

Campus Master Planning

Processes, Composition and Design Principles

The Campus Setting

Campuses are mixed-use places that host one or more organizations pursuing a similar mission: witness the many medical campuses, educational campuses, research campuses and business campuses. Many campuses are dominated by one organization, say a university, hospital or corporate business.

Some campuses host unrelated organizations that choose to be on a campus with related organizations; voluntarily bound to the campus by their related missions, common public image, purpose-specific infrastructure and the collaboration available from allied enterprises.

Campus master planning is usually conceived of, funded and controlled by a single entity. This concentrated ownership makes planning, design, funding and construction more focused.

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- Osceola County Government Center

Readings

Stakeholders are always present and they will always be heard; either as occupants or neighbors. Internal and external stakeholders must be taken seriously from the outset. Campus master planning relies on principles to drive design through a defined process.



The UCF College of Medicine and the Burnett School of Biomedical Sciences located in Medical City; a master planned campus at the Lake Nona mixed-use community, Orlando.

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Campus Master Planning and Design Principles

Principles represent the aspirations of the master developer and the potential future occupants of the campus; be they a college, hospital or business. Though based on abstract ideals, principles are used to translate the vision of the campus into pragmatic details used to achieve the vision-driven campus.

Whether the campus is an academic institution, a medical complex or an employment center, guiding principles for the campus design are essential. The early establishment of the performance metrics system also guides the planning and design activities; and supports the evaluation of the end results.

The principles are also used to ensure that the integrity of the design is maintained as development occurs. Early establishment of the performance standards is important. A checklist of planning and design principles follows.

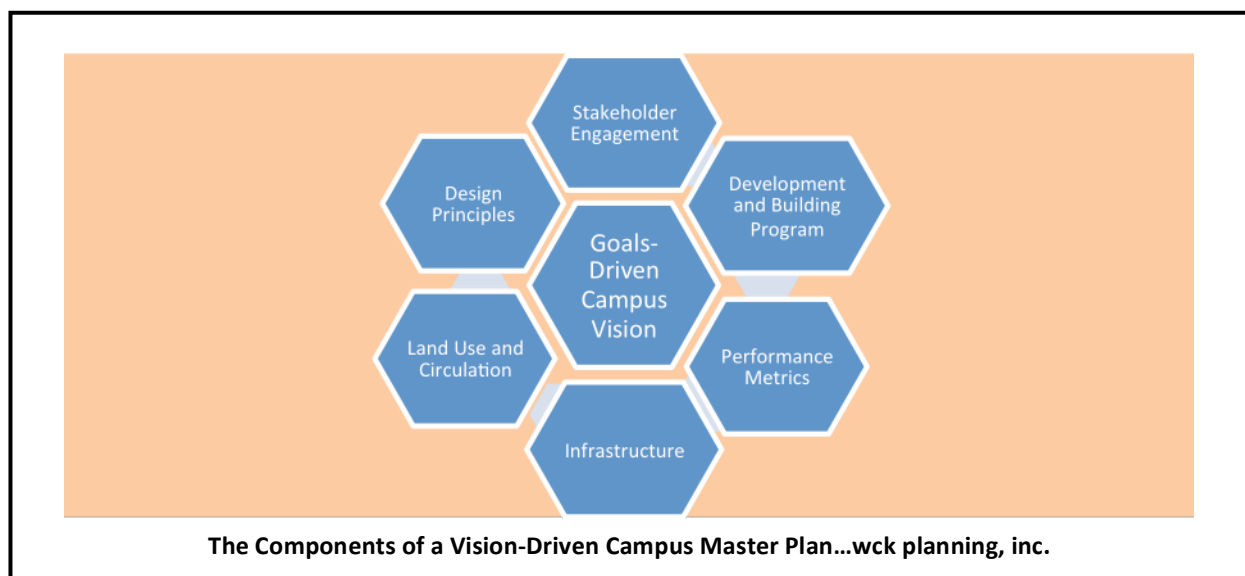
Campus Master Planning and Design Content

Campus master plans have a traditional content: land use and circulation plans with infrastructure and open space features designed to serve the existing and proposed development and building program.

Vision and design principles drive content and the standards used to prepare and execute the Master Plan. In addition, the principles drive the performance evaluation system that enables an objective assessment of the extent to which built campus reflects the initial aspirations.

The Campus Master Plan includes elements for:

- Future Land Use
- Transportation
- Infrastructure
- Open Space and Parks
- Site Development Standards, Design Guidelines and Performance Standards
- Capital Improvements
- Stakeholder Communication



The Components of a Vision-Driven Campus Master Plan...wck planning, inc.

Campus Master Planning

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Planning and Design Principles

Campus Master Plans

Have a Big, Driving Idea

1. Use a single, strong organizing element such as the Cleveland Clinic's "Green Spine" as a public green space with complementary building, materials, massing, patterns and details.
2. Encourage emotions, such as Duke's belief that their campus is a collection of memorable places.
3. Use buildings and spaces purposefully, such as Osceola County's desire to re-establish the public square as a symbol of government dignity, stability and permanence.

Create Spaces for People to Collaborate

1. Design buildings and spaces that promote intellectual and social exchange.
2. Provide environments for learning, research, community functions and social engagement.

Demand Intense Urban-scale Mixed Use Development around Transit Hubs

1. Integrate the campus with urban amenities such as stores, hotels, restaurants, recreation and entertainment, including residential choices and hospitality accommodations.
2. Use density, intensity and height that respect the land, the campus and its neighbors.
3. Optimize space allocated to buildings, parking and open space.

Create an Understandable, Integrated Mobility System

1. Enhance mobility systems with walkable paths, streets and parks that are safe, efficient and pleasant, linked with campus and regional transit.
2. Organize the parking system using a purpose-driven pricing system.
3. Pay careful attention to the pedestrian scale and entry porticos of each building.

Protect Historic and Cultural Open Spaces and Buildings

1. Protect, enhance and create a campus with buildings and spaces that endure through time.
2. Integrate historic, art and cultural resources into all buildings and spaces.

Blend Landscape, Streetscapes, Stormwater Areas and Signage into the Open Space System.

1. Preserve and extend the natural landscape into building settings and hardscape systems.
2. Take wayfinding seriously as an integral element of the campus infrastructure.

Harmonize the Expansion of Multiple Buildings and Activities as they Grow

1. Anticipate the subsequent generations of growth and expansion.
2. Renovate and upgrade existing buildings responsibly.
3. Extend and enhance the character of the campus through the contextual design.
4. Maintain a sensitive response to the historic buildings and neighboring uses and activities.

Use Responsible Energy and Natural Resource Programs

1. Promote sustainability, environmental design and energy conservation.
2. Improve stormwater management systems as aesthetic features.
3. Pre-plan functional and mechanical facilities.

Develop with Distinctive and Contextual Architecture Styles and Natural Feature Enhancements

1. Use high quality, enduring materials.
2. Design appropriate building massing, composition and orientation.

Design with the Post-Development Performance Criteria in Mind

Source: wck planning, inc.

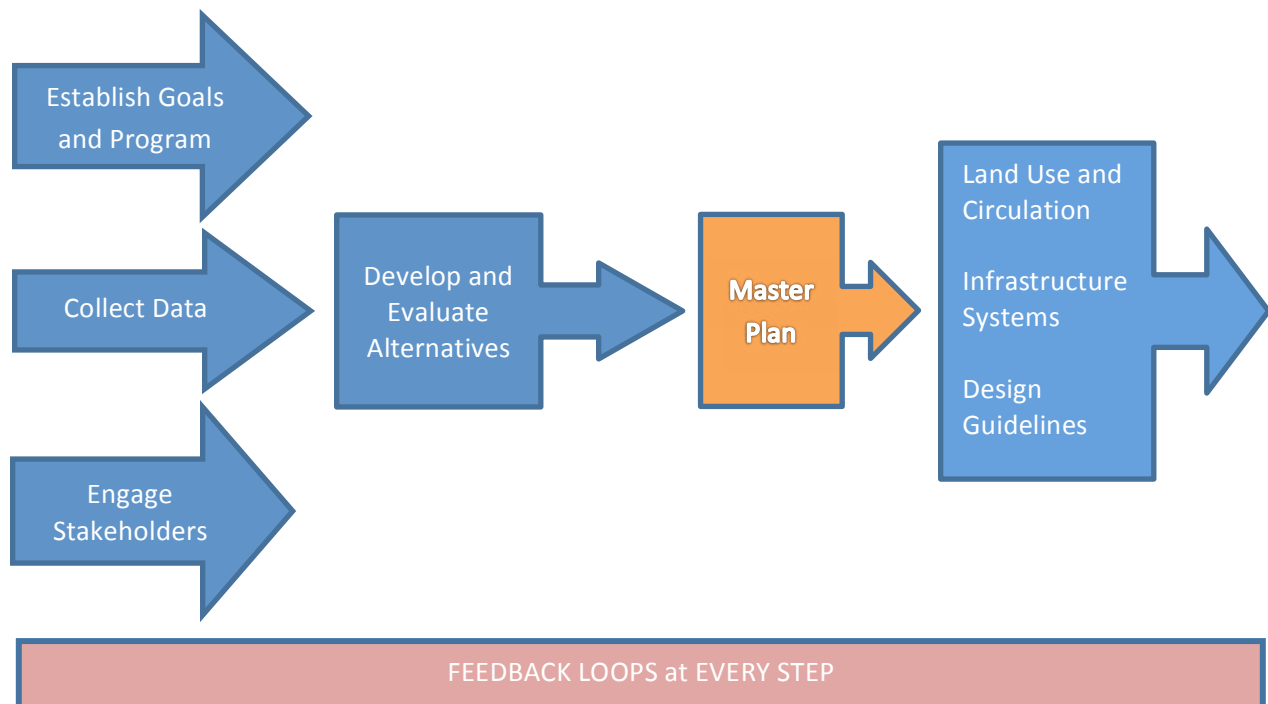
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Campus Master Planning and Design Process

The classic master planning process applies to campuses of all types as it does to cities, neighborhoods, airports and activity centers: establish goals, research relevant information, develop alternative plans and select the best blend of the alternatives to fit the expressed goals and the data. Engage stakeholders, meaningfully, all along the way. Feedback occurs at the end of each phase of work.

Respect for the process is of paramount importance. Goals cannot be glossed over without trivializing the purpose of the entire process. Vision-driven goals, including the development and building program, are the foundation for designing and evaluating the alternative campus master plans.



Data collection is equally important. Sound information is critical to good decision-making. The creation of a dynamic data base, a data base that is continuously updated, ensures that the data base will endure continuously. A dynamic data base is also a valuable tool for managing campus development and monitoring system performance.

The Performance Management criteria consist of the evaluation criteria that should be established at the outset of the planning and design process to evaluate the post-construction result. Once the draft plan is prepared, the evaluation process can determine that the plan meets the enterprise's goals or it doesn't. If not, revisions are to be expected.

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Conclusions

1. **The vision is key.** If you can image something, you can do it. If you have no vision, planning and design becomes a random and capricious activity.
2. **Campus planning and design principles** are driven by the desire to create collaborative buildings, places and spaces. Hospital, college, business and research organizations all benefit from collective thought, shared information and synergistic thinking.

Campuses are the places where these thinkers and doers come together. Creating buildings, places and spaces that foster collective thinking and action is the mission of the campus planner and designer.

The several examples that follow provide ideas about principles used at important campuses throughout America.

3. **Campus planning and design processes** rely on traditional methods: establish goals, collect and analyze data and then construct alternative plans that respond to facts and aspire to the vision.

The evaluation of alternatives can be a lengthy and inclusive process to invite contributions from stakeholders; accepting the obligation to address new information and ideas. The methods for including stakeholders in a meaningful process determine the credibility of the final product.

4. **The content of a campus plan** responds to the issues facing the master development organization.

The physical development elements come easily. The use of land, the location and connection of buildings, the system for mobility and the protection of historic and natural resources usually make the list. Unique assets and conditions may dictate the need for additional elements. Content should be established early in the process with adjustments made over time, as warranted.

The economic development element parallels the physical development efforts. Knowing the customers, occupants and allied business interests are essential to complete programming. **Funding and financing** should be addressed from the start by identifying, as best as possible in the early stages of planning, the sources and uses of funds. Budgets and schedules can be estimated early and refined later as more information emerges. Tacking the finance program onto the plan at the end of the process usually results in a failed product.

The **stakeholder participation** approach falls into this same category. Inclusiveness that begins at the beginning achieves the best results even though some meetings, people and issues are the source of misery. They will have to be addressed sometime; earlier is better.

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EXAMPLES

- A. Texas Medical Center**
- B. The Cleveland Clinic**
- C. Park Center at Research Triangle Park**
- D. Duke University**
- E. University of Pennsylvania**
- F. University of Southern Mississippi**
- G. Stanford University Medical Center**
- H. Osceola County Government Center**
- I. State of Florida, Campus Planning Process,
Ch. 21, FAC.**

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A. The Texas Medical Center is the largest such place in the world; and perhaps the most sophisticated. A key to their plan seems to be the identification of five key programmatic areas described in the box below.

The **guidelines** for their master plan are not available on their website, but from the descriptions, their guidelines seem to be:

1. Walkability,
2. Transit linkages,
3. Mixed use development around transit hubs,
4. Urban amenities such as stores, hotels and restaurants,
5. Maximized use of land,
6. Open space preservation, improved stormwater management and
7. Harmonized expansion of the multiple institutions at TMC.

TEXAS MEDICAL CENTER MASTER PLAN

With its 50-year plan for Texas Medical Center (TMC), SOM developed a cohesive growth strategy for one of the world's largest medical campuses. Encompassing 675 acres, an area nearly equal to downtown Houston, TMC is the city's largest employer; and TMC is the largest life sciences destination in the world. The campus houses 54 separate institutions, with a daytime population of up to 70,000 medical professionals, support staff, students, and patients.

Since opening in 1945, TMC has been pioneering patient care, research, education, and prevention. Today, TMC comprises: 21 renowned hospitals, 13 support organizations, eight academic and research institutions, six nursing programs, three public health organizations, three medical schools, two universities, two pharmacy schools, and a dental school. With 106,000 employees, 50,000 life science students, and thousands of volunteers and patient visits, over 160,000 people visit Texas Medical Center each day. Over the course of the year, we welcome over 7.2 million visitors.

In 2014, leaders from across the Texas Medical Center came together for a two-day retreat at the Museum of Fine Arts, Houston to forge a new vision for the Texas Medical Center. Throughout the retreat, there was overwhelming support for collaboration around five key programmatic areas: **Clinical Research, Genomics, Health Policy, Innovation, and Regenerative Medicine**. Over 200 TMC community leaders were able to attend and participate in our strategic retreat.

The master plan produced in collaboration with Rice University focuses on creating a walkable campus within short distance of transit links and urban amenities such as stores, hotels, and restaurants. SOM's team approached the project with the same foresight that goes into the planning of cities, outlining guidelines that will harmonize the expansion of multiple institutions. In addition to its emphasis on mixed-use development around transportation hubs, the plan promotes sustainability by maximizing land use, preserving open space, and improving stormwater management.

Sources: The Editor used information from Texas Medical Center website and SOM's description of the master plan.

<http://www.texasmedicalcenter.org/about/>

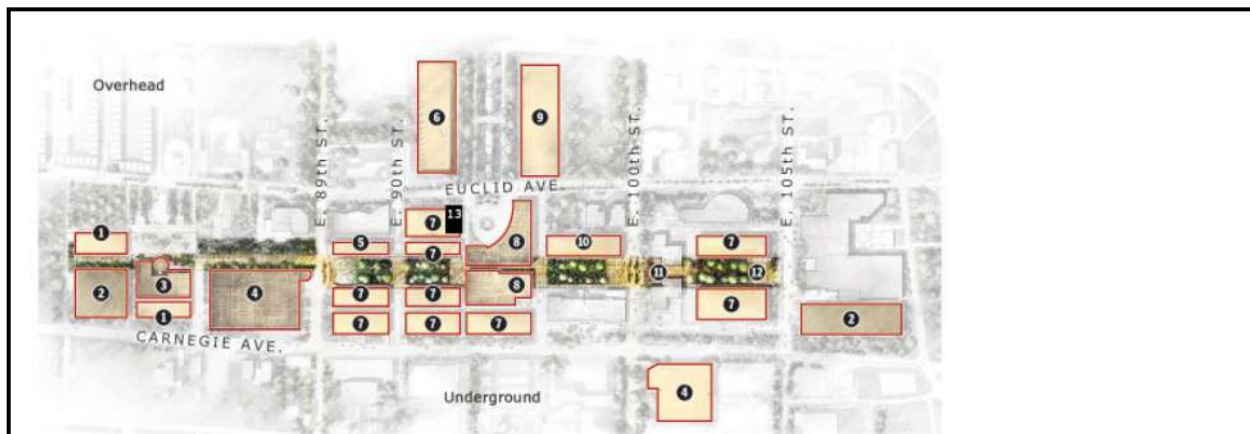
http://www.som.com/projects/texas_medical_center_master_plan

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B. The Cleveland Clinic is one of the world's most prestigious health care institutions. The graphic below presents the master plan for the Clinic's downtown Cleveland campus. Being an urban campus along a big road, Euclid Avenue, the importance of creating a cohesive, organized and pleasant place is paramount.

The plan relies on a single, strong **organizing element**...the Green Spine that runs five to six blocks parallel to Euclid Avenue amongst the main buildings on campus. The use of a "big idea" is critical to provide cohesion to a spread out place that has grown organically for decades. The anticipation of growth areas and new buildings is critical. The creation of a space with "light, space and air" in a "crowded, disorienting and chaotic" environment is a major achievement.



CLEVELAND, Ohio – The [Cleveland Clinic](#) is bullish on its hometown.

A new master plan completed [2012] by Ohio's second-biggest employer envisions a big, green future for the institution's 160-acre main campus west of University Circle. The plan, released to The Plain Dealer last month after several requests, shows that the Clinic has room for dramatic growth over the next 30 to 50 years — a prospect that could mean more jobs and economic activity for decades to come.

Led by [Foster + Partners](#) of London, one of the world's leading architecture firms, the plan proposes organizing the campus around an internal "Green Spine," a nearly continuous corridor of leafy outdoor plazas modeled loosely on Cleveland's downtown Mall and on the National Mall in Washington, D.C.

It's a big idea, with the potential to resonate for decades. The spine would weave light, space and air into the heart of a campus that today can feel crowded, disorienting and chaotic.

"It gives you a sense of cohesion and space," [Clinic CEO Dr. Delos M. "Toby" Cosgrove](#) said of the Foster plan. "You'd have something that is a campus, that orients you, without one building pushing up against another building."

In all, the plan identifies sites for 13 major new buildings along the spine, plus a 14th major building — a combined office and garage — between Euclid and Chester avenues at East 93rd Street.

Source: http://blog.cleveland.com/architecture/2012/01/cleveland_clinics_new_master_p.html

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C. **Park Center at the North Carolina Research Triangle Park [RTP]** is one of the most well regarded employment campuses in America. Its long history of excellence is reflected by the prestige of the corporations and institutions that call RTP home. But, its 50 year old concept does not meet today's knowledge worker needs, as highlighted in the box below. As it expands through the Park Center development, the **design guidelines** being followed are:

1. Provide a mix of uses including restaurants, retail, recreation and entertainment,
2. Provide residential choices and hospitality accommodations,
3. Create spaces for people to collaborate,
4. Create density while respecting the land and the Park,
5. Enhance mobility with walkable and bikeable systems linked with regional transit, and
6. Develop with distinctive architecture and natural features.

Park Center at the North Carolina Research Triangle Park

Fifty-five years ago, the Research Triangle Park transformed the economy of North Carolina. Now we're poised to do it again — pointing the state toward a brighter future with a redevelopment we call Park Center.

Located on almost 100 acres, right along the I-40 corridor, Park Center will be a visible symbol of the changes ahead for the Park, the region and our state. It marks the first redevelopment in RTP's long and storied history. It will bring to the Park, for the first time ever, an array of eateries, retail, recreation and entertainment. There will be places for people to live, close to where they work, or stay while they are visiting.

More importantly, it will be a place where leaders in technology, science, the arts and the humanities can come together, collaborate and create a better future for us all. Creating a place where collaboration can occur between industry and academia, nonprofits and corporate titans, entrepreneurs and government is our goal. We want to create spaces for people to gather, meet, hang out and be inspired. For in the end, as always, our greatest resource is our people.

We are taking great care in fashioning our vision for Park Center. While creating density, we want to respect the character of the land and the Park. It needs to be sustainable. We imagine an area that is walkable, bikeable, accessible to all — and eventually linked to regional transit.

We want to create an environment that appeals to the current and future knowledge worker — to enhance recruitment and retention of these highly sought-after people. We imagine a redevelopment unlike any other in North Carolina, with distinctive architectural and natural features. And room for what the Brookings Institute calls "networking assets" — one of the characteristics that caused Brookings to single out RTP for praise among the world's top innovation districts.

With Park Center, we hope to re-imagine what RTP can be, always making good on our core mission to enrich education, create jobs, and lift the people of our state. The park [Park Center] has come under increasing pressure to evolve as the tastes of young, highly skilled workers have changed. **RTP's near total lack of amenities for its workers now stands in sharp contrast to the thriving business districts in downtown Durham, downtown Raleigh and North Hills.** "The bottom line is they need to bring residential and retail to be able to compete with the other parts of the Triangle market that have flourished," said Rich Harris, managing director at Synergy Commercial Advisors in Durham. "... In the last 10 years, it's become much more of a priority for a larger group of office users to have those types of amenities."

Source:

http://www.newsobserver.com/2014/02/03/3588172_rtp-to-build-new-retail-residential.html?rh=1#storylink=cpy

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D. **Duke University's** campus is memorable in the extreme; a classic academic setting. The care taken to preserve and enhance the campus is reflected in the design guidelines listed in the box below.



Duke University Campus Planning Principles

"The Duke University Campus is unique. Most of the campus is less than 100 years old and is both historical and dynamic. Our challenge is to preserve, enhance, and maximize the campus assets in support of Duke's mission of research, health care and education. In 2000, Duke University approved a new and dynamic Master Plan. Eight principles will guide our planning decisions into the 21st century.

- Duke is a historic and dynamic campus,
- Duke is a premier university,
- Duke includes an internationally recognized health system,
- Duke is a [university in the forest](#),
- Duke is a collection of [memorable places](#),
- Duke should be a walkable campus supported by an understandable circulation system,
- Duke is a community of communities, and
- Duke is a citizen of Durham and the region."

Source: <http://www.architect.duke.edu/planning/>

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E. University of Pennsylvania

Campus Design Principles

1. Buildings and Spaces that Promote Intellectual and Social Exchange
2. Heights of Structures
3. Predominant Materials
4. Building Orientation
5. Landscape, Streetscape and Signage
6. Commitment to Accessibility
7. Functional and Mechanical Facilities
8. Architectural Style
9. Respect for Cultural Resources
10. Integration of Art in Buildings
11. Responsible Use of Energy and Natural Resources
12. Responsible Renovation and Upgrades to Existing Buildings

Source: <http://www.facilities.upenn.edu/sites/default/files/pdfs/BldgDesignGuidelines.pdf>

F. The University of Southern Mississippi

Master Planning Principles

1. Protect Historic Open Spaces and Buildings
2. Extend and Enhance the Character of the Campus through the Contextual Design of Future Buildings and Open Spaces
3. Create and Promote Environments for Learning, Research and Social Engagement
4. Promote Sustainability, Environmental Design and Energy Conservation
5. Develop an Integrated Circulation System
6. Integrate Modern Technology
7. Implement Strategic Growth Practices

Source: <http://www.usm.edu/about/master-planning-principles>

G. Stanford University Medical Center

Campus Design Guideline Factors

The WRNS Studio established guidelines for all new and renovated buildings on campus for the following six categories. The website provided below presents details.

1. Paving
2. Visibility
3. Public Access
4. Streets
5. Pathways
6. Massing and Building Composition

Source: WRNS Studio <http://www.wrnsstudio.com/project/stanford-med-center-design-guidelines>

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Processes, Composition and Design Principles

H. Osceola County Government developed the civic complex now known as the Osceola County Courthouse Square in downtown Kissimmee. The Square is a wonderful public space occupied by several public buildings: the County Courthouse, the County Commission's Administrative Center and the 1890 Historic Courthouse; later supplemented with an 800 space parking garage of complementary design. Restaurants are within walking distance as is the Kissimmee City Hall.

The design principles for the Campus lead to creation of a space that:

1. Reestablishes the historic courthouse, including a new 247,000 SF courthouse; renovated 140,000 SF administration building and the restoration of the 18,000 SF historic courthouse,
2. Maintains a sensitive response to the historic courthouse and the adjacent neighborhoods,
3. Reestablishes the public square as a symbol of government dignity, stability and permanence,
4. Accommodates a variety of community functions,
5. Preserves and extends the natural landscape setting with a more formal entry courtyard/plaza,
6. Reflects the established Romanesque and Gothic/Victorian architectural style,
7. Pays careful attention to the pedestrian scale and entry porticos of each building, and
8. Forms a unified campus surrounding a civic green space by using complementary building materials, fenestration patterns, building massing and details.

Osceola County Government Center

Kissimmee, Florida

The Heery-designed campus master plan created a strong government center that reestablishes the historic structure as the traditional "courthouse on the green", while introducing a contemporary new justice building that maintains a sensitive response to the historic courthouse and surrounding neighborhood.

The priority of the campus master plan is to reestablish courthouse square as a symbol of government suggesting dignity, stability and permanence, while providing a civic space that will accommodate a variety of community functions. The site featured a historic courthouse that suffered from injudicious renovations and a series of unfortunate annexes. The architect's plan for the government center restores the historic courthouse to its former civic presence as the traditional American "courthouse on the green" by preserving and extending the natural landscape setting and providing a more formal entry courtyard/plaza. In response to this feature building, the new courthouse and administration building reflect the landmark's Romanesque and Gothic/Victorian architecture.

The government center is a conscious response to this feature building. The new courthouse and administration building reflect the landmark's traditional architecture with careful attention to the pedestrian scale and entry porticos of each building. Complementary building materials, fenestration patterns, building massing and details work together with the historic building to form a unified campus surrounding the civic green space.

Source: <http://www.heery.com/portfolio/osceola-county-government-center.aspx>

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- I. **The State of Florida's University Campus Master Planning Process** has long been proscribed by state-driven rules, namely Chapter 21, Florida Administrative Code. The Florida example, in the box below, has elements familiar to comprehensive planners.

 STATE UNIVERSITY SYSTEM of FLORIDA Board of Governors		
Chapter 21 Campus Master Plans		
BOG 21.108	Procedures for Petitioning the Board of Trustees, Challenging Compliance of the Campus Master Plan or Plan Amendment	52.1 KB PDF
BOG 21.109	Procedures for Mediation	38.7 KB PDF
BOG 21.110	Remedial Plan Amendments	39.2 KB PDF
BOG 21.111	Establish Campus Master Plan	41.3 KB PDF
BOG 21.201	Definitions	51.8 KB PDF
BOG 21.202	General Requirements	47.6 KB PDF
BOG 21.203	Optional Campus Master Plan Vision Statement	37.5 KB PDF
BOG 21.204	Future Land Use Element	48.6 KB PDF
BOG 21.205	Transportation Element	54.3 KB PDF
BOG 21.206	Housing Element	45.1 KB PDF
BOG 21.207	General Infrastructure Element	63.9 KB PDF
BOG 21.208	Conservation Element	45.3 KB PDF
BOG 21.209	Recreation and Open Space Element	45.1 KB PDF
BOG 21.210	Intergovernmental Coordination Element	51.8 KB PDF
BOG 21.211	Capital Improvement Element	45.9 KB PDF
BOG 21.212	Optional Element	41.6 KB PDF

Source: <http://www.flbog.edu/>

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In Florida, campus master plans for each of the State's universities must follow this proscribed, fairly standard, method. The unusual aspect of the system is that visioning, which may include guiding principles, is optional.

21. 203 Optional Campus Master Plan Vision Statement

Some campus master plans have developed university campus vision statements which describe the ideal future appearance and qualities of the university and its role in the host community and region. If a University's plan includes a vision statement, the required and optional elements should be consistent with that vision. As an option, elements may include guiding principles that reinforce the campus vision statement and describe the outcome or desired end-state for the campus. If applicable, the campus vision statement should be compatible with the vision plan of the host local government.

N. Authority: Section 7(d), Art. IX, Fla. Const., History – New 6-18-09.

The Board of Governors approves all plans.

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Readings

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