Mobile Homes and Hurricanes: The Crisis in Florida

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INTRODUCTION

For the past three years, several universities have been involved in a multi-disciplinary study on how to mitigate the effects of hurricanes on residences in Florida, particularly mobile homes, which constitute a substantial portion of affordable housing in the state. The research has involved several academic disciplines, including engineering, construction, sociology, geography, landscape architecture, and architecture.

This report focuses on one track: eliminating state and local barriers to upgrading mobile homes and communities in the state (specifically Polk County). This work involved interviews with mobile home owners and renters, mobile home park owners or managers, mobile home manufacturers or agents, architects, engineers, building and planning officials, as well as visits to several mobile home parks. Additionally the team conducted extensive research of existing local land-use laws, codes, plans and regulations and surveyed building officials and mobile home dealers to determine the extent of knowledge gaps with respect to regulatory environment regarding mobile homes. The team ultimately proposed typical redesigns and renovation scenarios of both mobile homes and mobile home parks. The importance of this research was made obvious by the 2004 hurricane season, and which four major storms created significant damage to Florida's housing stock, particularly mobile homes.

BACKGROUND

Florida leads the nation in the number of mobile homes. Some 2 million residents of Florida, or about 12.5% of the total population, live in mobile homes. In many communities, it is the only form of affordable housing. The potential for damage to this housing stock from hurricane impact is real and of the utmost importance to Florida policy-makers, public officials and a host of stakeholders including, the residents, but also mobile home manufacturers, housing developers and builders as well as design and engineering professionals. The largest numbers of mobile homes are found West Central Florida, particularly Hillsborough, Polk, and Pinellas counties.

Any issue that affects such a large segment of the population becomes a very important one not only for the residents themselves, but also for state legislators, policy-makers and others. The demographics of mobile homes residents are quite different than those of the total population of the state. These characteristics include the following: Slightly more than 36% of the households consisted entirely of elderly persons (65 and older); an additional 49.1% of the households included members 65 years of age or older; about 15.4% of the population are widowers living alone. These are segments of the population that could be categorized as having *special needs* especially during emergencies.

There are three distinct generations of mobile homes based on their year of manufacture. Roughly these generations can be identified as: Pre-1976, 1976 to 1994, and Post-1994. The Pre-1976 units are those that were built when there were no manufacturing/design standards. Those of the 1976-1994 generation were built under HUD standards. And the Post-1994 generation incorporates stricter design and manufacturing standards including wind load standards based on ASCE specifications.

Throughout the state of Florida, and particularly in the west central Florida region, there are significant numbers of older mobile homes in use today. Only about 14% of units in service have been built to the strictest wind standards while approximately 29% belong to the "no-standards" pre-1976 generation. This category of mobile home tends to be the most vulnerable under adverse weather conditions. A combination of factors-- age, sustained use, inability to be upgraded or renovated to comply with current

codes and standards, substandard modifications-- contribute to unsafe and hazardous conditions. The fact that most of these structures were built under less stringent regulations, using construction methods that would be considered "outdated" today, suggests that many of these mobile homes should be retired from further use. Most of these mobile home structures are of the "singlewide" configuration and were installed on either leased or purchased lots. Invariably, these structures incorporated approximately 500 to 700 square feet of floor area in a rectangular unit, and occupied regular-shaped parcels - some with typical dimensions as small as 25 feet by 40 feet.

It is unlikely that the manufactured housing industry will implement significant new changes in the foreseeable future, to further minimize the risk of property loss and damage due to hurricanes or other severe weather conditions. While modest improvements have been made in enhancing the structural integrity of mobile homes over the last two decades, current trends in this type of construction appear to be focused on increased space, the inclusion of more amenity features and enhanced curb appeal or character. Newer mobile homes have become much more appealing and marketable to that segment of the general public that will consider this form of housing as a first choice, or as an alternative to conventional site-built houses. As the inventory of newer, mostly doublewide mobile homes are purchased and installed; there is an increasing supply of older ones that remain on the market and in continuous use.

According to the *Tampa Tribune*:

> "Mobile homes seem to be popular among winter residents and retirees and are increasingly popular with families on limited budgets. 'You can get in a brand new mobile home for as little as $28,000,' said Scott Davis, a sales executive at Oakwood Homes. Mobile homes range in cost from a few thousand dollars to 8 more than $100,000. Rent ranges from less than $100 per week to several hundred dollars per month." (Alberto)

Mobile homes, while affordable and easily sited, are particularly vulnerable to wind damage. They are not designed to withstand the wind velocities of a Category 3 or greater hurricane. Local emergency management agencies recommend evacuation of mobile homes for Category 1 or greater hurricanes. This presents a challenge for many Florida communities with many mobile homes. The *Ledger* recently reported:

> 'Hurricane shelters are something Polk County has never enforced in its land development code,' [a city official] said. It has been an ongoing issue not only because of the number of mobile homes in Polk County, but also because of the fact that inland areas such as Polk may be evacuation areas for coastal residents from adjacent areas such as Hillsborough and Manatee counties. (Palmer)

Because of the dismal performance of mobile homes in Hurricane Andrew, new wind standards went into effect in the HUD Code in July 1994-- manufactured homes placed in high-risk hurricane areas now must be designed to withstand approximately 100 mile per-hour winds. (HUD)

In coastal areas, storm surges during hurricane events can be devastating to mobile homes. Floods can cause strong pressures on foundations or piers, and floating debris can cause further damage to the exterior. Interior damage to the structure can be extensive. Some wind and flood damage can be avoided by proper installation, by raised installations using properly designed fill and/or posts, and by using tie-down. However, local building inspectors may be unfamiliar with the particular needs of manufactured houses. This may be especially true in small communities where inspectors do not specialize. Also, inspectors or inspection agencies may easily miss resold manufactured/mobile homes. (Housing Assistance Council)

POLK COUNTY

Polk County's total population in 2000 was 484,000—about three percent of the Florida's entire population. It is the eighth most populous county in the state. Polk's total population is expected to grow to an estimated 550,000 by 2010. Approximately 63 percent of Polk County's total population resides in the unincorporated area of the county.

The other 37 percent of the population live in Polk County's 17 cities. The total area of the county is approximately 2,010 square miles, which makes it the fourth largest county in Florida.

There are over 6000 licensed mobile home parks in Florida, with a total of 430,000 mobile home spaces. Polk County is home to over 500 of these mobile home parks, with nearly 46,000 mobile home spaces. The US census estimates that there are more than 50,000 mobile homes in the county, the most of any county in Florida. This number surpasses Hillsborough and Pinellas. (Alberto).

"'There has been a lot of redevelopment and attrition in Pinellas County,' said Frank Williams, spokesman for the Florida Manufactured Housing Association in Tallahassee, explaining many mobile home parks were 50 or 60 years old and have been replaced with other types of development. Pinellas, whose total land area is only about 15 percent of Polk's, doesn't have much land available for new development, Williams said, contrasting that with Polk, which still has plenty of available land" (Palmer). The largest of the mobile home parks in Polk has over 1000 spaces.

Local planners, building officials, code enforcement officers and residents attribute the popularity of mobile homes to the relatively low cost of living in a county between two major cities, Tampa and Orlando, and the availability of land.

Ron Borchers, Polk's director of planning services, said that Polk County does not do anything special to attract mobile homes, but in general, officials have not discouraged them. Part of the reason for the prevalence of densely populated parks is the fact that mobile homes are grandfathered into the zoning. Many mobile homes in Polk were built in the 1970s and predate zoning laws. The regulations have become stricter in recent years, largely because of Polk's comprehensive development plan, approved by the state in 1991. (Ferrante).

The market is greater in unincorporated sections of the county because mobile homes are not as welcome in cities. There are no separate districts for mobile homes in unincorporated Polk County. Polk County ``mobile home friendly,'' is said Christina Hummel, a senior county planner. ``If your neighbors have a mobile home, you can have one, too. It's a majority rules situation.'' (Alberto).

The Strategic Regional Policy Plan, of the Central Florida Regional Planning Council provides this assessment of the mobile homes in the region:

> The only segment of the housing market that has answered the call for affordable units is the mobile/manufactured housing industry. Mobile homes, both in planned communities and sold as individual units, have the largest market share in the affordable category, because they are generally less expensive than conventional housing and often require as little down payment as a car, but they present unique problems in the Region. Ineffective local policies governing the placement of mobile homes, which are reinforced by the State's misplaced assumption that permissive regulations and minimum infrastructure makes them affordable housing, only adds to the depreciation of the housing stock in Central Florida counties. In addition, the spread of mobile homes dramatically increases the risk of storm damage to a growing portion of the population.

STORMS

While Polk County does not have any coastal areas, it suffers from frequent severe storms year round. According to the National Oceanic & Atmospheric Administration (NOAA), 200 severe storm events (floods, hurricanes/tropical storms, tornadoes, and thunderstorms) damaged at least 440 mobile homes in Polk County between 1994 and 2003. This indicates that about 1% of the mobile homes in the county were damaged-- by wind and/or water events-- in less than a decade, in a period that no major hurricanes hit the area directly. In 2004, three major hurricanes crossed over Polk County— the affect on mobile homes was devastating (at the time of this report, the damage was still being assessed).

ZONING AND BUILDING CODES

Numerous zoning codes for Polk County (analyzed as part of this phase) and Hillsborough and Pinellas Counties (analyzed in an earlier phase of

this project) include requirements that should be building codes --especially for tie downs, additions, foundations, etc. Zoning officials, in many cases, do not have the expertise or training to enforce these requirements.

The duplication of information and requirements in the zoning codes and building codes is confusing to consumers, government officials, and building professionals. Often times, building code issues were added to zoning codes, because it was a simpler process to change the latter in certain municipalities. However, the result is a lack of clarity as to which code—zoning or building—addresses important health safety and welfare issues, such as tie downs, additions, and maintenance. The team was concerned about the significant number of site built attachments to mobile homes in the parks it visited. Most zoning codes have authority over the locations of residential structures, but the laws are unclear, or apparently unenforced, for mobile homes within parks. The site built additions are a significant cause of windborne debris in hurricanes.

Several jurisdictions contain mobile home anchorage requirements in their zoning regulations. While these documents' intention may be to draw emphasis to this critical need, the inclusion of these requirements in the zoning codes is problematic. This is an on-site construction matter that is more properly addressed in the communities' building codes. (In the field, the team observed many older mobile home units with rusting, missing, improperly installed tie-down straps).

No Polk County zoning codes specifically address mobile home maintenance. In fact, poorly maintained units plague many areas of the county. For example, as reported in the *Tampa Tribune*:

> For others, mobile home living is a necessity. Katrina Kirkland pays $250 a month rent to live in a rundown trailer on a dirt road in Kathleen, a community north of Lakeland. She shares the home with her daughter, Beth Stephenson, and three grandchildren. The home isn't in the best shape, Stephenson said. ``The windows leak and don't open. The walls are falling apart. If you look behind our couch, you can see daylight.'' (Alberto)

According to Strategic Regional Policy Plan, Central Florida Regional Planning Council:

> Mobile home communities, which are generally safer than individually sited units due to tougher development standards, are not being developed to meet the demand for affordable units among the two groups who need them the most: the farm workers and the low income wage earners.

LAND USE

Another threat to Polk County mobile home parks (similar to conditions in Pinellas and Hillsborough) is incompatible land use. Polk County itself allows mobile home parks in several different land use zones. Many parks are not located in compatible zones, and are susceptible to development and commercial and other uses. As in Pinellas and Hillsborough, it is often the parks in incompatible land uses are poorly maintained, and vulnerable in storms.

Of the 436 parks the team could locate, 273 are located in unincorporated Polk. About three-quarters are in compatible districts. (A detailed analysis was not conducted to determine whether or not the parks meet current zoning standards.) Those that are not are susceptible to development and commercial and other uses. As in Pinellas and Hillsborough, it is often the parks in incompatible land uses are poorly maintained, and vulnerable in storms.

Some Polk County zoning ordinances address flood and wind damage control for future development but appear to have a limited impact on the existing conditions. Since these regulations usually apply only to new parks, or to new mobile homes within parks, most existing mobile home parks have not been upgraded. This is particularly problematic, because the 2000 flood maps for Polk County show that 40 percent of the county is in a flood zone. In Polk County, 109 out of 436 mobile home parks (that the team could locate) are positioned within 1000 feet of a lake or other waterway, the most likely flood hazard in this non-coastal area. Almost all are within a mile of a lake.

PLATTING ISSUES

Given the number of older mobile home units still in use today, it is reasonable to explore alternatives that will minimize the potential of human injury and loss of life, as well as major property damage and destruction resulting from their continued use. One approach is to adopt policies and regulatory measures for retiring or phasing out older mobile home units, and replacing them with small "site-built" houses. This approach suggests that older mobile home parks with units in excess of thirty years old, phase in a "cottage development" pattern (detached dwelling units), or one that incorporates a modest form of "party-wall" residential construction. This approach would over time, make use of the original mobile home lot platting patterns, by replacing older mobile homes with another form of affordable housing that will withstand the elements far greater than the older structures they replaced.

Most mobile home parks in Florida were platted for travel trailers; or older, small singlewide mobile homes. Modern larger mobile homes, with safer design features, do not fit on the older plats. Therefore park owners are unable to accommodate new mobile homes and maintain required setbacks. The team investigated several case studies of parks where these barriers exist, and propose solutions for replatting and/or modification of setbacks.

In general, mobile tend to follow the patterns of larger residential subdivisions developed at the same time. That is, many were developed on a strict gridded format at a time when other residential communities were so-planned, and more recent parks have moved to an arterial model at the same time that residential suburbs have done so.

Many mobile home parks also embody many of the principles of good urbanism: narrower, pedestrian-friendly roadways with low speed limits; the close proximity dwellings to the roadway; and the enhanced abilities of home occupants to observe and interact with passersby. Many parks have an abundance of front screened porches and lanais (due in part to the frontal orientation of the units and their smaller size which creates an incentive for residents to create additional spaces by adding outdoor living spaces) and gathering places (such as local community mailboxes, recreation centers, swimming pools, and management offices).

Park layout does not have a direct physical impact on storm survivability, but layouts can affect the sense of community. Strong community pride is directly related to safer neighborhoods with greater potential for successfully surviving major traumas such as hurricane and other storm events. Additionally, alternate park layouts may allow for increasing densities that would promote the economic viability of the manufactured home parks as businesses and thereby continue to provide a stable housing alternative.

The team analyzed "small unit" housing alternatives: structures that resemble mobile homes in size, configuration, affordability. These newer, permanent homes are inherently safer due to the incorporation of stricter building codes. As well, being larger, they may reduce the need for outbuildings and attached structures.

Options for Replatting. Most manufactured home park share many similar characteristics, such as an emphasis on the narrow end of the lot facing the street, setbacks on all four sides of the unit that result in the unit being centrally located on its lot, and a lack of usable green space in the area immediately surrounding the unit.

Park reconfigurations involve the replacement of the current manufactured home stock with new, permanent structures. This would represent a substantial investment on the part of the homeowner and, if the land were still to be rented, may require a change in lease terms. It is possible to consider changing the legal structure such that the dwelling occupants own the lots. It is unlikely that the resulting homes would be as low-cost as the existing housing units. However, the changes would retain the higher density of the land use while still retaining the community feel of the existing parks—particularly that of individual houses (or duplexes) on their own plots of land.

Small lot communities. The small parcel layout is common in older mobile home parks in the west central Florida area, and allowed for a convenient and economical use of land for platting purposes. While the resulting close proximity of individual mobile home units may suggest some degree of perceived shelter, the fact remains that the structural integrity of most, if not all of these homes in questionable under abnormal or extreme weather conditions. In many instances, carports and porches that have

been attached to many of these structures provide a small degree of lateral stability; any benefit may be offset by a lack of structural integrity, inadequate tie-downs, and the inability to withstand impacts from wind-borne debris.

It is probably not feasible, nor practical to try to renovate or upgrade older mobile homes. The costs associated with any such investment would not be effective in realizing any significant benefits. Any serious attempt at renovating these older structures would ultimately prove to be exorbitant in cost and face the following barriers (among others):

- An inability to support appreciating values,
- Difficulty in complying with current codes
- Continuing poor performance in providing shelter that can reasonably withstand severe natural weather phenomena.

As a practical and economic alternative, mobile home parks could be transformed into small lot cottage communities, similar to those that have withstood decades of adverse weather conditions. Some communities in the area, such as Pinellas Park, actually encourage the redevelopment of mobile home parks in some zones.

The team identified several precedents that can be looked at to provide insights on the use of small-lot platting for single-family housing:

- The Port Tampa area at the southwestern end of the city's Interbay Peninsula.
- Bungalow Terrace, in Tampa
- And the re-use of former mobile home lots in Indian Shores in Pinellas County, Florida.

Port Tampa, Tampa, Florida. Port Tampa was originally a separate suburban municipality adjacent to Tampa, and was established in 1893 as a "maritime community " associated with Henry Plant's railroad and port activities just prior to the turn of the 20th century. The area was originally platted with rectangular blocks that were predominantly built out with modest "worker cottages" and bungalows. Most of the early structures in Port Tampa were erected just prior to and after the turn of the 20th century on lots that were smaller than the 50' x 100' residential lots that became the standard for communities throughout the area. Most of these houses were of wood-frame construction and built above the ground on raised foundations and seemed to weather storms of the past with modest damage. However, because this area remained a small municipality until the 1960's, a variety of residential conditions emerged in response to the predominant small-lot platting.

The residential parcels in this neighborhood vary in size, but are generally rectangular in shape and are oriented perpendicularly to the street. Most parcels encompass approximately 4000 to just over 5000 square feet of area. While some areas were later platted for mobile homes, most of the neighborhood conforms to the single-family house development pattern. With its small lot and village-like character, this general order compares with similar conditions found in some mobile home parks. Where older mobiles exist in areas with this type of platting, taking advantage of the small-lot development pattern is an opportunity to reduce the potential for future property destruction and loss. By replacing older, vulnerable mobile home structures with more stable, site-built houses would prove to be a prudent, proactive and cost effective measure.

Bungalow Terrace, Tampa. Bungalow Terrace in Tampa's Hyde Park is another example of a "small-lot" subdivision with site-built houses. This now historic neighborhood of 1920's bungalow cottages, are concentrated on two short streets with lots that were originally platted with 1,200 to 1,700 square feet. Although this development would have predated most of the area's mobile home parks, its general order could serve as a model development pattern for older mobile home parks that should be phased out of existence. This development pattern would easily allow for the construction of site-built structures on the same land parcels that were previously platted for mobile homes.

Indian Shores. The Town of Indian Shores in Pinellas County has initiated an effort to redevelop several acres of land that was originally platted for mobile homes back in the late 1940's. This "paper" subdivision, so named as a result of its original speculative and "impermanent" nature, is currently in the city's Town Square Planning Area. It was originally laid out as five slender blocks running parallel the main north-south thoroughfare. Characteristic of a typical surveyor's plat for a mobile

home park, this area had just fewer than 200 lots each with dimensions of 25feet by 40 feet. Although all of the original mobile homes are gone, several of the lots were improved over the years with various types of site-built structures. Today, the town is considering redeveloping the remaining vacant lots in this subdivision with various types of "live/work" townhouses. This type of party wall construction is very appropriate for this type of narrow-lot platting. Several years ago, the Town enacted restrictions on placing mobile homes on these lots because of their proximity to the Gulf coast and the likelihood of major property damage following a hurricane or storm. This has created an opportunity for the Town to re-claim all of the land from this former mobile home park and adapt it to a small-lot subdivision with a more stable form of site-built houses.

Regulatory Issues. Several municipalities, as well as Polk, Hillsborough and Pinellas counties have a variety of zoning and other building code restrictions that apply directly to mobile homes and mobile home parks. Except in those areas where mobile homes are still permitted, most of these ordinances have "grandfathered in" many older mobile home facilities. Where cities and counties are faced the challenge of what to do with these older mobile home structures, from a public safety point of view, they should consider creating "cottage development" or similar ordinances that permit small, site-built dwellings on atypically small lots. These types of ordinances would allow for the phased or sustained replacement of older mobile homes with more stable structures that will help minimize property loss and damage in severe weather conditions and also enhance the physical character of these communities. These "cottage development" ordinances and other flexible zoning regulations can easily accommodate conversions of older mobile home parks. The "small-lot" development patterns that they focus on are directly related to conditions in mobile home parks where individual lots were initially platted for dwellings of less than 1,000 square feet. In many instances, the use of similar types of "replacement" ordinances can serve as progressive and proactive measures for minimizing mobile home property loss, as well as general public safety in these areas.

KEY FINDINGS

The review of the many codes and ordinances indicates that multiple regulatory approaches are used to render such developments economically unfeasible. These zoning regulations attempt to mitigate the scope of damage to mobile homes as the result of hurricanes by attempting to limit further mobile home developments. It cannot be contended that local land use regulations or political factors have forced mobile home parks into high hazard areas, as most mobile homes in Polk County were constructed before hazardous areas were clearly articulated and mapped.

Zoning ordinances address flood damage control for future development but appear to have a limited impact on the existing conditions. Local zoning codes do attempt to mitigate flood damage, but they do not appear to make any positive attempts to provide similar protection against damage caused by high winds. Many jurisdictions contain mobile home anchorage requirements in their zoning regulations. While these documents' intention may be to draw emphasis to this critical need, the inclusion of these requirements in the zoning codes is problematic.

Many existing parks maintained an obvious sense of community pride.

These parks foster positive interaction between management, residents in the park, and in the neighboring area. However numerous parks appear to suffer from confusing site design, poorly managed operations, and little interaction between residents. The residents of these parks seem less concerned and informed about storm related issues. Good community design appears to facilitate communication about hurricane matters.

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NOAA web site for information on storms: http://www4.ncdc.noaa.gov/cgiwin/

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