Service learning embodies two principles: providing assistance to others and using this service as a teaching opportunity. Being one of four nuclei in the Clemson School of Architecture, the Charleston program was better situated than the other three to conduct service learning: it, alone, was set in an English-speaking culture with an urban setting. There would be plenty of need, plenty of partners, and plenty of opportunities.

Service learning also parallels the proposition of a hybrid learning environment, so, in Charleston I discovered a convergence of Clemson’s mission and my own career trajectory.

With Charleston’s long history and reputation for urban quality, it was only natural that we should focus on settlement studies. One of the principle reasons to study in Low Country is to learn from the environment, and service learning settlement studios was a way to give something back. Giving back, though, often means client deliverables—it is one thing to teach a studio; quite another to provide usable work for clients.

Over the years, Ray Huff and I developed a teaching and working methodology that worked in practice because it successfully separated ideas and values from illustrations of the same. Accepting that a school would not likely dictate a built plan, we focused on framing the values, principles, and strategies for our clients—then illustrating what these might look like.

In these chronologically arranged projects, all for actual clients, there is a progression of method, an improvement in focus, and an increase in impact.
portfolio of academic work
VERTICAL STUDIO — CAC
FALL 2001
UPPER CONCORD STREET
NEIGHBORHOOD
(ANSONBOROUGH FIELD)
[team-taught with Ray Huff]

VERTICAL STUDIO:
This studio was comprised of 17 third– and fourth year, plus first level
graduate, students. All exercises were
conducted by teams, which were continually changed in size and composition.

SERVICE LEARNING:
The project was an actual one being
developed by the City of Charleston, Planning and Neighborhoods, with whom
we collaborated. The studio participated as a design office for a
week-long public design charrette, at which the Mayor, City Council,
consultants, stake holders, and the
general public all participated. Shortly after the semester ended, City Council adopted the
recommendations of the charrette.

PROJECT:
The City sought to develop an eight-
acre parcel on the peninsula into a mixed-use project, including a major urban park along with housing (both subsidized and market-driven),
commercial space, and a YMCA.

THE SITE:
The project was politically contentious and was caught between many special interests. The site had been a residential/industrial one; then home to a large low-income development from the 1940s until Hurricane Hugo, after which it was demolished. The demolition angered the African-American community that had lived there. A vocal group of nearby residents wanted to land to remain open.

THE PROCESS:
The studio was organized so that students studied the Charleston context; analyzed the site (including its history and political currents); made coordinated design explorations; developed design principles for the project; and then facilitated the public design process.
PART 2—BOROUGH PROJECT-I

CLIENT:
Our client was an African-American non-profit organization, known as the Borough Project. It was formed to record the material legacy and keep alive the values of a lost neighborhood.

PARTNERS:
Collaborating with the client, Spoleto Festival USA assigned the project to its visual arts curator, Mary Jane Jacob (Chicago). She brought two artists, Rick Lowe (Houston) and Suzanne Lacy (LA).

SITE:
A strategically positioned quarter-acre site was donated to the project, containing two houses that had been passed through the family of the founders.

HISTORY:
The history of the neighborhood was important to the mythology and identity of the group. The first suburban settlement of Charleston, the Borough was settled by freemen, freed slaves, and immigrants from many ethnic groups.

PROCESS:
Indoctrination: As our clients were descendents of slaves, we began the project at plantation where their ancestors had lived. We sought to understand plantation life in the seventeenth-eighteenth centuries. Then, we studied the history of the site.

Programming: We developed a program for the facility as well as design approaches that would layout organizational options for the non-profit.

Concept Design: The studio identified ten possible approaches to the site, each with a concept diagram, case studies, massing model, site plan, program implications. These were presented to the client and a critic group; then evaluated.

Design Development: We distilled the approaches, developing the best with relative cost estimates. A conceptual and fund-raising booklet was developed and presented to the Borough Project.
UTILIZATION ANALYSIS:
The two houses were first studied for how they might be used by the non-profit to form its museum, gallery, and community center, without exterior additions. Some of these options were utilized in later schemes.

THEMATIC APPROACHES:
The two existing houses were examined for how they might be treated as historic objects. Three alternatives emerged.

“AS WAS”
The “as was” theme adopted an approach typical to Charlestonian preservation: the restoration of the houses to a particular moment in history. Accordingly, everything down to the paint and wallpaper would be put back to a significant moment in history.

“COLORIZE”
This proposal examined the distinction between memory and history, as well as Hollywood’s tendency to distort historic content to make it more engaging to a contemporary audience. Colorization calls attention to the difference between history and memory, with a potential for double and ironic readings.

“MEMORY WITHHELD”
The Memory Withheld approach explored the irretrievable nature of the past. The walls, fireplace, and all historically representative objects would be “ghosted.” An audio track would re-create the sounds characteristic of the Borough; upon being seated, visitors would hear oral histories from former residents. This treatment required the visitor to assemble an image of Borough life and represented its erasure by pointing to the fact that its history is irretrievably lost, except to memory.
The LINK concept explores the connection between the extant houses. It develops the local tradition of dependency yet reverses that tradition by making the entry to the BCGM through this marginal element. Also inherent in the LINK are parasite/host, servant/served, and front/back. All versions of LINK seek to extend and reinterpret properties from the historic houses into the new structure, either in materiality, organization, or typology.

The Ramp Link:
In its simplest version, the LINK is a covered, open-air structure containing only circulation. It would become the Front Door to the BCGM; it would contain accessibility ramps to all levels of both existing houses; it might alternatively contain some form of text, photos, or drawings that would provide introductory orientation.

The Circulation Link:
This version offers a stair, elevator, and ramp-corridor connection between the levels of the existing houses. As shown here, the elevator has been conceived as a "moving lobby": a room in which visitors would be introduced to the museum as they are hoisted to the upper level. The LINK is here conceived as a slatted or jalousied structure.
Situated in a V-Zone, the Borough Houses remain in danger, not only of deterioration from age and weathering, but flooding. The HANGAR approach proposes the complete encapsulation of the site, turning the Borough Houses into artifacts and the site into an archaeological quarry. The HANGAR would provide a conditioned case that would protect the entire site from weather. The HANGAR is conceived as a high-tech, shaded glass enclosure that would allow the houses to be glimpsed from outside. In scale the HANGAR would compete with the new institutional buildings along Calhoun Street.

The PERMANENT STRUCTURE / TEMPORARY SPACE approach explores the proposition that the museum be oriented toward activity, not objects. PSTS advances the creation of a festive landscape that would be open-ended in scope and configuration. A set of elements would be deployed for Borough events, providing cover, backdrop, containment, and basic utilities. Such elements would be moveable. PSTS offers a highly structured landscape with low profile elements that become festive and highly visible only when deployed.
The demolition in 1962 of three single-houses immediately adjacent to the site has become a symbol for preservationists; The most politically contentious event in Borough history was the demolition of one hundred and seventy low-income dwellings in 1995. The 170 approach proposes to heal the psychological damage of these events by making a gift in kind: the construction of 170 new subsidized living units. Under this scenario, the Borough Project would sponsor a construction program on site; the homes would then be moved to vacant lots throughout the peninsula. The entire landscape would become a solemn precinct; construction would alternate between three pads: one finished, one framed, and one empty.

TRACK
This scheme recalls a train that was central to Borough life and develops the phenomenon of erasure. It also emphasizes the paucity of surviving artifacts from the Borough era by presenting the houses and the landscape as empty.

TRACK requires: a) stabilization of the Borough houses, b) hoisting of the houses on chassis, and c) movement. Each chassis would contain a lift, stairs, and a means of locomotion. Visitors would enter through the chassis to the house. The chassis would also lift the houses out of the flood zone, insuring their long-term preservation. The houses would move slowly on tracks allowing pedestrian entry/exit and provide a subtilely changing landscape.
portfolio of academic work
SERVICE LEARNING:
For this studio, the CAC collaborated with the Civic Design Center in developing the City of Charleston’s proposal to the Hunley Commission to host the Hunley Museum (see service). The CSS Hunley was the first functional submarine, developed by Southern industrialists, and launched from Charleston in a successful attack against the Northern blockade. The Hunley sunk south of Charleston after the battle, was discovered, and raised in 2000. The work shown here was developed after the CAC/CDC proposal was developed for the City, a 12-week project.

THE SITE:
The Museum site is the actual launch place of the Hunley and the dock where it returned on two occasions after having sunk in trial runs. Here, Captain Hunley’s body was removed from the sub.

PROJECT:
Students were asked to remain faithful to the scope of the Commission’s program, but to reinterpret the nature of the Museum and, in so doing, the architectural possibility that a museum offers. They were also asked to redesign Liberty Square, the public space fronting the museum site and shared by the SC Aquarium, the Fort Sumter Tour Facility, and other commercial and housing interests.

GROUP MODEL:
The students inherited and modified the group model built the semester previous for the Ansonborough Field project, upon which five of this six-student studio had worked.

Michael Hudson, GRAD1:
Hudson emphasized the replica collection by hanging the life-size duplicates in an open-air, scrim-like tube that invited an active relationship with Liberty Square. The Hunley itself was housed in an off-set tube segment out in the Cooper River.
Gregory Huddy, GRAD1:
Exploring the language of classical architecture, Huddy set out to develop a proposal that would fit with the traditional aesthetics of Charleston while also embodying a radical departure aligned with the programmatic undercurrents in the project. By applying Colin Rowe’s collage theory to the building plan and fracturing the drum (and thus the circulation/program), the design manifests the tensions of the project at many levels.
Carry Harty, GRAD1:
Just as the Confederate mariners descended into the Hunley on a rigorous and ritualistic set of training runs, the project structures the museum experience to be analogous to the routine of the crew. Three major components of the collection were organized around three large tubes, around which the circulation and services were organized. In the final tube, visitors spiral downwards around the Hunley, viewing it from all angles and positions.
Sallie Hambright, FOURTH YEAR:
This project developed according to an overarching schema that called for site forces to emerge, climax, and dissipate. Museum goers would enter from any number of paths that lead into the site, but find themselves converging around the Hunley whose reflection would bounce through the museum off any number of reflective surfaces.
The design advanced by an exhaustive set of drawing and model studies.
Joel Wenzel, FOURTH YEAR:
This project considered the museum as a set of telescoping frames, each nested within or laid-over the others. As a museum creates frames around its subjects, so does the architecture develop a language of frames that condition the visitors view and experience.
Alicia Reed, GRAD1: Exploring architecture’s metaphorical potential, this project appropriated qualities of the submarine to create an analogous museum experience. Instead of a building, the project advanced a grand framework covered in mist jets (and topped by a water tank); the passage through the museum involved a descent through the frame into ever more cramped rooms and galleries.
PROJECT:
This PUBLIC SERVICE PROJECT was a funded urban design of 11.25 acres for the Evening Post Publishing Company. Spanning two primary arteries coming into Charleston, the site controlled the northern gateway to the City. The CAC.C was asked to prepare a development proposal for these lands as well as evaluate and make architectural proposals for the Post & Courier's existing print-production and administrative office building.

PROCESS:
We studied the site from peninsular, city, neighborhood, and street scales, examining extant urban design plans for directives governing the area. The site was treated as three distinct, though related, parcels, each responding to different market forces and urban conditions.

STRATEGY:
During the late nineteenth century, the site had been occupied by stables; by the early twentieth century, blocks were well-defined by a mix of residential and commercial uses. The twentieth century saw the systematic removal of historic fabric. Our objective was to restore the quality of urban definition of c. 1900 while facilitating the new scale and type of market uses.
EAST PARCEL

LEFT: The East Parcel was the only site large enough to hold parking for newspaper offices plus the new commercial development. Consequently, a large mid-block deck, wrapped by housing and commercial development, was key to the design of this block.

TRANSIT AXIS

ABOVE: To the west of this parcel will run a City-sponsored transit/pedestrian mall. This led to the development of tall thin housing blocks along this mall.
CENTRAL PARCEL

Five strategies were developed for the Post & Courier’s existing print-production facility and administrative offices. We developed one that filled all margins with office/commercial space to complete the urban street walls.
WEST PARCEL

The West Parcel faces a gentrifying historic neighborhood to the west; on the east, it has the opportunity to complete the northward rejuvenation of historic commercial main street. The Western edge was lined with historic-scale housing; the center with high-density housing in-fill; and the east with commercial office and retail.
PROJECT
This was an AIA Blueprint for America project, celebrating the Institute’s 150th anniversary. A Town Plan for a rural community of 2300, the intent was to provide a long range, visionary plan for rejuvenating the economic, cultural, and physical fabric. The physical condition of the town was poor; the economic prospects dim. Whatever we proposed had to be modest, realistic, and tied to potential resources: no flashy designs. Do BIG THINGS with small means.

PARTNERS
Charleston Section AIA, SC Mayors Institute for Community Design
PLUS 3 county offices in planning, parks, tourism, and economic development; a cultural nonprofit; an economic marketing consultant; a graphic designer; + 10 architects from 4 firms.
Over 100 citizens and 30 school children participated.
The Project was organized in 7 sections:
1-BRANDING
The development and promotion of the Town.
2-CATALYTIC DEVELOPMENTS
The generation of program out of potent, strategically placed, relatively small initiatives.
3-CONNECTIONS
The linkage of various parts of the town; the re-development of the principal town entries.
4-DOWNTOWN
The economic and physical rejuvenation of the Town center, particularly the Historic Core.
5-THE SCHOOL DISTRICT
The reorientation and creation of Place in the Town’s school zone.
6-THE LANDING
The recovery and appropriate development of the Town’s one scenic natural resource.
7-AROUND TOWN
Strategies for the remaining areas.

BRANDING (above): Examination of folk installations in Southern landscapes led to the concept of building a Town Emblem, in lieu of a town sign. Such an emblem might be made economically by locals out of poles, stacks of local materials, painted trees, or other readily available materials. Collections of telephone poles were grouped in geometric shapes and located at key intersections. Each installation would become a public park as well as a distinctive feature that would link key parts of the settlement in the minds of visitors and citizens.

THE NORTHERN GATEWAY (below) controls the most significant approach to the Town. Currently undeveloped, it will be filled with gas stations and quick-marts unless the Town controls development.
In this proposal, the two southern quadrants of the intersection would be developed as a rest stop, park, and Town Emblem.
THE TOWN INTERSECTION, today, is little more than a stoplight at two intersecting highways.

LEFT/RIGHT: Tree-scaping proposal for main street.

BELOW: Potential visitor center.

BOTTOM: A Town Emblem in which both western quadrants have become a city park, with a continuous circular bench ringing the site.
ABOVE/RIGHT: At the start of this project the town had plans to demolish its only distinguishing landmark, the water tower. Here, a passive park has been designed around that now-to-be-saved feature.

BELOW: Installation of Town Emblem (poles) at the intersection of the main street, a proposed “Tree Park,” and the proposed non-vehicular pathway to the Landing.
THE SCHOOL DISTRICT

LEFT: All of Johnsonville’s schools happen to be in the same area. Laid out on suburban principles, this part of town has no sense of place and needs to be connected to surrounding areas.

STEP 1, FAR LEFT: The junction of North and South Hampton streets is the effective center of the School District. A symbolic HUB is proposed here, a roundabout where students meet, parades begin, flags fly, and where ceremonial events happen.

STEP 2, BELOW-LEFT: Connecting the School District to other parts of the Town will require both practical and symbolic connections. This perspective shows a large earthen pyramid at the Middle School to terminate the long view from the HUB. Looking the other way, the new Library should be located in the Historic Core, on the main street.

LONG-RANGE PLAN, BELOW: Existing school buildings and athletic facilities will be reoriented so their front entrances face the HUB or the major avenues within the School District. Rather than construct sprawling additions and new schools farther from the Historic Core, new building should be infill construction.
The deliverable was a 145-page book laying out the principles, implementation plan, and background research.

THE LANDING

ABOVE-LEFT: The Landing naturally divides into three zones (cut by the highway and train tracks): the Commercial Zone (left), the Active Zone (middle), and the Passive Zone (right).

LEFT: The Landing concept: An Interpretive Center (dark solid at center) buffers the highway from the site and, with a Town Emblem, signifies the Landing to drivers.

The vehicular entrance is relocated to align with the existing intersection; parking is hidden in a replanted eastern boundary to the train embankment. A boardwalk connects with trail systems through the adjacent zones.

BELOW: A Town Emblem at the Landing connects it thematically to the Town. The large installation shown here is scaled to the highway, the complex of parks, and the eco-tourist activities planned for this area.
GLOBAL CLIMATE CHANGE + THE CHARLESTON PENINSULA

CLIENT:
Charleston Civic Design Center

CONSULTANT:
Dr. Greg Carbonne, Ph.D.,
University of South Carolina

ADVISORY PANEL:
Dr. Susan Lovelace, Ph.D.
Hollings Marine Laboratory
Hamilton Davis,
Coastal Conservation League
Yvonne Fortenberry,
Dept. of Planning, City of Charleston

PROJECT:
Based on the February 2007 report of the Intergovernmental Panel on Climate Change (IPCC 2007:WG1-AR4), this study examined the potential impacts of global climate change on the urban design of the Charleston peninsula over the next 200 years.

Envisioned in four orders of magnitude (M1-M4), the study proposed design strategies to deal with increasingly severe climate change scenarios due to sea level rise and intensifying storms.

Shown at several venues, the exhibition consisted of a two-panel summary of the science on which the design was based, and two panels on each of the four scenarios.

SEA RISE MAPS

The four order-of-magnitude sea rise maps (below), where we approximated the incursion of water onto the peninsula, were adopted by many local climate groups.
PENINSULA URBAN IMPACT
The two greatest impacts on urban design will be sea level rise and increased storm intensity. Significant when taken alone, these two factors have compounding implications: as sea level rises so will the water table, which reduces the vertical fall available for drainage and below-grade capacity of storm water retention. As both effects are predicted to worsen over time, so the problem of collecting and managing runoff will become more difficult as the distance between land and the water table decreases. Consequently, most of the efforts of our study focused on ways to stop water intrusion from outside the peninsula while managing the increased severity of precipitation within.

STUDY STRUCTURE
As a way of understanding urban design impact, we set up four orders of magnitude in sea level rise, M1-M4. We set M1 equal to just 1’ of rise, an unavoidable and certain impact; we set M3 approximately equal to the elevation of South Battery and White Point Gardens (+6’ sea level), the point at which streets in the historic downtown will be regularly inundated unless protective measures are taken. Then, we set M2 (3’ rise) and M4 (12’ rise) to look for transitional implications around the first two.

M1 SUMMARY
When sea level rises a foot, infiltration is limited largely to the western edge of the peninsula. Up to one-foot of sea level rise can be handled by nurturing and expanding marsh lands.

M1-M2 SUMMARY
PRECIPITATION INTENSITY: While climate change models for this area cannot yet predict annual precipitation differential, it is thought that storms will become increasingly severe, dropping more water in single events. Because severe storm events that happen to coincide with high tides already disable the City, storm severity may be the most troublesome impact for sea
level increase up to +1’. Furthermore, the City’s primary health emergency center is in jeopardy of being cut off from the region, due to low-lying roads. Consequently, storm water retention and management will likely be the primary urban design impact through the M1 scenario.

Although global climate change will have serious practical impacts, we should address these problems by also making positive urban changes: expanding civic space, improving recreational and aesthetic amenities, and looking beyond a strictly historical reference for urban possibility.

Storm water retention offers several opportunities:

> Retention Parks: We envision a new series of water-retention parks. Because the ridge of the peninsula runs roughly along the King/Meeting corridor, these parks need to be approximately half-way between the commercial core and the periphery where they can collect excess runoff.

>Crosstown Reconsidered: The best opportunity for a large mid-peninsula retention park is under the Crosstown, which is already low lying and regularly floods. Beyond its useful life, the Crosstown should be raised and a new retention park built below that will increase recreation amenities, lift essential roadways to the medical district above the water, and reconnect neighborhoods north and south of the Crosstown.

>Paving Standards: The City and County should investigate the efficacy of converting its streets and parking lots into retention banks by a combination of pervious pavements and porous substructures. Low lying highly pedestrian areas, such as the Market area, should be similarly reconsidered.

>Retention Practices: All new developments, large and small, should be required to retain their own storm water to a higher standard than is currently required. Gray water and other water conservation practices should be required in parallel.
M2 SUMMARY

By 3’ sea level rise, extensive sections of the peninsula’s banks that are not currently walled will have to be raised and strengthened, affecting most of the western bank and the eastern bank north of Columbus Terminal. We see here the chance to capture large volumes of retention capacity between the new walled edge and the existing land.

A great civic design opportunity in this new perimeter wall is to expand and complete the “Green Necklace,” ringing the peninsula with public space. By allowing high density development at limited sections along this new perimeter, private development can partially fund these expensive new measures.
M3 SUMMARY

Due to the lag time of environmental effects, the conditions envisioned for M2 are almost a certainty. Our modified IPCC modeling predicts M2 conditions between 2075-2100. If aggressive environmental measures are adopted, globally and in the near future, conditions may not get worse than the M2 scenario.

With greater than a 3’ rise in sea level, the historic relation between Charleston and the water changes radically. As sea level increases above +3’, a series of costly long-range commitments will have to be made. Consequently, the M3 scenario is simply a logistical step in preparing for more drastic conditions that are better addressed by considering the M4 scenario.

M4 SUMMARY

We examined two long-range approaches at a +12’ order of magnitude: harbor armament and a canal city.

HARBOR ARMAMENT: If the coastal region is to be saved, or if the peninsula is to retain any kind of historic water relationship, an extensive levee will be required. Because Charleston is bounded by rivers that will rise with sea level, upstream sources will also have to be diverted or managed. Without consideration for anything outside the peninsula, we charted a levee on the shortest line that would circumnavigate the Charleston Harbor, south of Fort Sumter, and connect to the requisite inland elevations. This is not a seriously considered levee location, only a provisional measure allowing us to think through the peninsular urban implications.

If a levee is constructed, then the peninsula’s water relationships can maintain their historic conditions—provided the increased storm water can be managed.
CANAL CITY: If a levee is not constructed, then Charleston will become a walled peninsula. Although a bounding wall could cutoff the City from the water, both physically and in terms of view, we explored the conversion of streets south of Calhoun into canals. Because the only dry land below grade will exist by virtue of pumping, the canals are as much to manage storm runoff and retention as to renegotiate the City and the sea.

Starting with M3, we envisioned raising the grade elevation of the southwest quadrant of the downtown as a new battery is constructed in that area. Over the coming centuries, all buildings in this area will be rebuilt any way; new grade elevations can be established and foundations lifted. For the canal system to work, the downtown area will need a consistent elevation.

Although we refrained from considering cultural and social implications, it is inescapable that a walled peninsula would only be saved for historic reasons and that the culture and economy of the city would become essentially touristic.

CONCLUSION
This study imagines the urban implications of sea level rise and increased storm precipitation brought on by global climate change. It alerts us to some physical areas of potential concern and opportunity on the peninsula. The study fails to consider issues beyond peninsula nor does it envision a transformed, ecologically friendly, transportation and energy infrastructure.

Global climate change is happening and will impact the urban character of Charleston. As a community we should plan for change, both by adopting practices to reduce human impact on the climate and by implementing urban measures that will mitigate the changes we can’t avoid. We should treat the required changes, not as utilitarian projects, but as opportunities to build a better and more livable city.