

# **The Preparation of the Kona Region Community Development Plan: A Case Study in Visioning and Visualization**

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## **1. Overview**

Kona is a district on the western coast of the Big Island of Hawaii (Hawaii County). It is a popular tourist destination that has been experiencing robust growth, with a population increase from 29,942 residents in 1990 to approximately 41,940 in 2005 (an increase of 40 percent). However, population numbers tell only part of the story; growth in housing units provides a more realistic picture.

Between 1990 and 2000, the number of new housing units (many of them second homes) increased from 7,947 housing units in 1990 to 13,300 in 2000, an increase of more than 67 percent. This asymmetrical increase creates disproportionate land consumption and infrastructure needs and has contributed to community concerns about the loss of significant natural, cultural, and agricultural resources located primarily in South Kona. The community has also experienced difficulty providing the infrastructure necessary to accommodate this growth.

In 2006, the Environmental Simulation Center (ESC) and ACP Visioning and Planning (ACP), with The Conservation Fund, (green infrastructure), David Rosen Associates, (affordable housing), and the local firm Wilson Okamoto, were retained by the County of Hawaii to prepare a Community Development Plan for the Kona Region. The Kona Community Development Plan (CDP) was designed to translate the broad goals and policies of Hawaii County's General Plan, adopted in 2005, into specific actions and priorities for particular geographic areas in the districts of North and South Kona. The Kona CDP was the first to be enacted under the General Plan and is envisioned to be a model for future CDPs on the Big Island. Further, the Kona Region CDP also made specific implementation recommendations including the design of a Land Development Code; the funding and location of transportation, water supply and waste treatment infrastructure; and the provision and location of affordable housing.

ACP and ESC worked closely to design the CDP civic engagement visioning process which included the integration of technical analyses and visual simulations throughout the term of the project. Designed as an iterative process, the results of each visioning activity informed the content of succeeding ones ensuring that the public was involved in making all critical decisions for the CDP. Great emphasis was placed on visualizing options and on using images and analytical information to frame issues to engage the public in making informed decisions. These tools and methods were particularly important because a large part of the public process was dedicated to the issues of the accommodating and locating future growth and character of new development.

## **2. Aim**

ACP and ESC were retained because of their past community planning collaborations and visioning expertise, which fully integrated a comprehensive civic engagement process with

application of sophisticated information technology, e.g., 3D/GIS (Geographic Information Systems), static and real-time immersive 3D visual simulation and decision-support software (CommunityViz®, developed by the ESC for the Orton Family Foundation). The year-long civic engagement and vision planning process was designed to both build trust in the visioning process itself and result in an actionable plan based on a broad-based citizen consensus in contradistinction to prior planning efforts which largely filled shelves in the County Planning Office. Because of these planning false-starts and the fact that irreversible development was compromising the Kona Region's quality of life and spectacular natural and cultural resources, the citizens of North and South Kona were skeptical about participating in yet another planning exercise. The challenge to the planning consultants was to first build trust among Kona's diverse community that their participation would, this time, result in tangible action based on decisions consensually agreed upon by the participants in the visioning process. The County's expectations were focused on breaking the planning logjam by guaranteeing that the Kona CDP would lead to concrete action and provide a model or template for other Big Island (Hawaii County) regional CDP's.

### **3. Limitations**

The development of the Hawaiian Islands has a checkered history dating back to colonial days (19<sup>th</sup> Century) and continuing through statehood (20<sup>th</sup> Century). While the islands have a complex web of state and county development regulations, the general tenor of official response to development tended towards a pro-development posture, often leading to the degradation of the island's unique natural and cultural assets. Because of this history, the consultant team negotiated a clear mandate from the County of Hawaii that the planning process would be open and transparent and that prior planning decisions and County vested development permits or entitlements previously granted by the County but not acted on by the applicant, could be questioned. This last point was extremely critical and controversial because vested development permits ranging from small parcels to large tracts of underdeveloped lands, many of which were well over 10 years old, would have compromised future planning efforts.

The statutes governing development permits did not have a "sunshine clause" requiring either an updating of the Environmental Impact Assessment (EIA) or in the case of very old permits, their termination. The County's practice of vesting development permits in perpetuity without a requirement to update the Environmental Impact Assessment with current information is unusual as most states in the U.S. require the EIA to be updated periodically if the applicant does not proceed within a stipulated time frame. For example, there were substantial property holdings with vested development permits to build thousands of new residential units in North and South Kona, which, while providing for future demand, were in locations which were inappropriate for future development as delineated by the results of CDP planning process and the prior General Plan. Other existing planning practices, such as requiring developers to construct infrastructure such as roads and waste and water systems, resulted in a fractured and discontinuous road system that lacked connectivity between developments, reflecting a need for the County to provide infrastructure through its bonding capacity, an action it has resisted over the years.

In terms of forecasting the future demand, the County's General Plan identified an amount of anticipated demand for future housing using standard forecasting techniques and designated a portion of North Kona as an Urban Expansion Area and all of South Kona's agricultural land a

Conservation Area. As per our comment above, many of the so-called vested developments were either outside the Urban Expansion Area or in the South Kona Conservation Area, which if developed would have obviated the County's planning policy to direct the majority of future growth within the delineated Urban Expansion Area. Further, as the public engagement process progressed, the public raised questions about the anticipated future demand projected by the County and if the demand could be reduced or limited. Given the desire to "close the door" to off-islanders, which is effectively prohibited by the U.S. Constitution's equal application of the law and due process clauses and its interpretation by the courts, the issue was re-characterized by the consultants as planning for the future—shifting the focus from *whether* they will come to *how do we plan for their eventual arrival*—whether the future happened in 10, 20 or even 30 years—because "they" *will come* as a result of natural population growth and immigration.

The issue of ensuring that the Big Island's diverse population be represented in the civic engagement planning process was significant, particularly the historically marginalized and patronized native Hawaiian population, which for historical reasons, had been under-represented and more often excluded from decisions affecting their lives and their future. As will be described later, the process of reaching this population proved to be difficult because of cultural barriers and resentments, although many of the Hawaiian elders ultimately did participate. The native Hawaiian population has been and remains the most vulnerable to the changes brought about by development on the Big Island. While the intent of the CDP was to ensure equity and potential upward mobility for this population, the focus of the County's CDP was primarily physical development. This was an unfortunate wasted opportunity, as future development might have supported upward mobility, but rather, was limited to providing a limited amount affordable work-force housing in locations near jobs in North Kona. While the new affordable housing would minimize the burden and costs of commuting from South Kona for some workers, most of the workforce population still had to commute from South Kona where housing was affordable and most of the workforce population lived.

#### **4. The Vision Planning Process and Methodology**

Given the consultants integrated and iterative approach, the description of the area studied, scale, stakeholders involved and their role, and the methodologies and IT tools used during the planning process are discussed as a piece. Following each phase of the planning process described below, we critically assess the effectiveness of the planning process, methodology, and results.

#### **5. Vision Planning**

Visions are an inclusive and comprehensive public involvement process which are designed to anticipate, visualize, measure and plan the future of a neighborhood, city, or region. Visions have been used extensively at the regional scale, as they often are the only way to reach agreement or consensus in complex multijurisdictional conditions. In the twenty years following Vision 2000, prepared by ACP for Chattanooga, Tennessee (the first vision plan in the United States), visions have undergone profound transformations while remaining true to the basic principles of inclusiveness, transparency, careful design, and commitment to implementation.

There are three distinctive outcomes to a vision:

1. The values, which represent what residents genuinely want;
2. The vision, which articulates the way the community can address those values; and
3. The policies, which determine how the vision can be implemented.

To arrive at those outcomes, participants follow a sequence of steps that include brainstorming and envisioning the future, organizing ideas generated through the brainstorming, and developing goals and strategies supported by those ideas. Visions can deal with all areas of interest to a community in an unconstrained manner or can focus on specific planning issues such as the establishment of the policy foundation for a Community Development Plan. A vision process typically lasts from six months to a year, and produces an agreed-upon and articulated vision for a preferred future with recommendations on how that future can be realized.

Workshops and charrettes are concentrated, multidisciplinary planning or design activities characterized by an intense period of work and periodic reviews of the products of that work with the public. Charrettes typically deal with smaller areas of a community than visions, for example, a downtown, a redevelopment area, or a neighborhood. When dealing with larger areas, several coordinated and sometimes simultaneous charrettes may take place.

In a short period of time, typically a week, a charrette can produce highly developed urban design alternatives or development scenarios and plans that most often result in citizen buy-in. During the public involvement part of a charrette, citizens and stakeholders work as a team with designers and planners, and use maps and drawings to develop design alternatives or scenarios for a given physical area of a community. As key areas of agreement are identified, they become the focus for further refinement. When preparation and follow-up periods are included, charrettes take three to four months to complete.

Visions, workshops and charrettes are effective for gaining public input and consensus for development plans. They are not mutually exclusive and are often used together. Visions, in fact, often establish the planning context within which the charrettes are conducted.

Visions and charrettes require careful preparation and rigorous structuring of their processes. Preparation starts with the creation of a leadership team—in the case of Kona, a Steering Committee comprised of representative stakeholders—to assist in the design of the process itself and the development of an outreach campaign to encourage public participation.

A leadership team contributes to the success of a public involvement initiative in subtle ways. From the perspective of the government, the creation of a leadership team lends transparency to the planning process. From the point of view of the private developer, the leadership team brings to the table a balanced interlocutor. From the standpoint of civic leaders, the leadership team represents a first step in expanding the circle of participation.

The key to a successful public involvement process rests on the type of questions asked of the participants. What question is asked, when it is asked, and how it is asked are critical to the success of a program and the quality of its outcome. The questions will define the type and character of the public involvement process and its outcomes.

The conventional way to approach the public starts with the wrong question: How do you like this proposal? This question is also typically raised in the wrong setting—the public hearing, which is often conducted in an intimidating courtroom-like setting. The question is also raised at the wrong time, after experts have deliberated and when the plan is near completion, turning participants' comments into mere footnotes to the process. Reliance on this type of meeting has given public involvement an aura of futility and created public distrust. Most public hearings, according to Daniel Kemmis (1990), have become “public screamings,” in which the protagonists do not listen to each other's arguments.

Visions and charrettes start by asking a very different question: “What do we want?”, which translates into the public's value system. They follow that question with other questions designed to understand and refine what the public wants. In a vision, the question structures the brainstorming phase of the process. In a workshop and charrette, the question is addressed through mapping activities and expressed through drawings and visual simulations. The question is always asked at the very beginning of the process, before a plan is developed, giving value to the participant's comments. The setting of the question is typically within the structure of facilitated small groups, a safe environment calibrated to enhance creativity and release imaginative thinking. The responses to the question, “What do we want?” are also used throughout the visioning process to evaluate the alternative planning and development scenarios and later the continuing evaluation of the performance of the adopted CDP.

In the design of a democratic public involvement civic engagement process for Kona, one size would not fit all. One of the first activities was to define the objectives (the desired outcomes), of the process and then work with County staff and the consultant team to review what available tools and techniques best fit these objectives.

A rich toolbox of meeting techniques is available to conduct visions and charrettes, including those which would benefit from and the process enhanced by the integration of visual simulation tools. They are organized into three groups:

- generative techniques used to gather ideas from the public;
- analytical techniques used to refine outcomes and address critical questions; and
- deliberative techniques used to prioritize results and give closure to the process. These three sets of techniques represent steps that almost any public involvement process needs to follow.

## **6. Kona: Vision, Methodology and Process**

The Kona CDP visioning and public engagement process consisted of four phases

- A. *Gathering ideas*—to create the foundation of ideas upon which all subsequent activities were based;

- B. *Mapping the Future*—to address critical questions and identify where future growth should occur;
- C. *How Do We Grow? Charrettes 1 and 2*—to identify preferred development patterns; and
- D. *Working Groups*—to identify objectives and actions for inclusion in the specific elements of the CDP

The public engagement process took approximately 9 months, during which time the consultants spent upwards of a week at a time on the Big Island. Each of these phases included a host of events which were programmed by the consultants and were coordinated with our stay on the Big Island. In addition, the consultants found the County's GIS to be wanting, and spent a considerable amount of time correcting, updating, and "ground truthing" the GIS with the stakeholders.

### ***A. Gathering Ideas***

The idea-gathering phase consisted of two major activities: structured interviews and public meetings. In September 2005, the consultant team conducted a series of structured focus group interviews with a variety of stakeholder groups, including representatives from the tourism industry, the development community, business, large and small property owners, native Hawaiians, long-term residents and newcomers. These interviews were structured to reveal perceptions, attitudes, values, and critical issues faced by the Kona community.

To ensure balanced demographic and geographic participation of residents, 109 individual public meetings were held throughout Kona from November 2005 through January 2006. These meetings were offered "on-demand," and facilitators trained by ACP arranged to meet with interested parties to gather ideas using a prescribed format that involved general brainstorming and responses to critical questions. More than 800 residents, meeting in their homes and other informal and formal locations throughout the Kona Region, generated 3,496 ideas that were recorded and sorted into 18 categories. These categories were then used by the CDP Steering Committee to develop a set of goals that captured the public's desired outcome for the future of Kona. The categories were also used by the Working Groups (discussed later) as the material upon which to develop objectives and strategies for the elements of the CDP.

### ***Discussion***

The Gathering Ideas process was extremely effective in a number of ways:

- ACP trained citizens to become effective facilitators. The 30-odd facilitators and the consultants training process became a permanent resource for future planning on the Big Island which were used during the CDP implementation.
- The "brainstorming" sessions were held primarily in people's homes, e.g., "*kitchen meetings*" during the evening, making it convenient for people to participate in an intuitive process and share their ideas and values for Kona's future with their neighbors.

- The results of the 109 “*kitchen meetings*” proved to be extremely valuable in capturing the citizens concerns, values, ideas, and vision for the Kona Region’s future, and were used throughout the vision planning process.

And less effective in others:

- The native Hawaiian population’s participation was unfortunately limited, notwithstanding the participation of some elders. While the native population’s participation was limited, the participation of key elders did result in a level of trust in the visioning process and its outcomes. Nonetheless, the participation tended to be skewed towards the region’s recent arrivals who wanted to close the proverbial “door” after them to preserve their idealized view of the Big Island, which attracted them to Kona as a place to live.

### ***B. Mapping the Future***

The second phase was designed to answer the question, where do we grow? The Mapping the Future workshop, conducted in February 2006, was a four-hour activity attended by more than 350 residents organized into 32 facilitated groups or tables. (Figure 1.a, 1.b, 1.c)



*Figure 1a*



Figure 1b



Figure 1c

*Figure 1a, 1b, 1c. Mapping the Future Workshop, during which participants simulated the process of land consumption and growth by placing chips where they wanted future development to occur (ACP Visioning and Planning).*

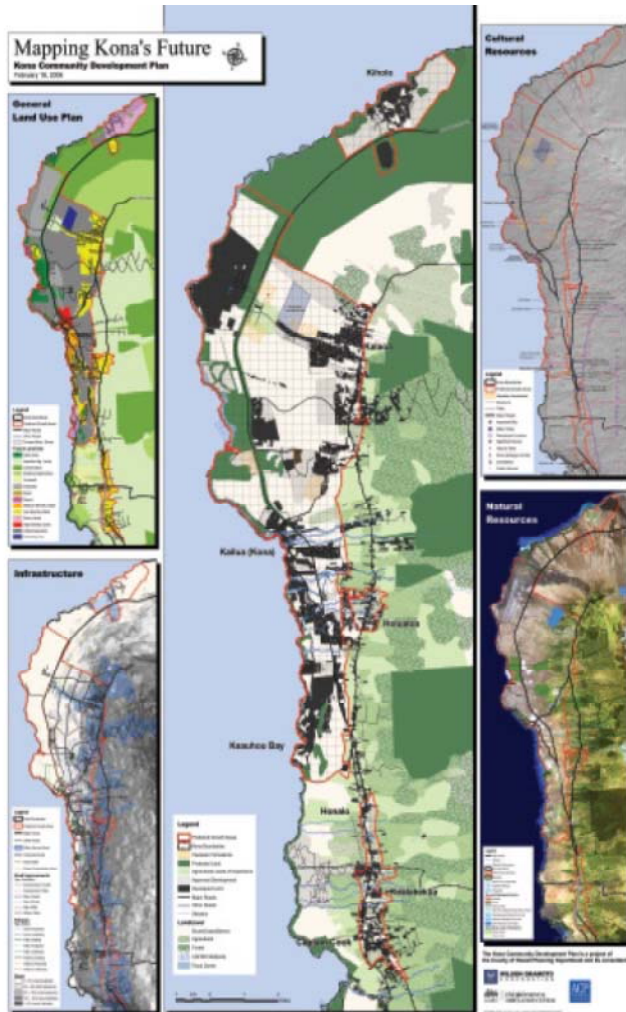
The first part of the workshop was designed to address questions related to policy and implementation issues that had been raised by the structured interviews and ideas generated during the “*kitchen meetings*” in the Gathering Ideas Phase. Small groups were randomly assigned to address one of twelve topics: housing choice; housing affordability; agriculture; transportation and land use; congestion; parks, recreation, and open space; protection of the environment; hazard mitigation; protection of ancestral and historic sites; community character; retail; and tourism.



The second workshop exercise initiated a dialog on regional character, cultural priorities, environmental protection issues, and preferred locations for future growth by asking participants to address about three issues:

1. Define criteria for the protection of ancestral and historic sites.
2. Define criteria for the protection of land for environmental and open space reasons.
3. Address the issue of future land consumption in Kona.

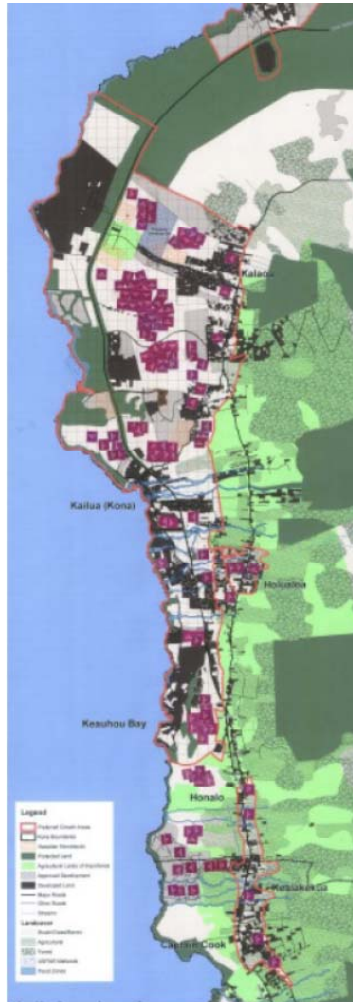
A variety of GIS-based thematic maps provided technical background and informed the participants' discussion (Figure 2). Using the consultant corrected thematic GIS maps as a base, participants initially "ground truthed" the GIS based on their intimate knowledge of the Kona Region, and then first considered and mapped historic sites and other geographic areas and environmental features that should be protected. They then recommended appropriate locations where future growth could occur, based on cultural and geographic constraints and on land available within areas defined by the County General Plan as Urban Expansion Areas. This Mapping the Future segment enabled participants to begin to deal with the issue of balancing future growth with the imperative of respecting ancestral cultural resources and protecting the unique environmental features of the Kona Region.



*Figure 2*  
 Each table of workshop participants was given a large printout with a series of maps. Some tables were given maps for the entire 800-square mile region, and they concentrated on rural issues. Other tables were given maps that focused on the county's preferred urban expansion area (pictured). The center map was the main working map and showed already developed or developing areas, roads, protected lands, and the county's preferred urban expansion areas. Four other thematic maps were provided for reference: the county's general land use plan, infrastructure, cultural resources, and natural resources. (Environmental Simulation Center)

The Mapping the Future exercise also involved an intuitive simulation of the process of land consumption and growth in Kona over the next 15 years (2005-2020). In this "game," participants, working in groups of 10, were given a number of chips, each representing 40 acres. The total number of chips (139) represents the amount of land needed to accommodate expected population growth if current development trends were to continue (5,521 acres). This acreage was projected based on actual land consumption for the period 1995 to 2005, taking into account the continuing second-home phenomenon.

Participants were then asked to place chips on the GIS generated maps in areas where they wanted future growth to occur. They could select unprotected, undeveloped lands, such as existing open space or agricultural lands, or they could select developed land areas, indicating a desire for redevelopment, infill development, or increasing intensity of development in existing communities. They could also indicate intensity of development by doubling or tripling chips in particular areas (Figure 3).



*Figure 3*

*A typical map produced by one group during Kona's Mapping the Future exercise. The red chips represent areas where those participants preferred to see growth. After the workshop, each group's map was scanned and entered into the GIS, thereby capturing the preferences of every participant and highlighting where there is consensus for growth. (Environmental Simulation Center)*

All the maps generated by the public were digitized and integrated into the project's GIS to gain an understanding of the public's preferences. In an innovative use of GIS, these composite maps were used to analyze the degree to which there was consensus on both the location and intensity (degree of development compactness) of future development. The results of this simulation

phase indicated strong consensus on a number of locations within the General Plan’s designated Urban Expansion Area (Figure 4.a, 4.b, 4.c, 4.d, 4.e). These preferred Growth Opportunity Areas (GOAs) focused the majority of future development in the most urbanized area of North Kona, limiting development in South Kona to infill and redevelopment in existing urbanized areas.

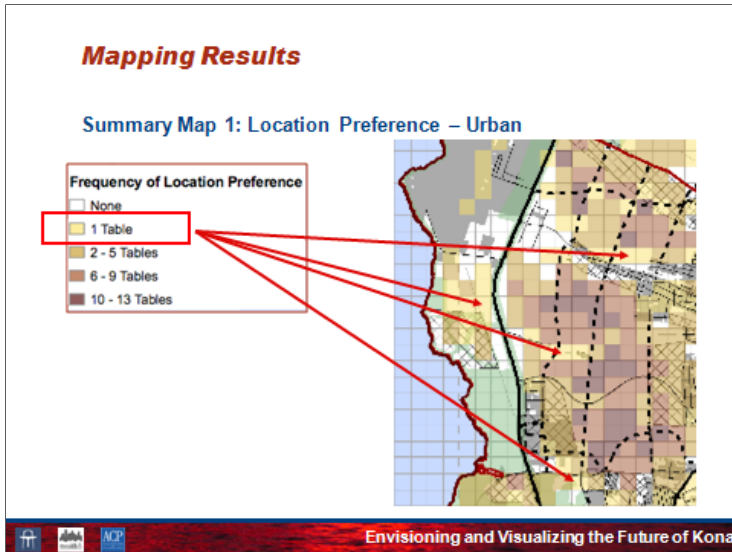


Figure 4a

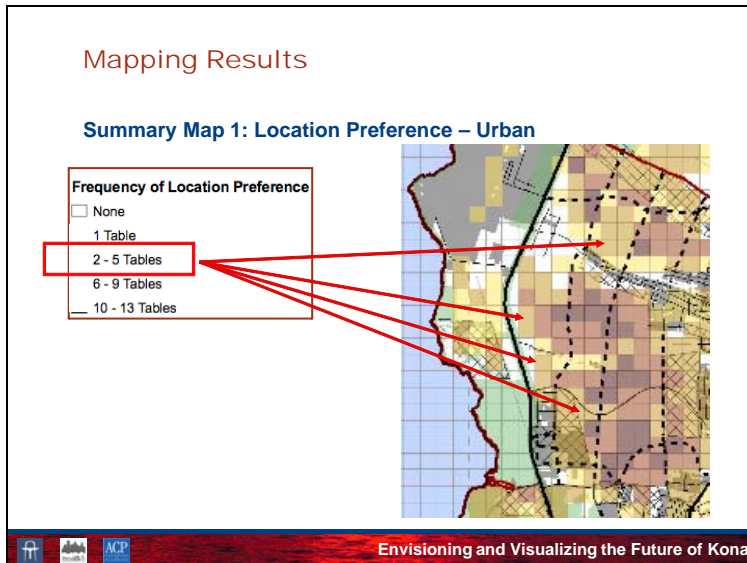


Figure 4b

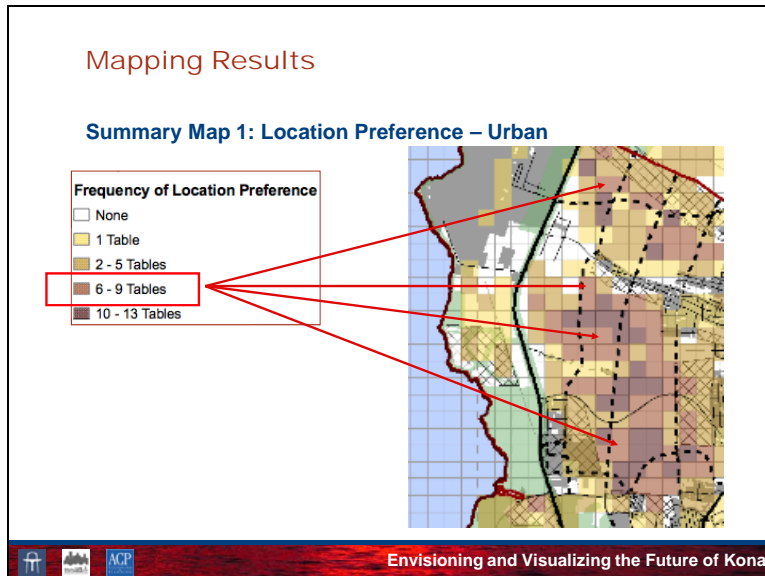


Figure 4c

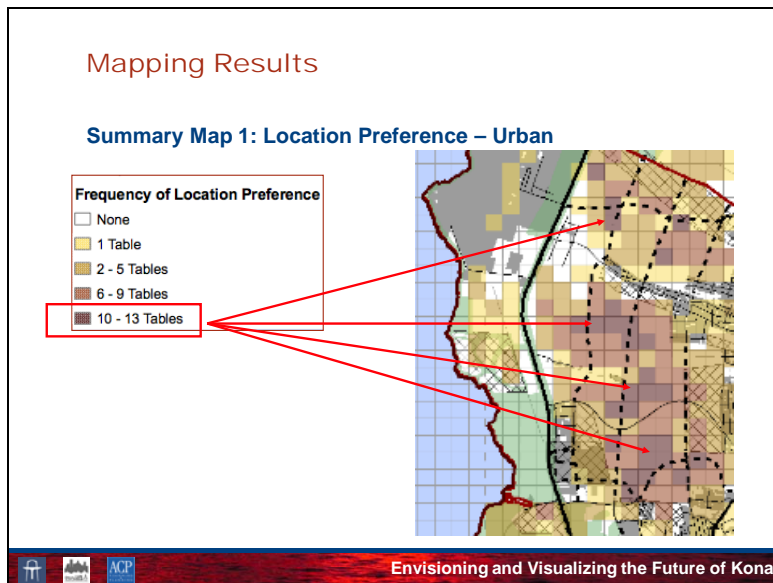


Figure 4d

Fig. 4a, 4b, 4c, 4d, 4e Results of Mapping the Future exercise which illustrate the frequency of location preferences from 1 Table to 10-13 Tables. (Environmental Simulation Center)

GOAs are areas where incentives should be used to stimulate future development. Incentives could include expediting the permitting process, public transportation, specially tailored zoning regulations, and infrastructure provided by the county's bonding capacity for water supply, wastewater, and district-wide drainage and roads. A parallel set of disincentives could be developed for land outside the GOAs by promoting the retention of open spaces and working agricultural lands, adopting tools such as transfers of development rights to compensate landowners, or acquiring land inside the expansion areas for open space protection, and making the existing as-of-right zoning less desirable through the adoption of a more onerous approval

process than that for development within the preferred GOAs or infill in the Urban Expansion and Conservation areas.

Once agreement was reached on *where* future growth should occur, the focus of the public process shifted to *how* that development should occur in the subsequent How Do We Grow? charrettes.

### ***Discussion***

The Mapping the Future exercise was effective:

- Notwithstanding the reluctance of many participants to accommodate future growth, the participants agreed with the assumption that future growth should be accommodated and planned for regardless of the timeframe.
- The use of GIS to present a clear, understandable picture of opportunities and constraints provided the level of information for the participants to feel comfortable to make decisions. Because the County's GIS was not as accurate or up-to-date as it could be—not unusual in our experience—the consultants requested the participants correct or “ground truth” the discrepancies on the GIS-generated maps, which were then used by the consultants to update the GIS.
- The “chip” exercise proved to be more successful than anticipated. In our prior experience, the chip exercise typically resulted in a more general sense of potential development areas and the intensity of development. In Kona, there was a wide consensus as to exactly where growth should happen and at what intensity as revealed when the scanned GIS maps from each of the participant tables were overlaid on each other. The chip exercise also created a strong sense among participants that their “votes” mattered and establishing confidence in both the process and the methodology as all chips were accounted for and tallied, even those “thrown” into the Pacific Ocean by those participants who did not want additional development.

And less effective:

- While the Mapping the Future workshop drew over 300 people, including some native Hawaiians, scheduling it on Saturday, so as not to conflict with Sunday church services meant that those who worked on Saturday—typically the service workers—could not participate and directly influence the outcome. Moreover, their inability to participate in the determination of the conservation areas, particularly the identification of cultural areas of significance to native Hawaiians was a loss in terms of engaging the native population and their needs.

### ***How Do We Grow? Charrettes 1 and 2***

The third phase of Kona's public involvement process utilized two charrettes in March and June 2006, to address development concepts and the nature and quality of future growth. Each charrette consisted of a variety of activities including public meetings, open houses, and meetings with the Kona CDP Steering Committee.

To determine their relative importance, the ten key development principles derived from public comments gathered during the Mapping the Future workshop were rated by participants during the first charrette. These principles provided guidance for a range of activities throughout the CDP process, indicating community preferences related to the location, type, and character of future development. (Figure 5).

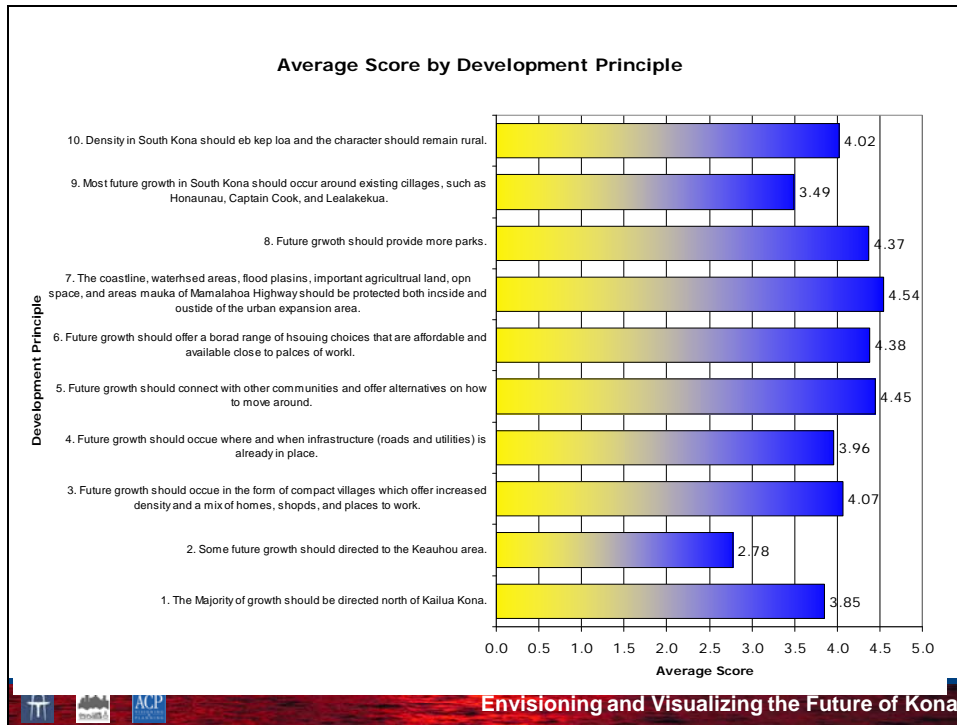


Figure 5. Participants Rating the Ten Development Principles

During the first charrette’s Open House, participants were also asked to review the locations of the GOAs delineated during the Mapping the Future Workshop on a large-scale GIS map and to comment on their appropriateness based on their knowledge of the terrain, information about existing and proposed roads, environmental constraints, and the relationship of selected areas to existing and proposed developments. (Figure 6). The GOAs were further refined during the second charrette with additional input from the public. (Figure 7).





Figure 6. First charrette's Open House (ACP Visioning and Planning)

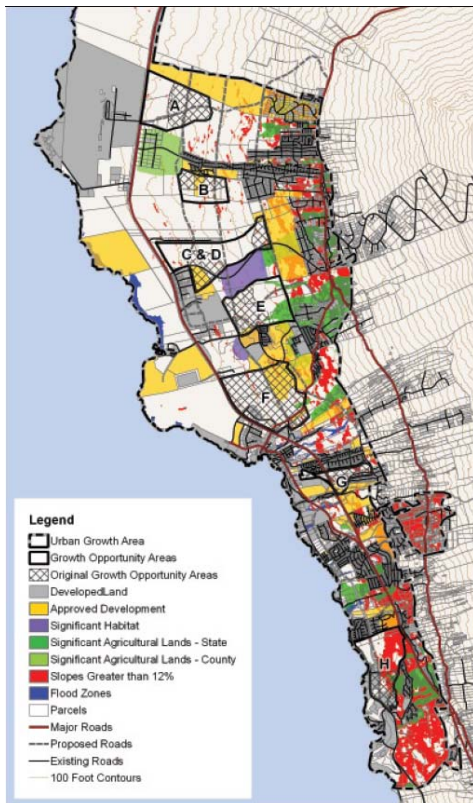


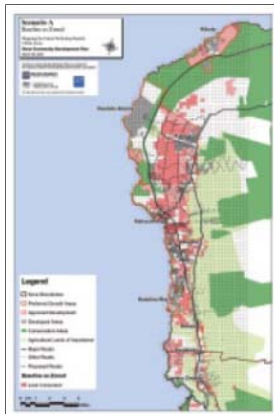
Figure 7.

The Growth Opportunity Areas (GOAs, outlined in black) were created from the locational choice developed during the Mapping the Future exercise and further refined in subsequent workshops using a variety of constraints including areas of significant habitat and agricultural

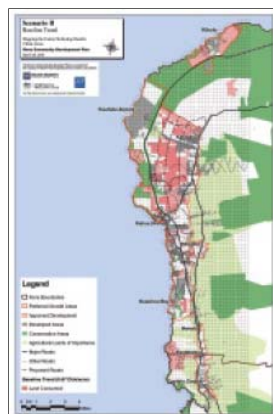


use, steep slopes, flood zones, and existing land ownership. Actual buildable land was calculated in the GIS to ensure that the GOAs were the correct size to accommodate the anticipated future growth. (Environmental Simulation Center)

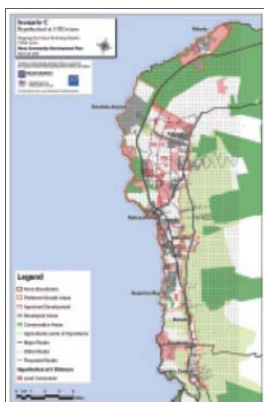
In the spirit of the CDP development principles and goals, the GOAs should be zoned for higher densities and mixed uses (including residential mixed uses) and density bonuses for affordable housing, and they should have form-based and/or performance zoning to ensure that density is created through quality design features and is sympathetic to traditional Hawaiian building typologies. The GOAs provided an opportunity to rationalize the development context in Kona so that development happens in a coherent fashion through the creation of villages and neighborhoods as opposed to the current practice of individual and disconnected subdivision development. Participants at the public meeting analyzed a series of four future development scenarios that simulated what would happen if future growth were to be accommodated at four different densities (Figures 8a, 8b, 8c, 8d).



**Scenario A**  
**Development:** distributed using current zoning densities  
**Additional Acres Needed:** 9,265



**Scenario B**  
**Development:** distributed at the average density of current trends  
**Additional Acres Needed:** 1,492



**Scenario C**  
**Development:** distributed at a density of five dwelling units per acre, which represents approximately the maximum density allowed under current zoning  
**Additional Acres Needed:** 990



**Scenario D**  
**Development:** distributed at eight dwelling units per acre  
**Additional Acres Needed:** 661

*Figures 8a, 8b, 8c, 8d. Land consumption scenarios from lowest to highest density and lowest land consumption. (Environmental Simulation Center)*

To help the public understand the implications of each development scenario and the development patterns and their land consumption related to each of the development scenarios, 3D visualizations were prepared by draping an ortho-photograph over a 3D terrain model of a GOA with the development patterns associated with each of the densities were overlaid on the 3D model. (Figure 9a, 9b, 9c, 9d). Responses to each of the scenarios indicated that the public's preferences were strongly in favor of higher-density scenarios, somewhere between Scenario C and D, with an average net residential density between five and eight dwelling units per acre and land consumption of 990 and 661 acres respectively. The other two land-use scenarios were rejected because the projected average density and land consumption were both too low and too high: Scenario A: Average density based on current zoning and land consumption of 9,265 Acres; and Scenario B: Average density based on current trends and land consumption of 1,492 acres. The preferred density of between five and eight dwelling units/acre was used to develop the preferred land use scenario and to inform visualizations of future development patterns.



*Fig. 9a, 9b, 9c, 9d, Development patterns illustrating the four development scenarios and their land consumption shown in yellow. (Environmental Simulation Center)*

For the second charrette, a total of 17 visual simulations employing digital 3D building blocks based on traditional and contemporary building typologies were created to illustrate conditions likely to be created under the average five to eight units per acre in village centers (GOA's). Visualizations also addressed residents' concerns about uniformity and scale. The 17 visual

simulations were presented and rated by the charrette participants (Figures 10a, 10b1, 10b2, 10c1, 10c2, 10d1, 10d2)



*Figure 10.a View of village center with parking behind the buildings*



*Figure 10b.1. Streets without sidewalks and curbs*



*Figure 10b.2. Streets with sidewalks on both sides*



*Figure 10c.1. Streets with curb cuts for driveways*



*Figure 10c.2. Off-street Parking*



*Figure 10d.1. Uniform Housing Types, Building Setbacks, and Lot sizes*



*Figure 10d.2. Varied Housing Types, Building Setbacks, and Lot Sizes*



The results of the rating exercise indicated a preference for communities with well-defined centers, parking behind buildings, and a walkable and sociable environment. The participants also indicated a preference for neighborhoods that offer varied housing types, setbacks, and lots, while they expressed a dislike for conditions associated with conventional subdivision developments (e.g., uniform lots and housing sizes and lack of sidewalks). Based on these preferences, a prototypical GOA was created by assembling the 3D digital building blocks. (Figure 11).



Figure 11. A visual simulation showing a Growth Opportunity Area alternative at 8 units per acre (Environmental Simulation Center)

The responses to the 3D digital building blocks provided critical information that was later used in the development of regulatory tools to implement the compact neighborhoods and village vision expressed through the preferred development scenario. In addition, the 3D digital building blocks were used by the CDP Steering Committee and County Officials to analyze the physical implications of density bonuses in the range of 20 to 30 percent for the provision of affordable housing. The consultants presented the concept of performance as a way to analyze future developments such as GOAs and the CDP as to how well they conformed to the development principles, goals, objectives, and expectations of the public.

## *Discussion*

The first charrette:

- The rating of development principles based on public comments gathered during the Mapping the Future Workshops was critical in determining a consensus on priorities. Because the development principles had been gathered during the initial small group stakeholder meetings and then vetted during Mapping the Future, participants had time between the workshop and the first charrette to consider the principles and reflect on priorities.
- The Open House was scheduled in the evening to accommodate the working population which was designed as another check point for the public to review and comment on the preliminary location and size of the Growth Opportunity Areas. The use of a room-sized GIS generated paper map, rather than a projected electronic version permitted large numbers of people to attach their comments using Post-Its® and discuss them with the other participants.
- The first charrette’s use of GIS simulations of possible land consumption based on a range of densities from current zoning and trends to upwards of 8 dwelling units per acre clearly visualized and framed the choices for the public. The framing of choices for the public in ways that supported intuitive responses to a complex situation without “dumbing down” was critical to the design of the civic engagement planning process and the use of information technology—specifically visual simulations and GIS.
- The comparative GIS maps illustrating land consumption under different scenarios, while abstract, proved to be more effective than our attempt to visualize the scenarios in three dimensions in a typical GOA. Creating four scenarios using the Kona “building blocks” challenged CommunityViz® 3D real-time simulation capacity to parametrically inhabit a place. Given the time and resource limitations, creating a full real-time digital 3D model of a GOA at the four development scenario densities was abandoned in favor of 3D aerial views using orthophotographs of a specific location and a yellow tone to show the extent of land consumption adjacent to a place the participants could recognize (see Figures 9a, 9b, 9c, 9d). The feedback was that these representations were less informative than the GIS maps (see Figures 8a., 8b., 8c., and 8d.)—in part because the visualization of a street and block pattern was too abstract as well as the context not being large enough to give a real sense of place and extent.

The second charrette:

- The experiential 3D visualizations for the second charrette were designed to show conditions at the preferred density with alternative urban design scenarios, e.g., parking in front/parking behind, uniform lot and housing types/variety of lot and housing types, etc. using Kona-specific realistic 3D building blocks which were vetted by the Steering Committee as being “close enough”<sup>1</sup>. Initially, the intent was to link the 3D digital

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Note: In many cases we created building components or “kit of parts” which could be assembled into a variety of buildings—all of which could be attributed. Creator® was used to create the “building-kit-of-parts” (as SketchUp at that time could not be attributed) and CommunityViz® was used to attribute the 3D digital models and view them.

models to urban design scenarios to provide a continuous walking experience, and turning “switches” on and off to visualize alternative urban design options. While our preference was for real-time in contradistinction to a static view (it minimally begins to simulate motion and time and the way in which we process visual information), we ultimately shifted to capturing comparative urban design scenario images in a visual preference survey format because, as mentioned earlier, the constraints of quickly and efficiently building an attributed digital 3D model with alternatives in the week we were in Kona for the second charrette was not feasible, although that would have been the consultant team’s preference.

- Because of the complexity of assembling a complete 3D real-time model of a representational GOA, the work was done in New York after the second charrette, where we developed a quasi-parametric protocol to populate a GOA on a sloping site typical of the Kona Region. The model was constructed in Creator® and visualized in the CommunityViz®’s viewer (see note below), permitting a participant to freely move through the GOA. From our perspective, this aspect of random access and movement is critical to building confidence and trust among the participants that they are not being manipulated by a pre-pathed animation that limits what the viewer sees to what the editor wants you to see. Its late delivery did not ultimately impede the decision-making process, and it added confidence that the decisions made during the civic engagement process were in fact valid (validation of concept). Packaged as a CD with a viewer, the project Steering Committee and Working Groups used the real time visual simulation of a prototypical GOA in making their recommendations to the consultants, which were then included in the CDP.
- The concept of performance was introduced during the second charrette. Examples illustrated how the implementation of the principles could be quantitatively evaluated against expectations of performance. The reason for performance was to get beyond prescription (e.g., the answer embodied in the regulations) to describing the issue or problem to be addressed or solved by the development team. This approach was consistent with the Kona market-driven approach which accommodated a nimble and flexible approach to challenging conditions, but nonetheless was consistent with the consensus of values/principles. The performance system was designed both to evaluate individual developments and longitudinally track change over time to provide feedback on the effectiveness of the CDP. (See Figure 11).

#### General Comments

- Jumping scales smoothly from the macro-regional planning issues (first charrette) to those that were local, can be extremely tricky, yet very important because the local is the experiential—e.g., what will be the look and feel of future development, whether in the GOA’s or in other locations in the Urban Expansion Areas. The transition from the macro to micro was basically linear, e.g., macro focused on land consumption and density of development and micro the sense of place.
- The civic engagement process employed a range of formats from formal to informal and large-scale to intimate settings. The objective was to tailor the format and setting to the

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Textured and detailed 3D digital models were created for each urban design to be viewed at eye-level (simple massing models do not create a streetscape environment that most lay people recognize, as they are too abstract).

particular purpose of the event. For example, the informal format of the Open House during the first charrette was designed to encourage informal face-to-face exchanges between the participants, and consultant team the table exercises were characterized by formal face-to-face dialog to reach consensus, e.g., land consumption, and formal presentations by the consultants during the second charrette, e.g., the visual simulation of possible urban design scenarios employing 3D building blocks leading to voting by the participants, appeared to work well as represented by a consistently high turnout for each event, “voting with their feet” by showing up.

### ***Working Groups***

This final phase of the public engagement vision planning process created a mechanism that allowed for citizen input in the policy-level phase of the CDP development, over a period of about six months. At a minimum, one member from the CDP Steering Committee was in each Working Group to function as a liaison to keep the Steering Committee informed on the progress of the decision-making process.

Guided by a facilitator in each group, a total of 12 Working Groups addressed the following topics, which were somewhat different from the original set of 12 topics: agriculture, cultural resources, economy, energy, environment, facilities and programs, flooding and natural hazards, government, housing, land use and planning, recreation, and transportation. Drawing upon the input from each of the previous phases, the Working Groups identified specific objectives and actions to be included in the final CDP.

### ***Discussion***

- One of the purposes of the Working Groups was to create a constituency for their subject area which would advocate for and take “ownership” of their implementation of the CDP in their respective policy areas. The composition of each working group reflected a range of stakeholders including citizens, businesses, not-for-profit organizations, and developers and was so constructed to provide a vehicle for potential public-private partnerships.
- In addition to the wealth of information used and/or developed for the prior phases (e.g., GIS maps, 3D views of comparative urban design scenarios, and database), the consultants provided information to the Working Groups on an as-needed basis. For example, the Conservation Fund developed a policy paper on “Green Infrastructure” and in conjunction with the ESC, a background paper on the use of Transfer-of-Development-Rights for the conservation of agricultural and culturally and environmentally sensitive lands.
- The attributed real-time 3D digital model of a prototypical GOA was used by the affordable housing consultant and housing working group to assess the urban design impact of density increases to subsidize affordable housing, primarily in North Kona, where land prices are exceedingly high. This was made possible because the digital 3D model was also a database which included type of house, number of dwelling units, size



of dwelling units, density on various lot sizes, off-street parking, parking, building coverage, etc.

### **Reflections on the CDP Civic Engagement and Visioning Process and CDP**

- The consultant recommendation to track the performance of the CDP and the land-use development regulations was rejected because of the perceived amount of information and indicators needed to track change. While much of the information was in place, that information was essentially the starting point or base case. The implementation of the performance-based longitudinal tracking would have required the collection of information for each indicator which was beyond the County's staffing and IT capacity. This was unfortunate, as it diminished the County's ability to adjust the regulatory system based on information gathered and analyze it as to its performance and as a result, diminished two aspects of the consultant's approach—transparency and accountability.
- The CDP Visioning Process, for all its good intentions, did not very successfully deal with the Kona Region's vulnerable population, with the limited exception of the affordable housing component of the Plan. The opportunity to connect economic development to the needs of the vulnerable population as an engine for their upward mobility was lost. To implement this approach would have required the structuring of a social service intake system with economic development and an integrated data management and sharing system which was deemed out-of-scope. Subsequently, the ESC, with the support of the Ford Foundation, has developed the Human Development Overlay District (HD-OD), to develop the concept of promoting the upward mobility of a community's vulnerable population as an integral part of the planning and development process. HD-OD is currently being prototyped in three American cities.
- Because the Big Island of Hawaii's government is county-based (there are no municipalities), the land-use regulations are county-wide. This created two dilemmas. The first, accountability and transparency, and the second, a regulatory approach which would localize the land development regulations to the Kona Region. Creating separate jurisdictions, while desirable in terms of transparency and accountability—by having a locally accountable government of elected officials—was not politically possible. Instead, the consultants recommended subdividing the land-use regulations on a regional basis on an island where the regional environments are distinct, e.g., pasturelands in the north, rainforest in the west, and semi-arid in the Kona Region. This approach was adopted by the County.
- While the consultants recommended a transfer of technology and the training of staff to use the technology in both Kona and subsequent regional CDPs on the Big Island, this was done in a limited way because of staffing and budget constraints.
- On the other hand, the civic engagement and planning methodology has served as a model for future CDP's. The process was acknowledged by the County as being a successful demonstration of how a democratic, inclusive decision-making process could lead to community consensus—something which had eluded the County in its prior planning efforts.
- Historically, the burden to provide infrastructure was off-loaded to each development, resulting in a patchwork of roads and water treatment and water supply infrastructure,

rather than using infrastructure as a way to guide development. During the CDP process, it became apparent that this ad hoc methodology was not workable and required the County to act proactively if the goal of compact, high density GOA's or Transit-Oriented Villages was to be effectively implemented. The recommendation to use the County's bonding capacity to provide critical infrastructure to implement the CDP is still being debated.

- Visual simulation and GIS proved to be very effective in conveying what the words and numbers meant and in framing the choices for the participants in the civic engagement planning process. Without the use of simulations, visualize the alternative scenarios and development patterns, it is highly unlikely, for example, that the stakeholders would have recommended high density, transit-oriented compact development in new “transit villages” and infill development in existing urbanized areas.

### Summary

The vision set forth by the public and articulated in the Kona CDP document is multifaceted and complex and requires a profound rethinking of the way land will be used in the future. The vision suggests a dramatic shift in emphasis from growth by disconnected and often gated subdivisions to the creation of compact, mixed-use transit-oriented villages and neighborhoods. As visually simulated in the 3D digital model, a prototypical GOA supports the principles of connectivity and walkability and offers mixed uses and buildings and lots of different types and costs. It calls for celebrating the native culture while respecting the ancestral places that are sacred, and for considering all aspects of the natural environment—from the *mauka* (ocean) to the *makai* (mountain) lands to agriculturally profitable areas and places for recreation. This vision also demanded a strong focus on affordable housing close to employment centers, not just as an issue of social equity, but as a way to reduce traffic congestion and workers' commuting distance. It required establishing a new, rigorous set of development regulations to enable the implementation of the vision. And, finally, it will require innovative partnerships of private, public, and civic interests committed to implementing the vision over the long term.

The guiding principles of the Kona CDP which resulted from the extensive civic engagement process were designed to protect Kona's unique natural resources and culture and provide a context to guide the future development of the Kona Region. The ten principles, listed in order of importance as voted upon by the visioning process participants are:

1. The coastline, watershed areas, flood plains, important agricultural and, open space, and areas mauka of Mamalahoa Highway should be protected both inside and outside of the urban expansion area. (4.53)
2. Future growth should connect with other communities and offer alternatives on how to move around. (4.42)
3. Future growth should offer a broad range of housing choices that are affordable and available close to places of work. (4.35)
4. Future growth should provide more parks. (4.34)
5. Future growth should occur in the form of compact villages that offer increased density and a mix of homes, shops and places to work. (4.02)
6. Density in South Kona should be kept low and the character should remain rural. (3.95)

7. Future growth should occur where and when infrastructure (roads and utilities) is already in place. (3.93)
8. The majority of future growth should be directed north of Kailua Kona. (3.74)
9. Most future growth in South Kona should occur around existing villages, such as Honaunau, Captain Cook, and Kealahou. (3.45)
10. Some future growth should be directed to the Kealahou area. (2.69)

Since the completion of the CDP, the Kona CDP has been implemented by the County through extensive amendments to the County Zoning Ordinance. The amendments include a Transit Oriented Development (TOD) Floating Zone that identifies designated areas (e.g. Growth Opportunity Areas or GOA's), Village Design Guidelines which require a conforming Master Plan, and an expedited process that requires concurrent processing of the application and Environmental Impact Assessment (EIA) by the Planning Commission. Other floating zones include a Traditional Neighborhood Design (TND) Floating Zone, Affordable Housing Floating Zone, and a Medical Center Floating Zone. Concurrently conventional rezoning in non-TOD and TND areas will be approved only if they are infill in existing urbanized areas and consistent with the General Plan and CDP. Further, rezoning applications to amend the CDP and General Plan will be discouraged such as rezoning outside of the Urban and Rural TODs. Holders of prior vested development permits will be required to update their EIA's after a time period which is still to be determined.

The County will now require the concurrency of road segments and connectivity both within and between developments, multi-modal street design, neighborhood parks in subdivisions, and the preservation of agricultural lands. The Kona shoreline will be protected with an enhanced shoreline setback of 1,000 ft. through water quality monitoring, and public access, and the Transfer-of-Development Rights (TDR).

Subsequent to the adoption of the Kona CDP by the County and the amending of the zoning ordinance two Transit Villages have been proposed by developers. The \$700 million 272 acre Village at Kealahou, the first to be planned and built since the Kona Community Development Plan was approved in 2008, will include approximately 2,300 housing units the first of which may be ready for occupancy as early as 2012. More than 50% of the homes-townhouses, single residences, and rental units will be affordable. The Kealahou community workshops, led by the development planners and based on the CDP process, reinforced the principles in the CDP by giving the Village of Kealahou planners direction as a list of principles, goals, and priorities.

- Small blocks that are pedestrian friendly and interconnected.
- No cul-de-sacs.
- Transit oriented Development (TOD) that encourages walking, biking, and using public transportation.
- Cultivate a sense of place and protecting the land.
- Provide housing choices and recreational opportunities.
- Preserve ancient burial archeological sites.
- Landscaping that capitalizes on the natural dry land.
- Incorporating solar energy and water efficient systems.

As stated by Wally Lau, West Hawaii Deputy Mayor “The CDP is a reflection of the will of the community. It gives us the framework and basis. We have a beginning place for conversations about growth and development.” The developer said that the original mission was to build an affordable housing, livable community as quickly as possible and having the CDP in place helped focus the project right from the start—“The CDP really gave us a blueprint of what we needed to do from the start.”

The second proposed development is the 80 acre Honokohau Village. The concept is to create a mixed-use neighborhood, closely integrated with the emerging West Hawaii Civic Center, where people, as described by the project planner, at the community planning charrette, can live, work and play without relying exclusively on the automobile. “So we are not just talking about planning for transit, walking, biking, and cars,” says Masunaga who oversees development in West Hawaii. “We’ll also use the charrette to set standards for Honokohau Village that will include building setback and heights, the width of streets and sidewalks, the mix of building types allowable density ranges, the placement of public parks and other open spaces. The result will be a village design that encourages a true neighborhood atmosphere.” Along with the consulting group and community residents, the County represents one third of the partnership in the public charrette. The County’s interest is especially understandable given County planners responsibilities for understanding new ways of doing business under the Kona CDP, helping developers navigate a revamped entitlement process (i.e. vesting), and enforce the new zoning regulations as they apply to a real place. The Honokohau Village is serving as model for future growth and as explained by the County Planning Director is “a road map...something we can take from Kona and use in other parts of the island.”

Barely a year old as a County of Hawaii ordinance, the landmark Kona Community Development Plan is already winning awards. In September 2009, the state’s chapter of the American Planning Association awarded the CDP its Outstanding Planning Award. “Receiving this recognition from the state’s professional planners is special to us, said Mayor Billy Kenoi, because it affirms the County of Hawaii’s commitment to planning for the future in collaboration with our communities.”

As observed by Masunaga, conventional planning approaches often complicate the community building goals—“In the not so distant past we planned subdivisions that were disconnected from one another and where people without access to automobiles were isolated. The disconnections affected all sorts of other things including infrastructure investment, environmental protection, and public services like police and fire fighting. One of my dreams is that my seven-year-old daughter will be able to safely walk just about anywhere she needs to go for her daily needs. That’s not possible in most places in Kona now. Now we can implement the policies to guide the Planning Department and the Planning Director on how we want Kona to look like in the next twenty years into the next generation.”

The multifaceted vision expressed in the Kona CDP could not have been achieved without the use of GIS databases and maps and 3D visual simulations that allowed the public to work directly with technical information and visualize the outcome of a variety of future development scenarios. The melding of the intuitive knowledge brought to the table by the public and the technical analysis contributed by the technical consultant team and County planners ensured that

the participants made informed and technically sound decisions while pursuing a vision for the Kona Region consistent with their values and expectations.