ENGINEERING INC.

www.acec.org

JULY/AUGUST 2010

THE AWARD-WINNING BUSINESS MAGAZINE

- Mastering Community Development
- Competition Drives Choice, Lower Rates For PLI Market
- ACEC Turns Back Proposed S Corp Tax
- 2011 Engineering Excellence Awards Call for Entries

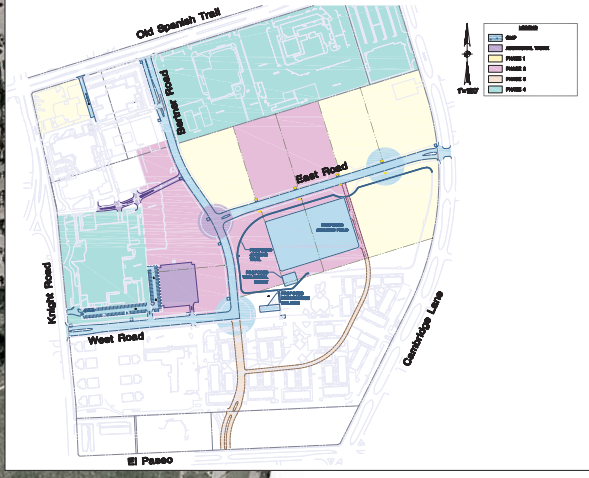
Breach of Confidence

America's Failing Levees And Why Engineers Tread With Caution

ACEC
American Council of Engineering Companies
100 Years of Excellence

Walter P Moore developed this master plan for the University of Texas Research Park.

WALTER P MOORE



By Heather B. Hayes

Best-Laid Plans

In an age of budget constraints and sustainability, master planning creates opportunities for firms, long-term benefits for clients

Takeaways

- Master planning, sometimes called collaborative community design, is a broad planning technique that considers the many social, economic and environmental consequences and long-term outcomes of a project.
- Not all clients see the value of master planning. Some view it as an unnecessary upfront cost. But engineering firms are discovering that successful master plans can save clients time and money in long-term management and sustainability of a project.
- The trend toward sustainable design is fueling awareness of master planning as more clients express interest in the environmental impact of projects.

When Houston-based engineering firm Walter P Moore and Associates, Inc., began helping the University of Texas M.D. Anderson Cancer Center develop its 116-acre south campus in 2004, team members employed an all-encompassing discipline known as master planning to ensure that each and every potential impact and outcome of the project were fully considered. It meant looking beyond the narrowly defined scope of the immediate plans to consider future ramifications and all potential stakeholders.

Advanced planning is required for all projects, says Charles M. Penland, senior principal for Walter P Moore, but master planning—sometimes called collaborative community design—takes the effort several steps further, digging deeper and thinking more broadly about the social, economic and environmental consequences and potential long-term outcomes of a project. "The greater the effort, the greater the dividends," says Penland.

Master planning requires more upfront time and an effective communications skill set on the part of an engineering and design firm. It can be a tough sell to clients who are eager to get their projects under way, or who don't want to spend money upfront on what they perceive to be an additional cost. But engineering firms can attest that the benefits of going the extra mile to create a master plan far outweigh the potential drawbacks.

"It's important to understand that a master plan is a living document that must be continuously updated as the environment and criteria it includes change."

EDWIN C. FRIEDRICHS
WALTER P MOORE

"Whether you do master planning or not, projects will eventually face the same issues, so you can either face it later in a confrontational, reactive way, or you can try to embrace everything and do that planning upfront in a much more comprehensive, proactive, collaborative way," says Blake Murillo, CEO of Psomas Engineering.

Murillo emphasizes that good master planning takes into account a wide range of social, economic and environmental variables and includes input from all potentially affected stakeholders. "You're trying to balance a lot of considerations in a way that creates the best possible win-win-win outcome for everyone concerned," he explains.

A Classic Outcome

That's exactly what Walter P Moore attempted to do recently during its M.D. Anderson project. In master planning the site, the project team fully investigated all possible scenarios that would impact the project: private municipal utilities versus private utilities; underground distributed stormwater detention versus a central amenity pond facility; and options for development and road configurations and phasing.

The team also considered the interests of the University of Texas (UT) Health Science Center, which shared some of the property involved. "As is often the case within big institutions like UT, those two entities didn't always get along or consider each other," Penland says. In master planning the site, the firm overcame the challenge of getting the two organizations—the cancer center and the health science center—together by presenting executives with the pros and cons of sharing money and working together. As a result, they defined a common vision for both and captured those visions in the master plan.

"It's been a great boon to both organizations," Penland says. "They've been able to come in and take the properties that have been put together and move forward with projects in a way that both, but especially the poorer of the two [the Health Science Center], probably would not have been able to do on its own."

By going the extra mile with master planning, Walter P Moore "set up developable parcels with known infrastructure costs," Penland explains. "It has been very flexible, allowing parcel size adjustments and updates as land was added and opportunities arose for various development types."

Master planning isn't just for brand-new projects. As an example, the SSOE Group, a Toledo, Ohio-based international engineering, procurement and construction management firm that has completed master planning projects for the Tennessee Valley Authority and automaker BMW, is applying the master planning discipline to effectively upgrade environmental and analytical laboratories and support facilities at seven existing Environmental Protection Agency (EPA) sites.

"You're trying to balance a lot of considerations in a way that creates the best possible win-win-win outcome for everyone concerned."

BLAKE MURILLO
PSOMAS ENGINEERING

One of those is EPA's Research Triangle Park, where SSOE is engaged in "microplanning" for the upgrade of all HVAC systems and reducing the energy costs of five energy-intensive laboratories. "What we're looking at here is not campuswide, but it affects the entire campus," says Alan Liddy, SSOE senior project manager.

Thus, instead of simply replacing systems already in place with something bigger and better, the SSOE team is contacting and interviewing all end users, looking at the HVAC and chilled water systems for the entire site, consolidating laboratories and taking into account new laboratory technologies that could reduce the energy footprint.

"It's just a much bigger look at a very targeted area, but it will ultimately reduce the energy load for the entire campus, which is the goal," Liddy says.

An Evolving Process

Master planning is hardly a new concept. Twenty years ago, for example, Walter P Moore participated in the Uptown Houston Area Mobility Master Plan for a business association that included owners and operators of properties in the rapidly growing Houston area.

By including all relevant stakeholders, researching and understanding future land uses and securing a commitment to review and update the plan at regular intervals, the engineering team was able to predict future population and transportation requirements, acquire dedication of right-of-way for new roadways and develop a long-term, flexible vision for the development, according to Senior Principal Edwin C. Friedrichs.

Construction of master plan components has continued since the project began, but changes to the original document also have been incorporated as necessary, including the construction of a new toll road that required a change in established traffic patterns. "It's important to understand that a master plan is a living document that must be continuously updated as the environment and criteria

Toledo-based SSOE Group helped master plan the 300-acre Pearl City Food Port in southern India.

it includes change," Friedrichs explains.

Psomas' Murillo notes that master planning as a design approach also is changing, especially as more stakeholders—direct and indirect—get involved in site planning and construction projects.

"Probably 15 or 20 years ago, the dialogue in these types of situations was pretty much between the project proponent and maybe the jurisdiction, but nowadays it's a much more robust discussion," Murillo says.

"You may be meeting with various community groups or with various environmental groups, so you're doing a lot more touching of all the stakeholders, almost independently, just to make sure you're staying in contact with them and running options by them and making sure that you're showing a willingness to try to take everybody's issues into account."

Economic Realities

One of the biggest challenges with master planning is getting clients on board. The recession and accompanying budgetary constraints are reasons for pause among many clients, according to Murillo. At the same time, Friedrichs says some clients who have fewer development projects as a result of the economic downturn are using their forced free time to reassess existing master plans for added efficiencies.

The trend toward sustainability in the urban environment and the emphasis on efficient use of resources should increase the need for master planning, says Friedrichs.

Still, he cautions, while some clients understand that connection, others continue to look at existing infrastructure and building systems "from a short-term viewpoint, instead of implementing a long-term master plan with a strategy for sustainability."

Murillo believes that as the economy recovers and companies realize the competitive and cost advantages of long-term sustainable projects, that narrow "short-term viewpoint" could change. He points to a pending new guideline that would enable neighborhoods and planned communities to be LEED-certified—as is already the case with individual buildings—which could inspire even more project clients to embrace master planning.

"Anyone trying for that certification would really have to understand the interrelationships between the elements," he says, noting that requirements being discussed include everything from a project's walkability and green space to water conservation and the inclusion of community gardens.

Despite its advantages, Liddy says master planning has never been embraced by everybody, and probably never will. "It is sometimes very difficult to get project owners to understand the justification of why they should take the time and look at this in a comprehensive way," he adds. "There's often no middle ground: Either we get clients that understand the benefits of master planning or we get clients that don't understand and don't want to take the time to do it."

SSOE has been fortunate to work with several clients that recognize the practical benefits of master planning, including Consolidated Construction Consortium Limited. The India-based construction and development company recently asked the SSOE team to master plan its Pearl City Food Port, a 300-acre Special Economic Zone in the city of Tuticorin, in southern India designed to house food manufacturing plants, as well as the housing, schools and retail stores in a self-contained community.

SSOE planners looked closely at the issues involved in colocating international food plants, among other concerns such as complex zoning regulations, transportation, energy, economic and even future marketing considerations. The team ultimately came up with a master plan that allows the food companies to cost effectively share infrastructure and facilities, including cold storage, warehouses, a laboratory, logistics and a distribution center.

"We were able to bring our experience within the food industry to that project," Liddy says. "But even with that, what we've discovered to be an important best practice with master planning is to listen, listen, listen to the client and their vision of the future. Once we know where they want to go, we can incorporate our experience and help them figure out all the issues and options for getting there." ■

Heather B. Hayes is a business and technology writer based in Clifford, Va.

The Softer Side of Planning

It takes a special skill set for an engineer to conduct effective master planning, according to those who have done it successfully. In particular, those leading the effort and communicating with the client must possess a series of "soft" skills, such as:

- The ability to listen to and communicate (verbally and in writing) with clients and other stakeholders;
- The ability to present to a diverse, often nontechnical audience;
- The ability to successfully identify and manage risk;
- Broad knowledge of technical issues, as well as experience with other concerns, including transportation, environmental, technology and policy considerations; and
- Analytical thinking and problem-solving skills.

Blake Murillo, CEO of Psomas Engineering, says the effectiveness of a master-planning effort often is contingent on team members' ability to facilitate discussions within a group and/or a one-on-one setting and effectively cope with a range of personalities and competing agendas.

"It's important to be capable of handling those circumstances in a way that makes sure the meetings continue to be constructive and that people feel like they've been heard and not shut down," he says.