable non-residential structures be located at least 60 times the average annual erosion rate back from the vegetation line, with a minimum setback of 120 feet (7H .0306); and,
- 3) clarify in the exemptions that only single family structures will be allowed on lots which do not meet the setback (7H .0309).

The proposed rules are attached, as is a diagram showing the impacts of the change.

Proposed amendments to 7B section .0300 Ocean Hazard Areas.

.0304 AECs Within Ocean Hazard Areas

- (1)(a) a distance landward from the first line of stable natural vegetation to the recession line that would be established by multiplying the long-term annual erosion rate, as most recently determined by the Coastal Resources Commission, times 60 provided that where there has been no long-term erosion or where the rate is less than two feet per year, this distance shall be set at 120 feet landward from the first line of stable vegetation.

.0306 General Use Standards for Ocean Hazard Areas.

- (a)(4) In addition to meeting the above criteria for setback behind primary and/or frontal dunes, for all residential structures of more than two units and non-residential structures which are not readily movable, the erosion setback line shall be set at a distance of 60 times the long-term annual erosion rate from the first line of stable natural vegetation. In areas where the rate is less than 2 feet per year, this setback line shall be at least 120 feet from the vegetation line.

.0309 Use Standards for Ocean Hazard Areas: Exemptions

- (b) Where strict application of the oceanfront setback requirements of Rule .0306(a) of the Subchapter would preclude placement of permanent substantial single family residential or similar readily movable structures on lots existing as of June 1, 1979, such development may be permitted seaward of the applicable setback line in ocean erodible areas, but not in inlet hazard areas, if each of the following conditions is met:

(Proposed additions underlined underlined, deletions marked through)