

Smart Communities: A California Master-Planned Community Case Study

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1 CALIFORNIA MASTER PLANNED COMMUNITIES

The rapid urbanization of California has created an environment that enables innovative community master-planning. One aspect of contemporary place-making is the incorporation of advanced information technology and communications (ITC). Of particular interest are the ITCs that may become defining characteristics of the master-planned community.

1.1 General Plan—The Long Range Vision

All cities and counties within the State of California are required to adopt a “comprehensive, long-term general plan for the physical development of the county or city, and any land outside its boundaries which in the planning agency’s judgment bears relation to its planning.” [OPR] The General Plan must include the following elements: land use, open space, circulation, noise, housing, safety, and conservation. The General Plan may include additional elements, and many cities and counties add elements that address issues of particular interest to their communities. Riverside County has recently adopted a progressive form of General Plan that focuses on the relationship between land, transportation and the environment. The Riverside County Integrated Project (RCIP) combines advanced geographic information services (GIS), Internet, and information management.

[For more information on General Plans, visit the Governor’s Office Planning and Research website at <http://www.opr.ca.gov/> For more information on the Riverside County Integrated Plan visit the RCIP website at www.rcip.org].

1.2 Specific Plan—The Community Development Plan

California has designed a framework for developing a precise plan that implements the General Plan: the Specific Plan of Land Use. The Specific Plan is a “tool for the systematic implementation of the general plan. It effectively establishes a link between implementing policies of the general plan and the individual development proposals in a defined area. A specific plan may be as general as setting forth broad policy concepts, or as detailed as providing direction to every facet of development from the type, location and intensity of uses to the design and capacity of infrastructure; from the resources used to finance public improvements to the design guidelines of a subdivision.” [Miner] Since the inception of Specific Plans in 1965, they “have gone beyond the original legislative intent and incorporated detailed development plans with environmental policies, programs and goals to create defined areas which are functional, livable, and affordable and which offer the sense of place commonly envisioned in the creation of the general plan.” [Miner]

[For more information on Specific Plans, visit the California Environmental Resources Evaluation System at <http://ceres.ca.gov/planning/specific/>]

1.3 Smart Master-Planned Communities

The rapid urbanization of California creates opportunities for innovative large-scale community development. The Specific Plan provides the structure to design communities that not only meet the fundamental requirements of the General Plan, but also create a sense of place and sense of community. Specific Plans include implementation programs and may include development standards and design guidelines. Combined with land use, circulation, energy, and environmental considerations, the Specific Plan is a powerful technique for place-making. In addition to these components, innovative master-planned communities may consider information technology and communications. Those communities that utilize information technology combined with state-of-the-art planning techniques are **smart communities**. The Domenigoni Valley and McSweeny Farms Specific Plans represent state-of-the-art development of smart communities. The Domenigoni Valley Specific Plan near Winchester in Riverside County, California is a proposed ~1,700-acre [~690-hectare] master planned community that defines the cutting edge of community dynamics in both physical and virtual design. The Master Plan envisions an information 4,600-home community linked by a local area network (LAN) and the Internet. At the other end of the 4.5-mile [7.2-kilometer] Diamond Valley Lake is the McSweeny Farms Specific Plan near the City of Hemet. This master-planned community contains ~670 acres [~270 hectares] and 1,640 homes with an ITC network to support the “village” lifestyle. Both Specific Plans include an ITC Master Plan and development guidelines.

[For more information on the Domenigoni Valley and McSweeny Farms Specific Plans, visit their websites at www.domenigonivalley.net and www.mcsweenyfarm.net]

2 MASTER-PLANNED COMMUNITY INFORMATION TECHNOLOGY & COMMUNICATION

Although information technology and communication advances affect all aspects of modern master-planned communities, there are several technologies that will become defining components of smart communities.

2.1 Community Intranets—Connecting Citizens with Local Resources

Within the last decade, planners and community developers have searched for techniques to create distinctive environments and cohesive citizenry—sense of place and sense of community. Although the Internet is rapidly becoming integral to professional,

educational, and social life, it is—by nature—aspatial. An *internal* Internet, or **Intranet**, provides content that is relevant to the targeted community. Businesses, institutions and citizens developed the first Intranets such as Blacksburg Electronic Village (Virginia, USA) to enhance community networking. Disney created one of the earliest developer-sponsored Intranets for the master-planned community Celebration (Orlando, Florida, USA). Disney made an early marketing decision to actively pursue online communication with local businesses, health-care providers and schools. “By encouraging these organizations to post useful information online, the community intranet engaged the interest of homebuyers from the key demographic groups targeted in Celebration’s marketing.” [Paradise] Evanston Illinois has one of the most advanced networks: e-Tropolis. The e-Tropolis Evanston Electronic City, the first-page-up when an e-Tropolis Evanston subscriber signs on, is a directory of all things Evanston, linking to any and all. The e-Tropolis Evanston home page is known as the “Town Square.” Intranets like Evanston, engage all groups—from neighborhoods, organizations, public agencies, institutions, and individual residents—to add to the Web site with rich local content. [e-Tropolis] A comprehensive master-planned community Intranet would include:

- World Wide Web Portal – access the Internet and Intranet anytime from anywhere
- Community Information – access to community news, calendar of events, announcements, rules and regulations, guides, and directories
- Community Participation – create personalized calendars, make reservations for amenities and events, participate in homeowners association polls and questionnaires
- Citizen Networking – master-planned community email addresses for all residents, businesses and organizations allowing access to the intranet for personal communication to participate in forums, locate other residents with similar interests, review places and events, obtain referrals, and more with interactive tools
- Distance Learning – access online learning programs from local Kindergarten through university and continuing education
- Health-Care Services – use personal, interactive online health care from local and distant facilities
- Entertainment & Recreation – provide online entertainment and organize and coordinate community recreation activities and events
- Financial Services – access to the intranet anytime from anywhere for financial transactions
- Business Development – online transactions, special offers and promotions, online service and product searches, and direct access to local businesses
- Site Administration – design and maintain website with user-friendly web-based forms and generate online reports, service requests, and property management activities

The community Intranet helps develop and support community living, working, learning and playing. Both the Domenigoni Valley and McSweeney Farms Specific Plans provide for Local Area Networks (LANs) and Internet Service Providers (ISPs) to provide the enabling infrastructure for Intranets.

2.2 Wireless Communications—Ecumenopolis

The Greek city planner C. Doxiadis coined the word “ecumenopolis” to describe the city of the future as a continuous system linked electronically. Smart Communities will capture the benefits of the ecumenopolis while retaining the character and spirit of the local culture. The Domenigoni Valley and McSweeney Farms websites (and eventual Intranets) provide historical, archaeological and paleontological foundations through documentation in conjunction with cultural resource programs. In addition to the wired infrastructure (cable and fiber), smart communities require **wireless communications systems** to support mobile ITC. The Intranet helps preserve local natural and cultural heritage, and this is supplemented with the wireless communications system provision of mobile access to the local and global community. The Domenigoni Valley and McSweeney Farms Specific Plans provide for the wireless communications system by locating freestanding antenna structures referred to as ‘monopoles.’ Currently these wireless communications facilities are concealed or ‘stealthed’ to be unobtrusive by disguising them as trees (monopalm and monopines), architectural features such as building facades, or other structures such as water tanks. Riverside County is currently in the process of developing a Wireless Communication Facilities Ordinance to regulate these structures and the Specific Plans may further refine this ordinance.

2.3 Geographic Information Systems—Mapping, Monitoring, Maintaining

Geographic Information Systems (GIS) have countless applications for smart master-planned communities and will be transparent to most citizens. GIS was—and continues to be—used in the planning for these communities. The Riverside County Integrated Plan incorporated a GIS to ‘integrate’ the primary elements of land use planning, environment, and transportation. GIS was also employed in identifying sensitive habitat. An example of this was the electronic tracking of species such as the Stephens Kangaroo Rat. Captured K-rats were ‘injected’ with an electronic chip that enabled biologists to follow their movements, which would then be entered as GIS data. At the other end of the spectrum, GIS serves to identify properties suitable for development based on such factors as level of infrastructure, zoning, availability of services, and so on. Areas to be further explored for master-planned communities include:

- Energy – monitor and regulate power and gas consumption at the individual, neighborhood and community level. GIS programs are being developed to conserve energy from simple measure such as regulating night lighting, to more complex efforts to restructure the local power grid.

- Resources – monitor and regulate resource consumption, reuse, and disposal. GIS programs are being developed to make real-time decisions on resources from simple measures such as regulating irrigation to maximize efficiency to more complex efforts to design water reclamation systems.
- Safety & Security – monitor people and property for health and safety. GIS programs are being developed to regulate traffic signalization, provide surveillance and tracking, and are being developed for personal, neighborhood and community-wide applications.

The Domenigoni Valley and McSweeny Farms Specific Plans include provisions for various GIS programs to enhance the master-planned community lifestyle.

3 SMART COMMUNITIES—CONCLUSIONS

Smart Communities planning represents a dynamic approach to creating sense of place and sense of community—two areas which are becoming redefined by their electronic counterparts: virtual reality and e-networks. The challenge for smart communities will be to balance these in ways that make life more enjoyable and meaningful. How can we establish a sense of place that is valuable in terms of natural and cultural heritage and simultaneously expand an indefinable “cyberspace.” How can we foster a traditional sense of community while supporting virtual community networks? Or, simply stated, how does the master-planned community encourage a ‘resident’ to become a ‘citizen’?

Planners must become familiar with the **ITC tools** for creating smart communities including:

- Internet and Intranet Programs
- Wireless Communications Services
- Geographic Information Systems

The Smart Community planning techniques must include the following:

- Use ITC applications in conjunction with ‘smart’ development such as the Smart Development Principles [American Planning Association], Ahwahnee Principles [Local Government Commission] and Environmentally Sustainable Urban Development: A Charter of the Planning Professions [ISoCaRP]
- Master-plan ITC infrastructure to enable community-wide networking to be phased with development
- Support ITC administration to ensure a level of service for viable physical and virtual community

Strategic planning must achieve the following **Smart Community objectives**:

- Design sense of place and local “cyberspace”
- Create sense of community and virtual community networks
- Enable individuals and communities to realize their desired lifestyles

Smart Communities offer the opportunity to create and enhance these environments. They are dynamic models for the future of community development. Place-making must provide for both realms—real and virtual—to ultimately transcend the independent limitations of each. Perhaps we will even have places that not only support our lifestyles, but also give our lives meaning.

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