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CONSTRAINTS ON THE USE OF
DEVELOPMENT MANAGEMENT TO REDUCE
COASTAL STORM HAZARDS

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Constraints on the Use of Development Management to Reduce Coastal Storm Hazards

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Two dominant approaches to reducing coastal storm hazards are the reinforcement of the coastal environment (e.g., seawalls, groins, beach nourishment) and the reinforcement of building and facilities (e.g., hurricane-resistant building standards, floodproofing of sewer and water lines, elevation of streets and roads). An alternative approach, yet one which is less frequently used, is the management and guidance of urban development. The general objective of these programs is to reduce the extent of exposure and to reorient growth away from high hazard areas. Development management can be defined to include programs and policies, which influence, either directly or indirectly, the location, density, timing and/or type of development occurring in a locality (see, for instance, Godschalk, Brower, et al. 1979; Brower et al., 1984). Six categories of measures might be delineated: 1) planning (e.g., local comprehensive or land use plans, post-storm reconstruction plans and policies); 2) development regulation (e.g., zoning, subdivision ordinances); 3) taxation, fiscal and other incentives (e.g., differential property taxation, impact fees, transferable development rights); 4) capital facility and public investment policy (e.g., locating public structures in safe locations, timing sewer and water extension to influence private development patterns); 5) land and property acquisition (e.g., fee-simple acquisition, acquisition of easements and less-than-fee-simple interests in land); and 6) information dissemination (e.g., hazard disclosure requirements in real estate transactions).

This paper is concerned with uncovering some basic constraints on the enactment and effectiveness of development management measures designed to mitigate storm hazards. Insights are drawn from responses to a mail questionnaire by coastal planners in 420 hurricane-prone coastal localities. This questionnaire was mailed to all Gulf and Atlantic localities containing "V-zones" (high hazard wave zones) as designated under the National Flood Insurance Program (plus four counties in Hawaii). Surveys were mailed to 637 localities, providing a response rate of approximately 67 percent. This questionnaire provides detailed information about the types of mitigation measures currently used by coastal localities and the perceived effectiveness of these measures at reducing storm hazards (see Beatley, Brower, Godschalk, and Rohe 1985; and accompanying Coastal Zone '85 paper by Beatley and Brower). In addition, information was solicited from

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respondents concerning perceived obstacles to the use of development management, and to the effectiveness of those measures already in place. The bulk of the text below presents and interprets this data.

Obstacles to the Enactment of Development Management

Survey respondents were provided a list of obstacles to the use of development management to reduce coastal storm hazards, and asked to indicate which were important in their localities. In addition, they were asked to indicate the extent to which they were important. Consequently, two types of findings result: the number of localities in which particular obstacles are present, and the average importance of particular obstacles as compared to others. Table 1 presents the eleven obstacles in order of the frequency with which they were cited by respondents.

Table 1: Obstacles to the Enactment of Development Management in Order of Frequency

<u>Rank</u>		<u>Frequency</u>	<u>Percent</u>
1.	General conservative attitude toward government control of private property rights N=373	327	87.7
2.	General feeling that community can "weather the storm" N=371	317	85.4
3.	Lack of adequate financial resources to implement mitigation programs N=360	304	84.4
4.	More pressing local problems and concerns N=365	300	82.2
5.	Lack of trained personnel to develop mitigation programs N=358	287	80.2
6.	Lack of incentives or requirements from higher levels of government N=358	286	79.9
7.	Opposition of real estate and development interests N=369	294	79.7
8.	Opposition of homeowners N=352	260	73.9
9.	Opposition of business interests N=351	248	70.7
10.	Absence of politically-active individuals and groups advocating hurricane/storm mitigation N=353	248	70.2
11.	Inadequate or inaccurate federal flood insurance maps N=355	221	62.3

The general conservative attitude of a locality toward planning and the regulation of private property was the most frequently cited obstacle, followed by attitudes that the community can "weather the storm," lack of financial resources, more pressing local problems and concerns, and lack of trained personnel. The remaining six entries were also selected by a large number of respondents. Indeed, for each potential obstacle no less than 60 percent of the respondents indicated that it was at least somewhat important in their locality.

The extent to which each obstacle is considered a problem may provide a better assessment of the relative importance of these factors. Table 2 provides the top five entries in order of their average importance. While the order changes, the composition of the top five remains largely the same. Lack of adequate resources becomes the factor receiving the highest importance ratings (on a five-point scale). Lack of trained personnel drops out of the top five, and is replaced by opposition from real estate and development interests.

Table 2: Rank Order of Obstacles According to Average Importance Rating

<u>Rank</u>	<u>Average Importance Score*</u>
1. Lack of adequate financial resources to implement implement mitigation programs N=304	3.41
2. General conservative attitude toward government control of private property rights N=373	3.35
3. More pressing local problems and concerns N=365	3.26
4. General feeling that community can "weather the storm" N=371	3.07
5. Opposition of real estate and development interests N=369	3.03

*on a five-point scale

The fact that the lack of financial resources is noted by respondents as the most important obstacle (on the five-point importance scale) largely reflects the financial and fiscal circumstances of many coastal localities. Effective planning and development management are not possible without certain financial commitments. Planning analyses must be conducted, regulatory frameworks established, ordinances written, personnel hired, and so on. Many of these functions may simply be infeasible in localities with traditionally low budgets, and a dedication to the provision of basic ("no frills") public services.

These findings also suggest the importance of certain political and attitudinal variables in constraining the use of development management in reducing coastal storm threats. It is apparent that coastal planners and policymakers must often overcome strong conservative attitudes about property rights and regulation. While coastal planners can work to educate elected officials and the public at-large, about development management, it may simply require time before wholesale acceptance of such planning pressures is feasible in many coastal localities. Rapid population and demographic changes will often facilitate such attitudinal shifts (e.g., Rudel 1984; Garkovich 1982). In the short term, these represent constraints that coastal planners and supporters of development management must work within. Similar observations apply to attitudes about "weathering the storm." While coastal planners can work to heighten public awareness, in the short term this factor may retard public support for development management programs.

The data highlight, as well, the importance of political factors, such as the opposition of real estate and development interests, and the absence of politically-supportive groups. This suggests that for development management to be feasible in many coastal localities will require efforts to educate and gain the support of certain otherwise oppositional interests. It also suggests a greater need to emphasize the benefits of development management and the importance of building a vocal public constituency for its use. Such actions may serve to enhance the position of storm hazard mitigation, and the use of development management to achieve it, on the local political agenda.

Arguments Against Development Management

Anyone who has followed the course of a proposed zoning ordinance or growth management system where one did not previously exist will appreciate the powerful role played by the explicit arguments made against development management measures by its opponents. To get at this issue, respondents were asked to evaluate the importance of several specific arguments that were expected to be of considerable importance. Table 3 presents these four arguments in order of frequency and importance (no difference in the order). By far the argument perceived to be the most important was that development management measures lead to increases in the costs of development. Nearly 85 percent of the respondents indicated that this argument was at least somewhat important. All of the remaining three arguments were considered highly important by respondents as well.

These findings suggest that coastal planners and policymakers concerned with advancing the use of development management to reduce storm hazards must be prepared to respond to these arguments. These responses must be definitive and knowledgeable. Proponents of development management must be willing to indicate, for example, why individuals should not be left entirely to make their own decisions about storm risks (e.g., because their actions and behavior affect the welfare of others, because they lack full information about the hazard, and so on). They must, for example, be able to provide empirical information that supports the position that development management measures will not substantially dampen the local economy.

Table 3: Arguments Against Enactment of Development Management in Order of Frequency

<u>Rank</u>	<u>Frequency</u>	<u>Percent</u>	<u>Average Importance Rating*</u>
1. Development management measures lead to increased developmental costs N=382	324	84.8	3.16
2. Decisions about risks from coastal storms are best left to the individual N=359	254	71.0	2.65
3. Development management measures dampen local economy N=368	252	68.5	2.51
4. Particular development management measures are illegal or unconstitutional N=351	232	66.1	2.40

*on a five-point scale

Enforcement and Implementation Problems

For development arrangement programs to be effective at reducing storm hazards, their enactment is not sufficient. Rather, they must be enforced and implemented as well as simply adopted. The questionnaire was designed also to obtain information about problems encountered in the enforcement/implementation stage. Respondents were provided a list of five potential problems, and asked to indicate if any of these were important in their communities, and the extent to which they were important. Table 4 provides the results of these responses. Overall, about half of the respondents indicated that they had encountered no such problems at all. Of those that did, insufficient funds was the clear leader, selected by over 60 percent of those who answered this question. This suggests again the high importance of financial resources in carrying out an effective mitigation program. A locality may have expended large amounts of time and energy in designating high hazard parcels to be purchased, and providing a detailed decision framework in which to evaluate these potential acquisitions, yet the program may fall on its face because there are no continuing sources of funds to acquire the land. Moreover, a locality may have a sophisticated and well thought-out regulatory system, yet may lack the financial resources to ensure its enforcement or to carry out its analytical and evaluation requirements.

Public opposition and lack of support by public officials were also selected by a large number of respondents, highlighting how equally important political support is to implementation as it is to adoption. Development management programs will encounter resistance from a number of sources, including individuals and groups harmed by

Table 4: Problems in Enforcement and Implementation of
Development Management Measures

<u>Rank Order</u>	<u>Frequency</u>	<u>Percent</u>
1. Insufficient funds N=199	120	60.3
2. Public opposition N=198	91	45.9
3. Lack of support by public officials N=196	84	42.9
4. Lack of qualified personnel N=199	82	41.2
5. Insufficient data base N=199	65	32.6

such programs, and other public issues and problems that may serve to overshadow development management and hazard mitigation. Continued funding and commitment to enforcement are directly tied to their place on the local political agenda. Two factors of a more technical nature --lack of qualified personnel and an insufficient data base--were also identified by a considerable number of respondents and suggest the importance of such basic administrative inputs to the effectiveness of development management programs. It may be difficult or impossible to effectively implement, for example, a program designed to orient capital facilities away from high hazard areas, if an accurate delineation of the hazard areas is not available. Furthermore, a sophisticated development management program may be of no use if it is left to be implemented by existing local personnel who have little or no experience in land use regulations (e.g., parks and recreation personnel, public works personnel, police and fire officials).

Undesirable Consequences of Development Management

Effectiveness is not only a function of the extent to which development management reduces coastal storm hazards, but also the extent to which it advances or undermines other local goals. To get at this, respondents were asked if their communities had experienced any undesirable consequences or side effects from the development management measures currently in place. Only about one-third of the respondents indicated that they had experienced such negative effects. Respondents in communities where these effects were evident were asked more specifically about four potential consequences. Table 5 presents the results from this question. Only one potential effect, of the four presented, was selected by a significant number of respondents: that of an increase in construction costs. It is difficult from our data to determine in what sense such costs are increased, and by what types of development management measures. However, it does suggest that coastal planners and policymakers interested in using development management to reduce storm hazards should be sensitive to additional costs that may be imposed on builders and housing consumers, and to try, to the extent possible, to keep these costs to a minimum. This finding also suggests that one of the arguments against the use of development management cited above may have some basis in fact.

Table 5: Undesirable Consequences Resulting
From Development Management

<u>Rank Order</u>	<u>Frequency</u>	<u>Percent</u>
1. Increase in construction costs	108	83.7
2. Slowed economic growth and development	26	20.2
3. Reduced tax revenues	19	14.7
4. Reduced land values	14	10.9

N=129

On the positive side, very few respondents indicated that development management measures had the effect of slowing local economic growth, of reducing local tax revenues or of reducing local land values. The most frequently selected of these three--the slowing of economic growth and development--was only experienced by about 6 percent of the responding localities.

Conclusions

This paper has presented some important information about perceived constraints to the enactment and effective implementation of development management measures to reduce coastal storm hazards. It suggests reasons why development management is not used in more coastal localities, and where it is used, why it is often not enforced or effectively implemented. The list of constraints included above is by no means exhaustive. We have not mentioned, for example, the role of federal flood insurance and disaster assistance, or the role of regional and state governments in encouraging the local use of development management. The set of issues identified above, however, encompass many of the most pertinent influences on adoption and implementation. It presents coastal planners and policymakers--at all levels of government--who are interested in increasing the use of development management with a potential set of policy levers. While some influences, such as the general conservative atmosphere prevalent in many coastal locales, are beyond adjustment in the short-term, other factors such as the lack of politically supportive groups may be more open to short term enhancement. In any event, whether these factors are accessible to change or not, proponents of development management programs must at least be cognizant of them and formulate their actions and strategies accordingly.

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