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An interdisciplinary studio to design
an integrated neighborhood infrastructure for the 21st century
College of Design, Construction, and Planning
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The aqueducts and road systems of the Romans; the stepwells of the classic Indian period; the road systems of the Incans and Mayans; the canals, gondolas, courtyards, and community wells of Venice—each of these cultures is defined by its creative and useful infrastructure. Similarly, the story of America's rise to prominence can be told through its 19th century railroad network, and its 20th century interstate highway system and heroic hydroelectric projects, as well as through the Rural Electrification project and the widespread adoption of "indoor plumbing" as a marker of community success. The public history of this nation, and of many other cultures, relies on the scaffolding of collective constructions known as infrastructures.

But in recent decades this story has taken an unfortunate turn. Most prominently, in 2007 a bridge crossing the Mississippi River in Minneapolis collapsed into the river during rush hour, killing 13 and injuring 145, leading to the popularization of the phrase "fracture critical" infrastructure. The American Society of Civil Engineering has determined that many of our nation's roads and bridges are failing, and they have raised the alarm to policy makers and to the public. More insidiously, it has been calculated that our nation's potable water supply is widely compromised due to century-old leaking pipes. Our waste and stormwater systems, too, are reaching the ends of their lifespans. Our electrical grid faces opportunities provided by new sources of energy, but also the challenges of current business models, as it, too, ages. And emerging practices (FedEx, recycling) and technologies (the internet and the internet of things, solar and wind collection, drones) have not yet achieved their transformative potential. At this time, across the country, 21st century technologies are constrained by a late-19th century conception of infrastructure.

While inventive large-scale infrastructure projects are emerging in major cities, the "fabric" of our country—its neighborhoods, housing stock, subdivisions—has not been addressed. This project seeks to find prototypical solutions to go beyond repairing our existing, aging infrastructures, to, instead, envision an integrated 21st century neighborhood infrastructure. Such an infrastructure should be replicable across first-ring suburbs across the country, typically characterized by narrow right-or-ways, mature vegetation, and relatively small lots, along with aging pipes, wires, and poles, and dwellings.

This project, set in Gainesville's Golf View neighborhood (platted in 1926), will invite students from a variety of disciplines (planning, landscape architecture, architecture, building construction, interior design, civil engineering, business, economics, public administration, web design, ecology, history, creative writing) to focus collaboratively on one neighborhood throughout the semester. Experts, including City of Gainesville Public Works and Gainesville Regional Utilities staff, will be invited to participate. Following a period of research, analysis, and iterative designs, a final proposal will be presented to the neighborhood, the City, and the public, along with University experts.

Project One: Precedents and prospects (three weeks)
Case studies of historic and contemporary examples, and research regarding emerging technologies and understandings using a systems approach.

Project Two: Analysis and vision (three weeks)
An inventory of the Golf View neighborhood, including traditional infrastructures, natural systems, and community assets and history. Also included as "soft infrastructures" will be the delivery and removal of goods (packages, food, mail) and possibly of services (lawn services, cleaning, care-giving). Narrative techniques will be employed to propose a vision for the neighborhood as a connected web of natural, technical, and social systems.

Project Three: Design "mash-up" (two weeks)
Utilizing infrastructural elements previously studied, teams will create proposals that force unexpected components into new combinations. This short design project is intended to open previously unimagined creative channels.

Project Four: Breakout designs (three weeks)
Working from their individual disciplinary strengths and interests, components of a 21st century neighborhood infrastructure will be designed. These might include: a typical street section; a green infrastructure, incorporating the neighborhood's stream system and stormwater; a construction process to install a new integrated infrastructure; an interactive website; the retrofit of an existing older home or the design of a new home; the design of a transportable "pod" containing necessary short-term services; the creation of a new policy; a grant proposal; or a business plan to turn any element of the project into a new business opportunity.

Project Five: Design of an integrated neighborhood infrastructure for the 21st century (four weeks)
Considering all work done to date, the studio will propose one or two comprehensive designs for a 21st century neighborhood infrastructure with the promise of transferability to other neighborhoods in Gainesville or beyond. These designs will consider constraints typically encountered in installation and maintenance and work to address them.

Throughout the course, experts from the City of Gainesville, Gainesville Regional Utilities, the University of Florida, industry experts, and neighborhood residents will be encouraged to participate as fully as possible.

If additional funding can be found, a small public lecture series, drawing leading thinkers, policy-makers and designers from across the country, will accompany the studio.

A potential role for the City of Gainesville and Gainesville Regional Utilities:
Following the ITPD model previously utilized by the University of Florida and the Gainesville Regional Utilities, this studio might integrate City and GRU staff, to provide guidance to students and, potentially, to explore long range ideas for the City with the help of students. Weekly "check in" conference calls and monthly meetings/presentations would allow staff and students to work together.

Through this process--typically allowing staff to meet with students in City or GRU offices or via conference call--students would have a near-real world experience, and the City would benefit from many hundreds of hours of design exploration. In the past, such exchanges have led to professional internships for students in their fields of study. As well, similar community design projects done through the College of Design, Construction, and Planning, have been incorporated into Gainesville's Innovation Square area, the Fifth Avenue/Pleasant Street neighborhood, the Depot Park and surrounding neighborhoods, and several rail-trail projects.