Conventional Zoning

Conventional zoning ordinances control the type of land uses allowed in particular parts of a community (e.g., residential, commercial, industrial) as well as their intensity (e.g., bulk, height, floor-area ratio, setbacks provisions). Zoning ordinances can be very useful, then, in accomplishing a variety of local goals, for instance, to prohibit or reduce development in environmentally sensitive coastal lands (e.g., coastal wetlands, aquifer recharge zones, wellhead protection zones, maritime forests). These ordinances can be used to prohibit or restrict development in high-risk hazard zones, thus reducing exposure of people and property to hurricanes, tides, flooding, and other coastal hazards.

In addition to identifying permissible land uses, zoning ordinances also frequently stipulate a variety of performance controls or standards. These include, among others, setback standards (e.g., side yard and front yard setbacks), height restrictions, restrictions on the extent of impervious surfaces, and stormwater management requirements. In many ways, there has been a substantial “greening” of traditional zoning ordinances in recent years with greater attention paid to managing development in ways which minimize environmental degradation. For instance, open space and recreational uses may be the most appropriate activities to be permitted in high-risk areas, such as oceanic erodible zones and NFIP V zones. Restricting such areas to commercial or public recreational activities would substantially reduce the amount of property at risk and in turn the property losses to accrue from future hurricanes and storms.

Zoning, with its emphasis on separation of uses, predictability of land development, and regulation of building height, bulk, and land area is the most common regulatory device for guiding coastal development. Zoning has been upheld as constitutional and a legitimate exercise of the police power since the U.S. Supreme Court decision in City of Euclid v. Ambler Realty Co., 272 U.S. 365 (1926), but the application of specific provisions is still subject to challenge. In North Carolina, for instance, the Supreme Court has held that a zoning ordinance is valid unless “it has no foundation in reason and is a merely arbitrary or irrational exercise of power having no substantial relation
administrative body. This concept eliminates the lot-by-lot approach common to zoning and subdivision regulation and can be used as an incentive for better development by enabling complete development proposals to be planned and approved.

In its simplest form, planned unit development takes the shape of cluster development. An example might involve a developer with 100 acres of land, which he could divide into 400 quarter-acre lots as a matter of right according to existing local ordinances. Cluster zoning would give the developer the alternative of clustering units closer together in one part of the site, provided that the overall number of units does not exceed 400. The open space saved by clustering is left for the common use of the residents. From this simple "density transfer," planned unit development builds into complex forms. In its most advanced stage, PUD allows a variety of housing types as well as commercial, agricultural, and industrial uses. Typically, developers are permitted to develop under PUD provisions when the proposed development exceeds a minimum specified number of acres or housing units. Planned unit developments are usually subject to zoning ordinances, although they are not actually mapped, and must therefore comply with the use restrictions within the zones where they occur. Increasingly, however, some mixing of uses and expansion of density are permitted.

The PUD technique provides flexibility because the final design is a matter of negotiation between the developers and the planning authorities. PUDs are generally attractive to developers of large tracts of land. These projects can often be provided with urban services and facilities more economically than conventional development. They also allow environmental protection of sensitive areas while providing for residential and commercial development. PUD project design can enhance storm hazard reduction requirements when the developer's plans incorporate features such as protective land and vegetation buffers and the provision of on-site storm shelters.

Carrying Capacity
The possibility of tying permitted new growth to the capacity of a coastal locality and its residents to respond to a storm hazard is a well-known use of carrying capacity. Such an approach has been employed in the growth management system adopted by Sanibel Island, Florida.

Development Management: Tools and Techniques

Shortly after the island was incorporated, a comprehensive plan based explicitly on the capacity of the island's natural and built environments to sustain new growth was developed. Evacuation of the island was calculated to take five hours, assuming 12 hours of warning and subtracting from that a four-hour hazard cutoff time (beyond which evacuation is not possible) and a three-hour mobilization time (i.e., time required for warning, preparation of residents, and for establishing an evacuation system). The capacity of the island was thus the number of people who could evacuate in that time.

Carrying capacity means the natural and manmade limits to development beyond which significant harm will occur. Carrying capacity can be used to assess the effects of development on such natural factors as groundwater supply and wetlands productivity and manmade factors such as sewage treatment and roadway capacity. This concept has been applied in practice to a number of coastal localities. Several implications for storm hazard reduction arise from the application of carrying capacity analysis. The first is that, as in Sanibel, carrying capacity is particularly relevant to assessing evacuation capacity. Second, natural and manmade limitations on coastal development may provide a rational means to regulate the location and quantity of new growth, which in turn may serve to reduce storm hazards. Carrying capacity objectives, in other words, may be used to reinforce and compliment efforts to reduce storm hazards generally.

Land and Property Acquisition

The acquisition of land and property, or interests therein, may in many cases be a very effective approach to achieving a variety of coastal objectives, from hazard reduction to reduction of nonpoint sources to conservation of coastal open space. Several acquisition approaches are discussed here: (1) fee-simple acquisition of undeveloped land, (2) acquisition of less-than-fee-simple interests in undeveloped land, and (3) fee-simple acquisition or relocation of existing development.

Fee-Simple Acquisition of Undeveloped Land
Fee-simple acquisition involves obtaining the full "bundle of rights" associated with a parcel of real property. With respect to local sustainability, land acquisition may have several functions. The first is to secure for the public certain lands, especially those that are sensitive, vulnerable, or
The use of TDRs can also be viewed as a form of conservation, as it transfers development rights from one area to another, ensuring that development is concentrated in areas where it is most needed. This can help to preserve sensitive ecological areas and promote more sustainable land use patterns. However, it is essential to ensure that the process is fair and transparent, and that all parties involved are adequately compensated. The implementation of TDRs requires strong planning and regulatory frameworks, as well as effective monitoring and enforcement mechanisms. Overall, the use of TDRs can be a valuable tool for managing growth and ensuring that development is sustainable, but it must be approached with care and consideration.
The specific management provisions included in this board category are designed primarily to affect indirectly the quantity and type of development occurring within the policy area. The policy's emphasis on habitat conservation and special permits and impact fees is primarily focused on differential taxation and special assessments and impact fees.

A large-scale TDR program requires extensive land development and knowledge of local market conditions and land development trends, and this cannot be represented on a map. The approach to these policies is to develop a master TDR program, with relatively small map-redapting and small-scale zones which can be monitored closely over time.

The use of differential taxation is based on the theory that, by applying the property tax burden on undeveloped land, pressures to conserve land in open space, the pressures to develop will, proportionately, be reduced.

For more information, please refer to the references cited in the text.
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<td>Introduction of equipment or product, or implementation of new technology that is the result of the operation or the organization.</td>
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**Effective Control**

Where there is an appropriate level of effective control, management...