

# Crossing Boundaries in Design Studio: Community Design Pedagogy in an Integrated Multidisciplinary Studio

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## 1. INTRODUCTION

The architectural profession has been criticized for its white, middle class, Eurocentric hegemony and its entrenched "star system" which limit diversity of acceptable outcomes. Architectural studio education has been blamed for continuing to reinforce white, middle class, Eurocentric values and experiences as the foundation for design decisions.<sup>1</sup> Changing both studio education and professional design practice will take widespread acceptance of a fundamentally re-envisioned design process. Foundations for transformation of real world practice must begin in university training. Cantor and Schomberg note that if universities are fundamentally committed to re-envisioning the "real world" they must be simultaneously places "set apart" while also being actively and responsibly connected to the world beyond campus. Given this charge, the question for architectural educators becomes, how do we encourage our students to re-envision and transform the "real world"? Indicating, "Productive transformations come from a mix of freedom and realism, distance and connectedness," Cantor and Schomberg put forth the concept of extended classrooms as contexts for "boundary crossings" that can facilitate re-envisioning and transformation of the status quo.<sup>2</sup>

This paper describes a re-envisioned design studio pedagogy that is built on the idea of classrooms that are extended in two dimensions uncommon in design studios: interdisciplinary teaching/learning and participatory community design. The initial conception of this studio model began with a strong commitment to ideas incorporated in service learning. Some might suggest that "service learning" is not a marginalized pedagogy in the design studio, but is a mainstay of the discipline. However, for a number of reasons the model described here is not design studio service learning as generally practiced in advanced architectural studios.<sup>3</sup> This model extends studio service learning into a low-income, almost

completely African-American context, incorporating students and faculty from architecture, landscape architecture, and urban planning in a fully participatory process with neighborhood residents. In the studio, students step into the role of community designers. Community designers focus on everyday environments most important to people's well-being; they work with diverse client groups, often with people who have a history of little control over their environment. Community designers work *with people* not for people, bringing out and supporting the community's ideas. Community designers have been a small voice in the design profession since the mid 1960s. However in that time, realism has replaced idealism as community designers have discovered that not all social inequities can be solved by design alone; design must at times be in service to activism.<sup>4</sup> The pedagogy, its implementation in the studio, and its outcomes are first presented. In concluding, the pedagogical approach to interdisciplinary service learning is critiqued and refinement suggested.

## 2. ENGAGING REAL WORLD PROBLEMS WITH A RE-ENVISIONED PEDAGOGY

Schön indicates that when the academy engages in scholarship in the real world, the manageable problems of the "laboratory" are often unimportant to individuals and societies at-large, although they are of great interest within the academy. Real world problems are messy and confusing; they cross over disciplinary boundaries: they require different methods of information gathering and analysis. However, real world problems represent those of greatest human concern.<sup>5</sup> Engaging in real world problems requires new methods of inquiry and a broader perspective than is represented by the relatively unchanged master-apprentice studio pedagogy inherited from the *beaux arts* tradition, which has remained standard in architectural education for over a century.<sup>6</sup>

The School of Architecture at the University of Illinois began working in East St. Louis in 1987 at the request of state Representative Wyvetter H. Younge. Located across the Mississippi River from St. Louis, East St. Louis has historically represented an industrial threshold to the “gateway to the west”. Train tracks from all directions merge together to cross the river, and industrial land uses, including slaughterhouses, factories, storage facilities, located here to take advantage of the transportation hub. Post-war industrial disinvestments, pollution, demographic shifts, and ineffectual government devastated the once vibrant, racially mixed city. Between 1960 and 1990, the city experienced a population decrease of almost half. As of 1990, the population was 98% African American, with close to 40% of the residents living below the poverty level and unemployment at nearly 30%. Due to shrinking tax rolls and local corruption, the city was forced to eliminate many of its municipal agencies and services, beginning with the city planning office in the 1970s. From 1987 to 1992, no garbage was collected by the city. Decrepit and insufficient sewerage systems led to repeated contamination that closed schools and created health hazards.

Within that context, the University of Illinois’ initial effort in East St. Louis, “the East St. Louis Revitalization Project,” clearly illustrates that traditional methods of the academy are inadequate to satisfactorily engage messy real world problems. Initially, architecture faculty and students proposed large-scale initiatives such as riverfront development and industrial and railroad redevelopment. Largely theoretical exercises, initial studios employed traditional master-apprentice pedagogy, incorporating minimal dialogue with local residents. In public meetings, East St. Louis residents said they saw no tangible outcomes from these projects and wanted university engagement that was mutually beneficial. Individual faculty took this request to heart and began to integrate community outreach into their teaching, using methods pioneered by urban planning faculty and supported by similar efforts from faculty in architecture, and landscape architecture. Under the auspices of the East St. Louis Action Research Project (ESLARP), design process in the architecture studio shifted away from the traditional model of faculty as experts/teachers/clients and students as apprentices, and towards a participatory community design model where neighborhood residents become experts and teach students the salient problems and range of desirable outcomes in their neighborhood context.

Although similarly engaged in projects in East St. Louis, initially students and faculty in urban planning, architecture and landscape architecture did not fully collaborate in their work. Urban planning courses often took the lead in one semester and passed their planning ideas on to architecture or landscape architecture studios in subsequent semesters. However, over time the complex “messy” nature of the problems and solutions in East St. Louis brought students and faculty from the three disciplines together. The first collaborative

studios took place between architecture and landscape architecture as a result of their common ground in studio teaching. The fields of architecture, landscape architecture and urban planning perform complementary tasks in environmental design and planning. With increasing frequency, complex design problems require that professionals in these three areas work collaboratively and perform supporting functions. In the university, students of architecture, landscape architecture and urban planning are often housed within the same school or college and some take the same lecture and seminar courses. However, they rarely have the opportunity to work collaboratively on environmental design projects. This paper reflects on the experience of one interdisciplinary course that provides collaborative design opportunities. Within the context of a community design studio in which students must grapple with “real world” complexities, the three disciplines provide alternative tools and perspectives to the problems and opportunities at hand. As the course has evolved over the past several years, greater emphasis is put on interdisciplinary teaching as a necessary component of service learning as applied to the University of Illinois’ ongoing work in East St. Louis.

### 3. CONTEXT AND BACKGROUND

The course is known by several names – Architecture 372, Landscape Architecture 236/338, and Urban Planning 378. While faculty receives a roster of the students enrolled in their specific course, the aim is to teach as a team and share responsibility for all students. This strategy is in part inspired by pedagogy and is also a pragmatic response to the applied nature of the studio’s work. The objective of the course is to work with a neighborhood organization in East St. Louis to develop a neighborhood plan and supporting physical designs. It represents the approach to community-service that is supported by the University of Illinois’ East St. Louis Action Research Project (ESLARP).

Most media coverage of East St. Louis describes the city as an unhealthy and dangerous place to live, however some residents continue to work towards improving it. Figure 1 below shows that East St. Louis is a city of neighborhoods. Within these neighborhoods, local residents have formed organizations to step in where local government has failed to deal with environmental, social, and economic problems. The people of East St. Louis have over the years shown a tremendous will to address problems themselves. Many residents are actively involved in neighborhood revitalization. These efforts have produced ambitious plans and tangible results such as new infrastructure and housing investment; new learning and employment opportunities, and increased local government accountability. The local residents who make up these organizations often know how best to deal with their challenges but they need technical and logistical assistance in planning and design.

Because of the evolution of the university's involvement with neighborhood organizations, described above, everyone involved in ESLARP emphasizes the value of resident involvement and student exposure to complex, real-world community conditions. In many cases residents are the best instructors students can have for acquiring the skills needed to find effective solutions to pressing neighborhood problems. This university-community collaboration is not only about solving specific problems, but is also about enhancing the capacity of community organizations to engage neighborhood development issues, and teaching the students about real life dynamics and work situations. ESLARP has allowed the School of Architecture at the University of Illinois to extend the study of architecture into a socially responsible context, employing a socially responsible design process. ESLARP nurtures and supports both community members seeking assistance and faculty and students who seek applied learning. ESLARP has, over the years, become a fixture within the University of Illinois at Urbana-Champaign community through increasing support from the University's Administration. ESLARP is often used as the prime example of the University's service learning mission and therefore has also been given significant funding to carry

out this mission. The increasing push toward interdisciplinary work within ESLARP has also been seen as a positive example for the University Community at large.

The campus ESLARP office oversees academic research and courses, including architecture, landscape architecture, planning, library sciences, law, and others. In addition, the campus office arranges "ESLARP outreach weekends" that invite students to spend a weekend doing clean up and building projects in East St. Louis. The Neighborhood Technical Assistance Center (NTAC) includes five full time staff members who work closely with residents and community organizations on cleanup and building campaigns, project development, grant-writing, and other matters. NTAC staff members provide the university's constant presence in East St. Louis and sustain engagement with the neighborhood residents and organizations.

In spring of 2001, for the first time faculty from architecture, landscape architecture, and urban planning choose to work in the Lansdowne Neighborhood simultaneously. The motivation for doing this included overcoming the separation between the

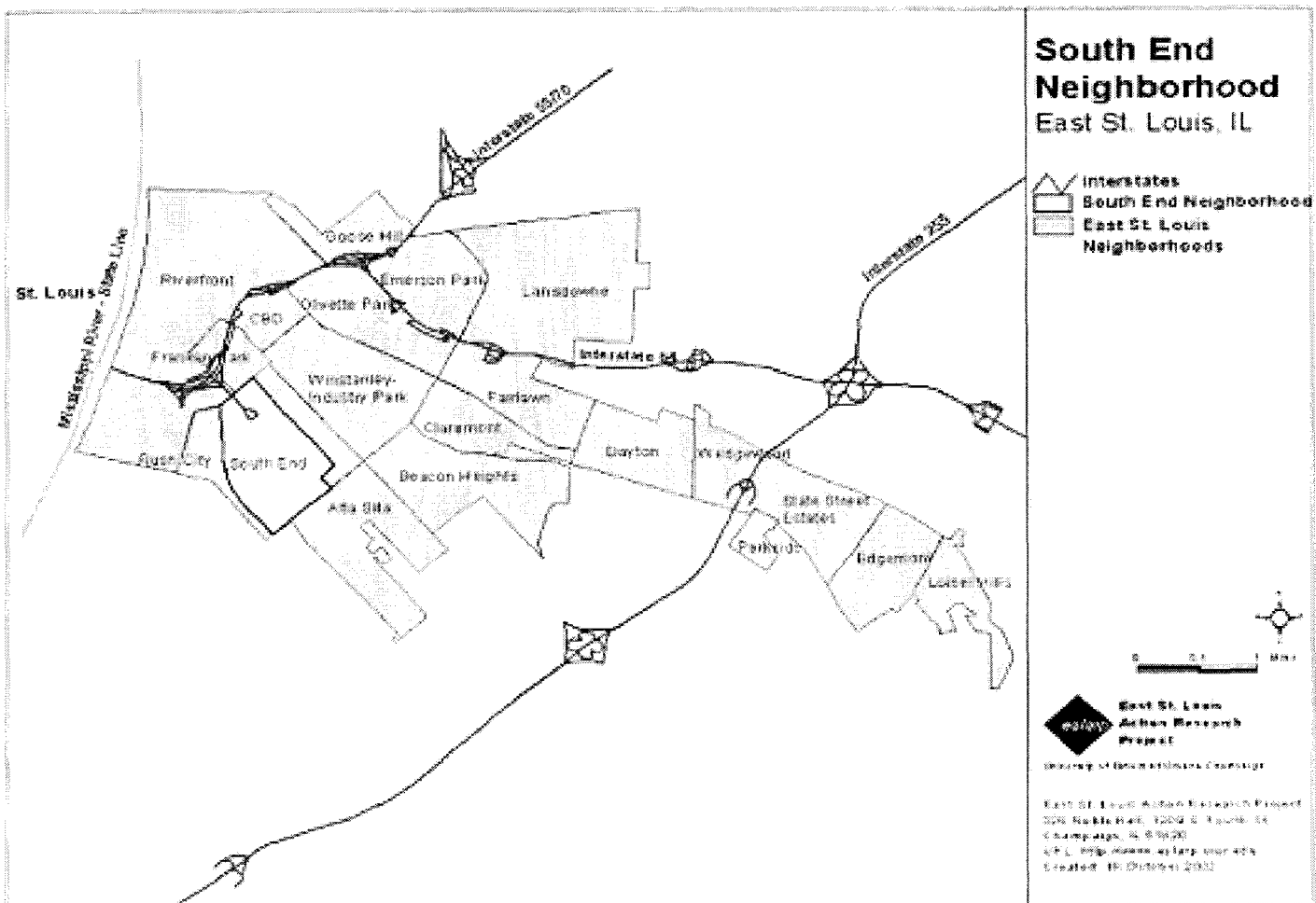


Fig. 1. Neighborhood Map of East St. Louis, Illinois (created by Deanna Koenigs, used with permission).

three student groups and including reflections of each group on the work of the others. Faculty felt this would achieve a better learning experience for the students and a better plan for the neighborhood. The two groups still worked separately but met once each week to give progress presentations for each other. All students participated in the Lansdowne Steering Committee's meetings. The end of the semester saw benefits from this interdisciplinary approach but also noted several problems. Some of the main concerns were: 1) Design students got a slow start and felt overwhelmed at the end of the semester because neighborhood data was unavailable early in the semester. 2) Traditionally planning students' assignments made them first to develop relationships with the neighborhood organizations, but in a multi-disciplinary approach, students felt that it was unfair. Planning students felt they were doing all the outreach while design students felt that control was taken away from them because they had no role in meeting preparation. 3) The various needs of the two groups were hard to accomplish within the short timeframe of one semester with only one monthly meeting with residents. With the addition of new faculty in architecture, landscape architecture, and planning that were interested in furthering the collaborative ESLARP process; the Neighborhood Planning Studio in Spring 2002 introduced several changes to encourage more integration. The following sections of the paper describe this experiment in more detail and discuss the lessons learned.

#### 4. THE SOUTH END NEIGHBORHOOD DESIGN STUDIO

Building on more than a 12-year history of working with neighborhood organizations in East St. Louis, in the spring of 2002, the East St. Louis Neighborhood Design Studio began to develop a neighborhood plan with the South End Neighborhood Development Organization (SENDO). Thirty-seven students (14 LA, 17 Arch, 6 UP) and four faculty from the three disciplines participated. The fifteen-week course produced a Neighborhood Inventory of the social, economic, and environmental influences on the South End; a Neighborhood Plan Working Document; and seven creative and ambitious Neighborhood Plan Designs. The students' work was presented to both university faculty and to the SENDO members for discussion. Currently, the neighborhood plan is a working document that is facilitating further discussion and refinement. The work is continuing in Spring 2003 with a new group of students – along with both new and returning faculty – who are working closely with SENDO members to complete a written plan and physical design. In describing the process, we must necessarily address our two roles: first, our work for a community, and second our responsibility as faculty teaching a university course.

#### 4.1 THE COMMUNITY CLIENT: THE SOUTH END AND SENDO

The South End is a primarily residential neighborhood and the traditionally African-American area of East St. Louis. Similar to the rest of East St. Louis, the South End struggles to counteract the social and environmental consequences of depopulation, lack of governmental services, unemployment, and environmental problems. According to data collected by students, approximately 45% of the land in the South End is vacant, 45% is single family residential, and the remaining is equally distributed between multifamily, commercial, schools/churches/social services and parks. The population is declining. Forty-four percent of the population lives below the poverty level and the 1990 median family income was \$12,500.



Fig. 2. Elevated Railroad Tracks Crisscross the South End Neighborhood.

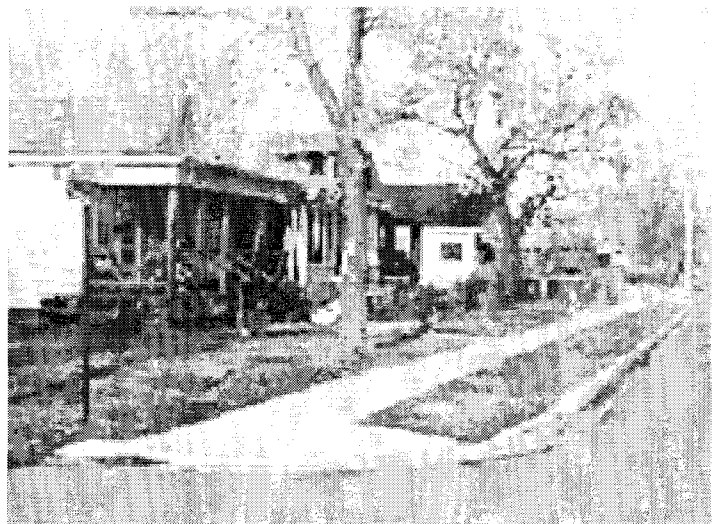


Fig. 3. Typical Residential Area in the South End.

The South End has a well-established neighborhood organization that has worked in the neighborhood for 10+ years. The South End New Development Organization (SENDO) has not-for-profit status and a structure of officers in place that work very efficiently managing meetings, membership and challenges faced in a very professional manner. Some of the organization's accomplishments include: demolishing derelict structures, sponsoring neighborhood clean-ups, receiving a \$20,000 grant to revitalize Lincoln Park, a park that also serves as recreational fields for local schools.

## 4.2 COURSE CONTENT

Throughout the semester, students worked in groups. All students went to East St. Louis for two work weekends. Throughout the semester, various groups of 10-20 students attended each of the monthly SENDO meetings. The studio for architecture and landscape architecture was scheduled on Monday, Wednesday, and Friday afternoons while the planning students worked all day Friday. While students worked in interdisciplinary teams, the schedule necessitated that responsibilities and tasks were often divided between "planning" and "design" students. In terms of content, the course included two phases: orientation to issues and production of plan and designs. In the first phase, students worked in fully integrated teams. In the second phase, however, the need to finish a plan to present to the residents necessitated splitting the disciplines to complete planning and design separately. Throughout the course, each student kept a sketchbook/journal to record experiences through field notes, sketches, reading reflections, and personal entries.

### 4.2A ORIENTATION AND INVENTORY OF ISSUES

The first overview area included familiarizing students with community design theory and practice and collecting information on the South End Neighborhood. These activities took approximately two-thirds of the semester. Weekly readings and discussions focused on socio-cultural issues related to neighborhood planning, including poverty, gender, ethnicity, economic development, and empowerment. During this time students were divided into five interdisciplinary teams with six or seven members. Each team completed the analysis and representation of one aspect of the neighborhood inventory and led weekly reading discussions. Teams were also responsible for outreach.

During a series of site visit and community meetings, students collected data for GIS (Geographic Information Systems) mapping of neighborhood conditions, conducted resident interviews, and facilitated community meetings to gather information about the physical and social conditions and needs

of the community. Upon return to the University of Illinois, students collected additional information from the census, the United States Geological Survey (USGS), Internet, books, journals, and other sources. The teams worked simultaneously on different inventory tasks, with some led by the landscape architecture and architecture students, and others led by the planners. The inventory included: everyday needs, neighborhood form, regional context, metropolitan framework, history, census analysis, neighborhood conditions survey, resident survey, cognitive mapping, SWOT.

### 4.2B PLANNING AND DESIGN

The second phase engaged students in planning and design. At this point, there was some disciplinary separation, with the planning students devoting more of their time to the written plan and the architecture and landscape architecture students beginning to develop physical designs. The planning students worked on a neighborhood plan based on issues identified by SENDO members: streets and infrastructure, parks and open space, neighborhood center and community services, housing and home improvement, commercial development and daily needs, and community safety. Within each topic, the planning students developed a number of programs through communication with residents and further research of precedents and literature. Each program was developed with regards to: program description, rationale, potential participating agencies, technical assistance providers, model programs, activities, required resources, funding needs, potential funding sources, and time line.

Meanwhile, the design students shifted from factual information collection to physical design. To help the students' transition from inventory collection to creative design, a one-week design project was introduced. In a design "charette," students were asked to develop quick design solutions to some of the problems that their inventory had identified. Approximately fifteen design proposals were created, ranging from a suggested gateway to the neighborhood to streetscape designs. Planning students were involved in reviewing the designs but were not on the charette teams per se. Students engaged neighborhood residents in discussions about the charette designs. These discussions helped to direct student teams during the second part of the semester where students focused on creating a neighborhood plan that responded to information and insights gained in the first part of the semester.

In concert with the developing plan, seven teams of architecture and landscape architecture students developed neighborhood plans that addressed all the guideline elements. A range of inspirations, such as regional connection, ecological sustainability, economic development, and community pride, drove the schemes. Each group gave their design a title that reflects its focus: Heart of South End, SWALE (Sustainable Wetlands

Alternative for a Livable Environment). Pedestrian Oriented Development, Outside-In, Connected Community, Incubator/Consolidation, and Connections. One design entitled SWALE will be briefly described and illustrated to exemplify the comprehensiveness of the team projects. SWALE is an acronym for Sustainable Wetlands Alternative for a Livable Environment: this design was inspired by ecological development techniques. This group of students sought creative, sustainable alternatives to traditional neighborhood revitalization in order to reduce the neighborhood's dependence on governmental support for infrastructure and to use available resources most effectively both in the short- and long-term. The phased plan recognized opportunities for sustainable practices to inform redevelopment.

#### 4.3 SEMESTER RESULTS

The final plan was presented to the community as a work in progress. The final designs of the architecture and landscape architecture students were presented twice: first on campus to a review group that included invited faculty and the planning students, and second to SENDO members at a neighborhood meeting. Students received very different feedback from these two reviews, ranging from discussion of graphic layout and design precedents from the reviewing faculty, to comments about particular sites or implications from the residents. Residents in attendance provided some written comments and verbal feedback, but also indicated that they needed more time to consider the many different ideas suggested in the design proposals. SENDO and Faculty coordinated continuation during 2003.

#### 5. REFLECTION ON PEDAGOGICAL TECHNIQUES

In recent years, the larger academic community has placed increased emphasis on the merits of applied learning. Called "Service Learning",<sup>7</sup> the objective is to form a collaborative environment in which students learn through applied work that benefits a community. In an attempt to clarify what is meant by service learning, especially in the context of environmental design, the faculty involved in this community design studio reflected on their approach, identifying three key elements. Each is discussed below in light of its strengths and weaknesses as 1) a teaching approach, and 2) a service to the community. Faculty reflections are augmented by student course evaluations.

##### 5.1 COMMUNITY-DESIGN OFFICE AS WORKSHOP/STUDIO FORMAT

Given that environmental design schools have a history of applied projects (e.g. creek restoration, urban infill), one

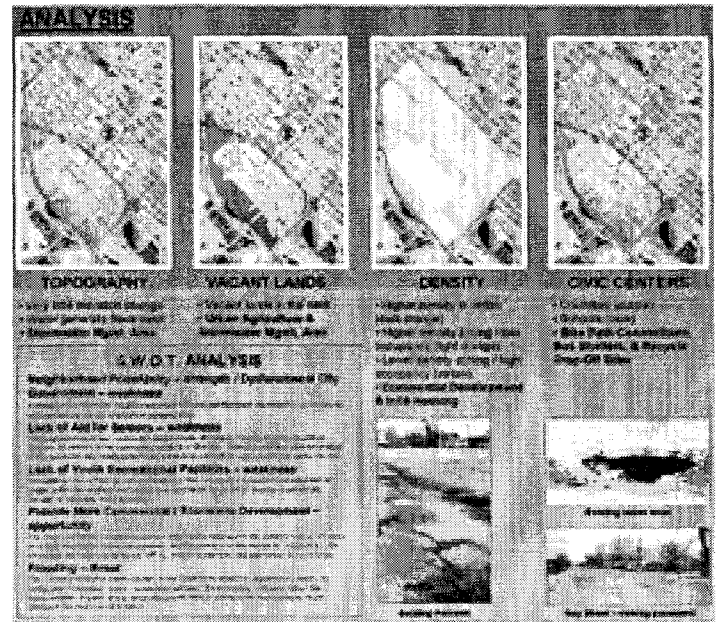


Fig. 4. SWALE group students' multi-scale analysis suggested alternative development techniques to by-pass crumbling existing infrastructure and alleviate localized standing water.

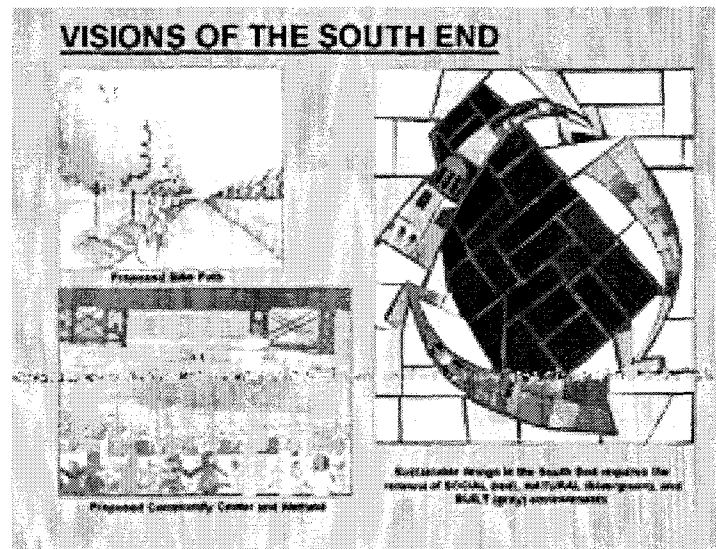


Fig. 5. Sustainability informed all design interventions.

question arises regarding the difference between these studio projects and a more general "service learning" model. Sometimes professors of design use a real site to inspire students in theoretical work. Other times, a class might take on a real project under the direction of a non-profit organization, a city government, or a neighborhood group.<sup>8</sup> While the experience of working under a non-profit or a city official injects reality into the design process, it still presents students with a limited perspective on criticality of issues and with critique of the work within a narrow spectrum. In structuring this course, the faculty treated the studio as if it were a community-design office. From





Fig. 6. The SWALE plan incorporated sustainable industries and considered sustainable mechanisms to cleanse soil of existing industrial pollution.

the community design perspective, this meant that there was sustained engagement with residents, the particular focus of design work was derived from residents' input in a participatory process, and students and residents worked together through multiple cycles. From a design office perspective, this meant that faculty discussed the end goals with the students and assigned tasks to teams and individual students. The teams were expected to develop their own schedules, intra-group responsibilities, and seek out assistance and resources. Faculty oversaw and directed but did not proscribe results. In reflection, faculty members feel that most students willingly accepted responsibility and shared resources and ideas openly. As most of the students were seniors that were in the process of looking for their first full-time job, many appreciated this transition into an office format. However, in some cases, the team structure hid unequal contributions, so that some students ended up taking on much more of the responsibility than others. From a community-service perspective, the community-design office approach helped the class complete the course's objectives to provide planning and design products to the community client. From a teaching perspective, however, it is a method that still requires adjustment. Faculty realized in hindsight that the quest to produce final documents hindered some broader teaching opportunities, such as stopping the process to discuss the larger implications of urban design, housing typologies, or streetscape considerations. For instance, faculty assumed incorrectly that the students – most of whom were seniors – had the requisite



Fig. 7. The crumbling storm sewer and eroded driving surfaces on Gay Street were opportunities to create a bioswale. A derelict corner of the neighborhood became a nature education center.

knowledge of urban design. When it was discovered that they did not, little time was available to remedy this deficiency.

5.2 INTERDISCIPLINARY TEAMS

The faculty felt very strongly that students needed to work in interdisciplinary teams in order to address the complex problems in the South End neighborhood. Each discipline brings a different set of tools for analyzing existing conditions and different perspectives on the overriding issues.<sup>9</sup> In general, the interdisciplinary teams were quite successful. Over half the groups worked in a truly interdisciplinary fashion, and reviews showed that their work produced more thoughtful solutions that integrated the main ideas at multiple scales and across physical and programmatic planning. Other groups, however, fell back into traditional disciplinary roles and separated the

tasks by disciplines. An important factor that inhibited complete integration of planning with the design studio was the course time schedules, but this is one factor that can easily have been partially remedied in the spring of 2003. Surprisingly, most students did not need to be coaxed to assist with tasks using tools not normally within their disciplinary boundaries.

### 5.3 SIMULTANEITY OF ANALYSIS, PLANNING, AND DESIGN

Whereas most student projects tend to be assigned in finite pieces, with one task ending before the next begins, or with the changing scales in a linear fashion, this course was structured so that students worked on different projects and different scales simultaneously. The faculty felt this process was more reflective of "real world" experience and would result in more integrated design. For instance, students started thinking about planning and design implications while they were still collecting data, thereby avoiding the "analysis paralysis" that is so common to students. The faculty also hoped that planning and design could occur simultaneously, thereby informing each other. In reflection, the process created a vibrant though stressful teaching and learning experience. Students (and faculty) complained of feeling overwhelmed and some tasks were done in an incomplete manner as a result. Faculty members still feel, however, that this approach has merits. It begins to teach students the necessity for scheduling tasks and time. Also, the process revealed some problems with the data collection. In particular, some of the design students realized that the neighborhood conditions survey provided data in a form that was useful for planning but not for physical design. On their own initiative, students figured out ways to overlay data on aerial photos, thereby giving it physical form that was useful to design. In the spring of 2003 we have successfully employed this method as well as collection of more detailed physical information about structures and infrastructures in the neighborhood.

### 6. FUTURE PLANS

The faculty members recognize that these courses, as well as the products produced in it, represent an on-going process. The product of the Spring 2002 semester was to get community participants thinking about larger issues. The processes they and the students engaged in helped to flush out larger issues for neighborhood development. During the spring of 2003, stu-

dents and residents are consolidating ideas into a guiding image for neighborhood development. Faculty and graduate students attended monthly SENDO meetings throughout the summer and fall of 2002 to keep abreast of community issues and to continue working with organization members, thereby remaining engaged. The seven plans produced in 2002 have been further analyzed to reveal different approaches to solving the problems mentioned by the community. Residents, faculty and students are currently working to develop a shared vision that will help prioritize actions. ESLARP Work Weekends are focusing primarily on the South End. The goal is to develop an organizational and physical neighborhood plan that embodies a shared vision for the future of the South End and to get that plan adopted by the city.

### NOTES

- <sup>1</sup> A number of authors have expressed concern for the lack of diversity in the profession, its historical roots and its impact on acceptable outcomes. Others have specifically critiqued standard architectural education pedagogy. See for example, Kathryn Anthony, *Designing for Diversity* (Urbana, IL: University of Illinois Press, 2001), and Greig Chrysler, "Critical Pedagogy and Architectural Education," *Journal of Architectural Education* 48 (May, 1995), 208-217.
- <sup>2</sup> Nancy Canton and Steve Schomberg, "What We Want Students to Learn," *Change Magazine* 34, no. 6 (2002), 1-2.
- <sup>3</sup> See "Inside the Service Learning Studio in Urban Design," Ann Forsyth, Henry Lu, and Patricia McGirr, *Landscape Journal* 18, no. 2 (1999), 166-178. Service learning stresses learning through service to the community as part of the formal curriculum, but also incorporates a significant structured reflection on service activities. They further note that service-learning studios often present the real world is through single individuals or key members of organizations, who are also white, middle-class and college educated. While these provide important and useful experiences, they do not allow students to engage the full range of human complexity or the varying social implications of design.
- <sup>4</sup> See Randolph T. Hester, *Community Design Primer* (Mendocino, CA: Ridge Times Press, 1990).
- <sup>5</sup> Donald A. Schön, "The New Scholarship Requires a New Epistemology," *Change Magazine* (November/December, 1995), 26-34.
- <sup>6</sup> Kathryn Anthony, *Design Juries on Trial* (New York: Van Nostrand Reinhold, 1991), p. 3.
- <sup>7</sup> National Commission on Service Learning, *Learning In Deed: The Power of Service-Learning for American Schools*, (Battle Creek, MI: W. K. Kellogg Foundation, January, 2002).
- <sup>8</sup> Differences in studio pedagogy are embodied in choice of client. For further discussion see: Walter Hood, "Opening Day Is Not Everyday," *Democratic Design in the Pacific Rim*, Ed. Randolph T. Hester and Corrina Kweskin (Mendocino, CA: Ridge Times Press, 1999), 116-123; Mark Francis, "Proactive Practice: Visionary Thought and Participatory Action in Environmental Design," *Places* 12 (Winter, 1999), 60-68.
- <sup>9</sup> Ernest L. Boyer and Lee D. Mitgang, *Building Community: A New Future for Architectural Education and Practice* (Princeton, NJ: The Carnegie Foundation for the Advancement of Teaching, 1996).