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TEXAS CENTER
FOR POLICY STUDIES

Workshop Proceedings

"Developing Marketable and Environmentally Sensitive Conservation-Based Subdivisions"

Austin, Texas
Lady Bird Johnson Wildflower Center
October 27, 2000

Research for Community Action

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Introduction

The Texas Center for Policy Studies and the Central Texas Section of the American Planning Association convened a workshop entitled *Conservation-based Land Development in Central Texas and the Hill Country* on October 27, 2000 in Austin at the Lady Bird Johnson Wildflower Center. The featured guest speaker was Randall Arendt, a land-use planner and author who is one of the foremost advocates of conservation-based subdivision planning.

The workshop was organized to address several of the challenges Central Texas and the Hill Country are currently facing and will continue to face in the near future. Population immigration and the economic vitality of this area has generated hundreds upon hundreds of new subdivisions throughout the region, most of which are located in unincorporated areas surrounding small communities on the urban fringe. These subdivisions are displacing farmland and ranchland, wildlife habitat, and open space. They have begun to radically reshape the communities in which they are located and altering the intriguing and beautiful landscape and critical natural resources of the area. This workshop was organized to explore how developers, residents, local officials, engineers, landscape architects, and planners can design and develop subdivisions that protect and take into account the historical, cultural and natural resources of the area in which they are located. This report follows the workshop program and contains only brief summaries of the presentations and discussions that took place.

The workshop sponsors do not promote conservation-based subdivisions as the sole answer to sprawl, nor do we consider that conservation design can fully address the issues of land fragmentation, loss of farm and ranchland and wildlife habitat. We also recognize that the critical issue of affordable housing in conservation subdivision developments as well as in traditional developments has not been vigorously addressed. We do believe, however, that conservation-based subdivisions make for far better communities than what we are being offered today, particularly if the amenities and attributes and the kinds of linkages and corridors that Randall Arendt promotes are included. In regard to the latter, we point out that the Austin San Antonio Corridor Council has begun a parks and green space study of the 22 –County area representing the Capital Area Planning Council and the Alamo Area Planning Council service areas. One of the goals of that project is to provide a planning tool for local or multi-jurisdictional parks and green space projects by developing a solid base map and identifying open space corridors for *connectivity*. For more information about the Corridor Council's parks and green space study, contact Cliff Ladd, chair of the Greenspace Committee, Austin-San Antonio Corridor Council, PO Box 1618, San Marcos, TX 78667.

Conservation-based Land Development in Central Texas and the Hill Country

Morning Program

Welcoming remarks were made by *Charles Simone*, Assistant City Manager, City of Pflugerville &. Vice Chair of the Central Texas Section of the American Planning Association, and *Marcy Holloway*, an attorney and member of the Hill Country Roundtable Steering Committee and member of the Village of Bee Cave Master Plan Committee and the Village's Zoning Commission. Mr. Simone expressed the pleasure of the Central Texas Section of the APA to be able to hold this workshop and to be partnering with the Texas Center for Policy Studies in sponsoring the event. Marcy Holloway pointed out that the population explosion in this region of the state was straining existing natural resources, such as water, as well as community institutions, such as public schools, roads and EMS services. Marcy asserted that it was important to look at alternative development models because the current ones were taking their toll on existing communities and on the unique natural environment that makes Central Texas and the Hill Country so ecological important and appealing. She noted that we risk losing the very assets that brought us here.

Overview of Development Challenges for Central Texas

Mary E. Kelly, Director of the Texas Center for Policy Studies,
Reiterated that there are both challenges and opportunities for Central Texas and the Hill Country as these regions face tremendous population increases. She noted that both the Hill Country Roundtable and Texas Center for Policy Studies believe there are two primary challenges 1) preserve the character, quality of life and natural heritage of the Hill Country and Central Texas and 2) insure sound management of natural resources (air, water and land) for this and future generations. But also, she said, we are challenged to provide affordable housing and to develop a workable, affordable and efficient transportation structure. The magnitude of the challenges can be seen by several phenomena:

- Rapid population increase in these regions (Texas overall could double by the year 2030),
- Pressure on rural lands—in 1990, 38.2 % of the population who lived in the Austin MSA, lived outside city limits; in 1999, 45.2% live outside city limits
- Loss of farmland and ranchland—Texas leads the U.S. in loss of rural farm and ranchlands; the rate of loss between 1992-1997 doubled that of the previous ten years. This loss has also led to high land fragmentation in Central Texas

- Pressure on water resources-- dry rural wells, intense competition for the same resources, low stream and spring flow and the unreliability of the Trinity Aquifer are primary issues
- Lack of public open space-- currently, state parks in the Hill Country provide 28.5 acres per 1000 people; the national average is 45 acres per 1000 people. If there are no new acquisitions in the Hill Country by 2030, state parks will provide only 12.8 acres per 1000 people. Local park space is also lacking;
- A lack of affordable housing—in 1999, in San Antonio, 65% of the population could afford the median cost home**,** but in 2000, 59% of San Antonio's population could afford the median cost home.

Kelly concluded that our biggest task and what might be the key to addressing the above-mentioned challenges is to build a culture and capacity for citizen-based planning, sound growth management and regional cooperation, while respecting private property rights and principles of local control.

Marketable and Environmentally Sensitive Land Development

Amelia Sondgeroth, Principal Planner for the City of Round Rock, and officer of the Central Texas Section of the American Planning Association, introduced the featured presenter, *Randall Arendt* by mentioning his work as a land-use planner, author and site designer and a nationally- known advocate of conservation planning. (His publications are listed in the Appendix)

Using a very illustrative slide show to demonstrate his points, Arendt focused on the need to blend the old traditional ways of developing subdivisions with new alternate models to achieve a conservation-based subdivision plan. He noted that the development of and review of subdivision regulations and plats should be conducted by teams that include site planners, landscape architects and engineers-- one needs to blend the expertise so that environmental elements of the subdivision design are brought to the table. Arendt also suggested that it was important for planning board members, city and county personnel who oversee subdivisions also walk the site—get to know the typography and natural features.

For Arendt, the current way of developing subdivisions is simply moving in the wrong direction and is not in our best interest. "We've outlawed using minimum space for lots, so we now are spreading one acre lots, five acre lots, etc in a vain attempt to conserve open space, but we are actually consuming it more voraciously than ever."

Arendt suggests that the first step is to legislate maximum size lots instead of minimum. Moreover, current regulations often do not allow for sufficient flexibility in lot size or subdivision design. In order to change development patterns, one needs to allow for more creativity. He noted that zoning ordinances sometimes only allow for covering up an entire area with housing lots and streets. In other words, regulations allow for development that doesn't preserve open space or provide equal access to natural features in the subdivision. Arendt suggests that this is not the fault of developers. "Everyone is trying to serve a need, but perhaps there is a need for a better standards."

Arendt suggests we should design subdivisions backward. That is, start with what to leave alone and then locate the home sites. The first step is to map out areas where you cannot build, such as steep slopes, wetlands and other important natural features. These then become your primary conservation areas, and might be 10% to 15% of the land. The next step is to designate what areas should be left alone—secondary conservation areas-- such as historic sites, wildlife habitat, and great vistas. This might account for another 15% of the land, though some of this might be able to build upon. Arendt noted that you have to rank what is more important to protect in these secondary conservation areas. With this way of development, you don't give up density, for each household has a small lot but shares more undivided green space held in common. Ultimately Arendt would like to see "interconnected sections of open space" between subdivisions.

Arendt's subdivision designs put emphasis on site analysis maps during the planning stage. The maps show cultural features, old trails, abandoned roads – anything the community values as a neighborhood resource. As he pointed out, this type of highly detailed map goes beyond what is demanded today. He also stated that developments needed to preserve views of open space from the roads, be buffered from roads, preserve woodlands, and prevent homes from being right up against farmland. Arendt explains that because urban people often complain of farm smells, noise of tractors, pesticides, and dust, we automatically set up rural/urban dwellers for conflict if we do not buffer farming/ranching activities from subdivisions.

Arendt recommended that a developer should add open space in front of as well as behind houses. He noted that just clustering homes is not conservation –based development if all you have is road with houses on both sides.

In Arendt's design concept, open space is delineated at the beginning of the process, not at the end. He explained that the paradigm for open space

preservation (ironically) is golf courses. Golf course designers preserve open space first, then position homes to maximize views, and connect streets to trails. He noted that 40% of the people living in golf course communities don't play golf. He asks why are they there? His answer is that people just like the open space. But Arendt went on to explain that golf courses are not open space or accessible to people, they're golf courses. You cannot have picnics, play Frisbee or, in most cases, use the course for walking or running. It costs up to 12 million to build a golf course development. It is much less expensive to build a subdivision without a golf course, but leaving open space.

There are also other savings to be had with conservation-based design approach. For example in Nacogdoches, Texas a developer saved $250,000 in grading costs by redesigning for conservation. This is an example of why landscape architects and engineers should work together.

Arendt went on to discuss waste issues and conservation-based design. He remarked that there is a misconception that it's necessary to have one -acre lot for septic drain field. He explained that you do need a certain amount of acreage for the house, but you can put drainage field in common open space. Often environmental agencies force one acre lots for septic drain fields. Regulators are wary of common septic disposal facilities, and individual drain fields are more popular. Arendt thinks it might be reasonable to have individual septic systems, but also believes we can save open space by putting in common septic systems using the green space. He observed that this might require regulatory change. He noted that it makes sense to place developments on well-drained land anyway. Some developments, he pointed out, promote their sewage lagoons as an attractive feature, calling them "water views" and charging 20% more for those lots closer to the sewage lagoon.

Arendt also pointed to some examples of conservation subdivisions with constructed wetlands.

For Arendt, farmland protection is an important consideration in subdivision designs. Arendt explained that local regulations could help or hinder farmland protection efforts. He discussed how a developer wanted to build half-acre lots but the regulations stated he could only build one acre lots -- supposedly to preserve farmland. The developer drew a picture for the policy makers of what would happen to the farmland with one acre lots versus half acre lots. With the half -acre lots, in this developer's situation, preserved 150 acres of farmland and 100 acres of woods. In some cases, farmland can be the attraction for housing development. He presented examples of where vegetable farms and orchards had been incorporated into the subdivision design in a way that enhanced the market value of the subdivision.

As Arendt pointed out, many conservation-based designs do not necessarily incorporate affordable housing, but they can. For example, in Montgomery County, Maryland, the County mandated affordable housing be facilitated by creating a density bonus incentive. For Arendt, it is optimal to have affordable housing mixed in with other housing,

Arendt ended by noting that Greenway networks are the underpinning of conservation-based subdivisions. For Arendt, connections must be kept in mind—corridors connecting state parks, national parks, public spaces, trails, with subdivisions and communities. Arendt sees a series of interlacing subdivisions and towns connected by open space.

Challenges Facing Central Texas Developers: Drinking Water Availability and Wastewater Treatment for Conservation-Based Subdivisions. Panelists*: John Ashworth, Associate with LBG-Guyton & Associates, Dr. Bruce Lesikar, Extension Agriculture Engineering, Texas A&M University, and Paul Tybor, General Manager of the Hill Country Groundwater District.*

John Ashworth, who conducted the first hydrological study of the Trinity Aquifer and is considered one of the most knowledgeable experts on the Trinity and groundwater in Texas, opened the panel discussion by reiterating that it takes two particulars to develop property: land for development and water resources. He remarked that most of the Hill Country is over the Trinity aquifer which is not a prolific source of groundwater. He noted that there are plenty of problems with supply as we saw this summer, with wells going dry, and flows on creeks and rivers reduced to very low levels.

Ashworth also pointed out that in certain cases water resources are underestimated by developers, particularly during drought periods of time water supply becomes a problem that is left to lot buyers to resolve. The resident doesn't find out about the problem until too late. Thus the adequacy of water becomes a critical issue in the planning process. For Ashworth, a hydrogeologist must become a part of the evaluation of proposed development design process.

Ashworth noted that the vast majority of counties over the Trinity Aquifer are in a priority groundwater management area (PGMA). These areas have been designated by the state because they are experiencing or expected to experience groundwater problems. He went on to say that Texas counties in PGMAs are requiring developers to have proof that water resources are available for new development. (The Texas Natural Resource Conservation Commission has developed water availability regulations that counties must

now use if they are developing groundwater availability regulations) In addition, counties in PGMAs are encouraged to form groundwater conservation districts. For Ashworth, conservation-based designs are appealing, but, he asked, are they practical in the Hill Country?

By way of answering, he concluded that grouping people into smaller lots, with a larger conservation district was a good approach. He noted that the Trinity Aquifer provides little water, and therefore there is need for large lot sizes to secure enough water for a private well. But, if you had small lot sizes, you could go to community systems where you could have one, two, three or four community wells supplying the entire development. For Ashworth, the question remains whether the Trinity Aquifer can provide sufficient water to meet needs of the current and future subdivisions in the Hill Country.

He also noted that green space areas could serve a useful purpose by helping with water recharge. Along with trying to limit withdrawals through conservation, we must look at aquifer recharge. That is how can we get water into the aquifer through drainage areas and flood plains and reduce the amount of impervious cover that prevents recharge.

Dr. Bruce Lesikar of Texas A&M University is a recognized expert on decentralized wastewater management systems. He began his discussion by pointing out that decentralized wastewater management is a cost-effective solution that protects the quality of surface water and groundwater. He noted that we should look at greywater systems for irrigation for example---- not as just a way of disposing of wastewater but as a way of reusing a valuable resource. His remarks included discussions of various wastewater treatment systems that could serve conservation-based subdivisions. These systems range from conventional septic systems range that could serve individual lots to advanced systems (using sand filters, constructed wetlands, drip distribution systems or spray irrigation) to cluster systems with small diameter gravity collection networks. The choice of system depends on the subdivision design and soil and environmental conditions, among other facts. In addition, on-going operation and maintenance agreements will be necessary for the small-scale community collection and treatment systems. The Texas A&M Agricultural Extension service has more detailed information on the design of these types of systems available at http//agpublications.tamu.edu/pubs/ewaste

Paul Tybor, General Manager of the Hill Country Groundwater Conservation, is well known for his groundwater management expertise. He spoke about the role conservation districts can play in subdivision development. He explained that ground water conservation districts began in the Panhandle in the 1950s; today there are 62 districts that cover about a

third of the state. He explained that groundwater districts must adopt a comprehensive management plan that should provide for the most efficient use of groundwater, a plan for controlling and preventing waste of groundwater, and for controlling and preventing subsidence. Groundwater districts require permits for drilling, equipping or completing wells that produce more than 25,000 gallons a day. The law currently prohibits groundwater districts from regulating smaller wells.
Districts may require water conservation measures such as xeriscaping. Tybor emphasized that the information conservation districts collect about groundwater, such as yield and water levels, form an extensive database that is available to the public and to developers.

Challenges Facing Central Texas Developers and Communities: Subdivision Projects.
Presentation by Don Bosse, a land planner with the firm of Bosse, Compton & Turner.

Don Bosse presented the details of a large new development in the Village of Bee Cave, Travis County. This development incorporates a number of the principles included in Arendt's conservation-based designs. It has a large amount of open space, trails connecting the home sites with a small "village Center," tree placement to buffer the major road from the development. It was carefully designed to reserve viewsheds and other natural features. Bosse spoke about how the developer's vision was an integral part of the design process as was his willingness to work with community leaders.

Subdivision Design: Hands-on Exercise Lead by Randall Arendt

During this session, the participants were divided into groups and asked to complete a subdivision site design. The map and texts used for this exercise are included in the appendix. In performing the exercise one needs to keep in mind what Arendt said about primary and secondary conservation areas and priority features that a community might want to preserve e.g., viewsheds, forests, farmland, etc.

Views and Responses: A Panel and Audience Discussion.
Panelists: *County Bastrop County Judge Ronnie McDonald, Terry Mitchell of Milburn Homes, Mick Mickulenka, Senior Property Tax Consultant, Loomis-Austin, Frank del Castillo, Round Rock Planning & Zoning Commissioner, and Beyrl Armstrong, President, Plateau,*

Bastrop County Judge Ronnie McDonald noted that Bastrop County is currently rewriting their subdivision rules. The County, he explained, is

experiencing rapid growth, but doesn't have the authority to deal with it effectively. He noted that Bastrop is known for its quality of life, and the community wants to maintain it. Though County Judges and County officials say their hands are tied, McDonald noted, however, they can work with developers to enhance development and bring a greater tax base at same time. McDonald said he would like to see more legislation for County Judges and Commissioners and he believed that the Courts could be more proactive. But he also suggested that County Courts could get together and devise a set of standards and a grading system to rate subdivisions so the public knows what they're buying and developers know what the County expects.

Terry Mitchell of Milburn Homes, which builds about 1600-1700 homes a year, reflected that their research on what a community wants has corresponded with much of what Randall Arendt has pointed out. A main issue of concern, he said, particularly in the Austin metropolitan area is housing affordability. Median home price in this area is in the mid-$150,000's which is beyond the reach of many people. Mitchell believes, however, that many of Randall's ideas can be accommodated effectively without raising costs – maybe even bring costs down.

Mitchell remarked that not everybody wants 10,000 square foot lot – different buyers want different things. Some don't want yard maintenance, etc. There is no standard subdivision category for these different elements and ordinances can be a hindrance to flexibility in subdivision design. Housing needs change. Variety should be encouraged. Mitchell said that according to surveys of their developments, 9 of 10 people use community open space, 2 out of 10 use community pool. People say they want both but use open space more.

Beyrl Armstrong, an expert in land and wildlife management and related tax exemptions, explained the importance of using wildlife management exemptions and the cost savings of this to land developers and buyers. He noted that if you have agricultural value and you manage for the primary use of wildlife and secondary use of humans you can receive tax credits. He explained that developers could take property with natural features – canyons, springs etc. and overlay a subdivision; though this does not prevent land fragmentation, it does save some important natural resources. He provided an example of a 225-acre subdivision on the Blanco River, where the property owners formed a wildlife management cooperative that manages the open space for wildlife. There are requirements involved. The owners formed a wildlife management cooperative, and saved a lot of money. The county is not taxing the open space; it is only taxing houses. He noted that the County is actually receiving more money from this project than it would if it had been chopped up and put in manufacturing housing.

-back” property tax that must be paid when agricultural property is converted to subdivisions.
