

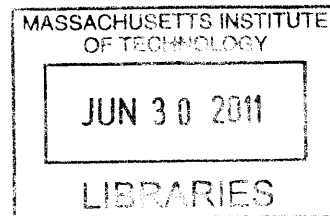
**The Community as Text:  
Using Planning as a Vehicle for Interdisciplinary Education**

by

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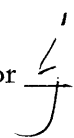
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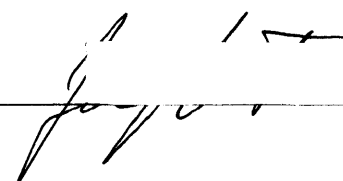
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**ABSTRACT**

Many American schools fail to teach students about the built environment. However, there is both scholarly and anecdotal evidence that using students' communities as a teaching tool is an effective method for increasing student engagement and increased knowledge retention, as well as improving their knowledge transfer and higher-level thinking skills. In this thesis, I argue that schools are missing an educational opportunity to by failing to incorporate students' neighborhoods into curricula in a sustained and interdisciplinary way. I argue that planning is an ideal vehicle for interdisciplinary education, but is also a worthwhile topic as an end in itself, teaching students about republicanism and civic engagement at a local level. This thesis looks at three programs that teach students about the built environment, and then offer a case study of how a more sustained program could implemented in an eighth-grade classroom in Dorchester, Massachusetts.

The school for which the curriculum was designed, Mother Caroline Academy and Education center, is pleased with the module and will begin implementing the curriculum in the fall 2011.



## Acknowledgements

I would like to thank my advisors and professors at MIT, particularly my advisor, Professor Anne Whiston Spirn, whose guidance over the past year has shaped both the thesis and my experience of MIT.

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The many educators whom I spoke to about their programs were immeasurably helpful, and I am particularly thankful to Jen Masengarb, Debra Block, LaTonya Green, Ariel Bierbaum, Anne Meyer, and Saeed Arrida.

My husband, Ian Kash, always had opinions about my work, and some of them were helpful. My sister offered some important insights, in addition to moral support.

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## Preface

When I was in sixth grade, my father explained Polish flats to me - the vernacular residential architecture of Milwaukee, Wisconsin (my hometown). Polish immigrants in the early twentieth century would build a small cottage with a modest front, and when they became wealthier they would jack up the house and build a half-basement underneath. There are whole streets in Milwaukee lined with houses like this, and when the style was explained to me, I began to understand my city in a whole new way. It was then that I began to understand that buildings can tell stories, and that a person who knows the cues can learn all sorts of things about the history of a place just by looking. It was partly that understanding that led me to write this curriculum: not everyone will be as excited by the stories buildings can tell as I was (and continue to be). But some people will be, and the sooner they can begin to learn about cities, the sooner they can begin to understand them. While I think that planning is just one of many disciplines that currently is not being taught in k-12 schools, I also think that it is particularly effective in its ability to get students engaged in their schoolwork and in their communities, and I think schools are missing out on an opportunity to fulfill their civic mission and prepare students to be college- and career-ready.



Figure 1: Polish Flat. Courtesy City-Data.com

# Chapter 1: The Value of Planning for Middle Schoolers

## Introduction: Bringing Planning to Youth

Virtually everyone in urban planning has stories from their childhood that indicate their early interest in the built environment. They used to draw maps for fun, or they had a childhood preoccupation with public transportation. That said, while many planners had some early exposure to planning, geography, or architecture, virtually no one was introduced to the discipline in any formal way before arriving at college, and those who were often stumbled across the topic by chance. Even those who do not eventually study planning or design, however, can benefit from exposure to planning topics. Knowledge of one's neighborhood and its history is not a frivolous fringe benefit of education that should only be enjoyed by students whose parents have the leisure and interest to teach them. It is an important form of civic education and a legacy of the notion of republicanism on which the country was founded. Public participation as it pertains to the trajectory of one's community is a fundamental value of the United States, and teaching students that value is (or should be) at the core of American public education. Historically, teaching students the importance of civic engagement has centered on the functioning of state and national government on the premise that students should understand how their country functions - which they should. But they should also understand how their city and neighborhood function. The failure of American education to teach students their role in their own communities is what this thesis seeks to rectify.

Urban planning is one of many disciplines that suffer because students are not exposed to it in a meaningful way: the Edgerton Center at MIT, for example, is devoted to introducing students to engineering, a discipline that is often overlooked in traditional education.<sup>1</sup> Planning and engineer-

<sup>1</sup> Edgerton Center Outreach Program, <http://web.mit.edu/Edgerton/outreach/index.html>.



ing are fundamentally interdisciplinary pursuits - a fact that both enhances their utility as teaching tools and decreases the likelihood that they will be taught. Planning, the study of which draws from history, philosophy, ecology, statistics, economics, engineering, and language, has been used as an educational tool, but has only rarely been applied in a sustained or systematic way. Furthermore, secondary schools that teach planning tend to be either elite private schools or charter schools with a narrow mission. Either way, only a small slice of American students are exposed to planning before college.

Using students' neighborhoods as a text makes school-based learning relevant to students. I believe that American schools, in the vast majority of cases, fail to teach students about the built environment and about the history, ecology, geography and economics of their neighborhoods. By failing to do so, they are missing an opportunity to contextualize knowledge and build on pupils' existing experience. Furthermore, students are only in school a few hours a day, and they spend the vast majority of their time in their communities. Teaching students to regard non-school environments as opportunities for learning is valuable, and when students begin to realize that their neighborhood has a rich history, they become more invested in understanding it.

Cities are complicated places, and it is understandable that American educators feel that they do not know where to start. Using the built environment as a teaching tool will not necessarily captivate all students. However, it will provide students with a new way to understand their neighborhoods and their place in their neighborhoods. It will also help students understand that things they learn in school are not confined to school and that there are all sorts of ways of understanding a community. There is value in being able to read the architecture; in learning to read the landscape (both natural and built) and in being able to interpret the statistics that tell stories about demography and population flows. Ultimately, planners understand neighborhoods by mapping, by interviewing, by reading the landscape and its streets and buildings, and by understanding who lives there. From that knowledge, they can piece together the story of a neighborhood. The tools that planners use are all tools rooted in core educational skills, and are applicable to the classroom.

A closer union of planning and education is important for a few reasons. First, schools are

important in determining where people live, and there has been a failure on the part of the planning profession to acknowledge the affect that schools can have on a community's vitality. Education needs to become part of the planning equation, from both a programmatic and design perspective: schools need to be better integrated with communities, and curricula need to reflect that integration. Educators likewise need to understand that good planning can help them teach better, at the same time that it makes the places where they teach safer and healthier. Incorporating planning topics into classrooms (educating both teachers and students about the utility of planning as an educational tool) is an important first step.

Second, the failure of Americans to understand the long-term implications of things that seem innocuous -- like mandatory minimum setbacks or the location and size of parking lots -- has an effect on neighborhoods' viability, and it is important that people gain the tools to understand the implications that small choices, over long periods of time, have on communities. American's failures to understand their communities' histories have led to patterns of land use that are unsustainable, but are the product of things that, at first glance, seem innocuous.<sup>2</sup> Educating students about cities and neighborhoods is a way to enable them to think critically about seemingly small changes to the built environment. Finally, educational literature has proven over and over the value of project-based learning, and of using real-world knowledge to teach academic subjects.<sup>3</sup> Making school learning relevant to things that students already know intimately can make students more receptive to the material, and extends the school day by allowing students to use their neighborhoods to learn.<sup>4</sup>

Although the reasons given above are enough to warrant a closer union between planning and education, there is also an implicit value that guides this thesis: that cities are fundamentally interesting places, and that learning to understand them is a fundamentally interesting task. Cities are worth knowing about because being educated about the place you are from is useful for its own

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2 For example, mandatory minimum setbacks that allow for parking lots in front of stores can have a big impact on the urban design of developing areas, but many residents fail to understand the importance of something that is only one line of zoning code.

3 Please see the Literature Review for a more comprehensive review the research.

4 National Council of Educational Research and Training, *India National Curriculum Framework*. India: New Delhi, 2005, p. 12.

sake. Knowledge of your community is an extension of knowledge about yourself.<sup>5</sup>

As I will detail in the case studies and literature review, there are many learning frameworks that are working to introduce young people to the built environment. In many cases, programs are targeting high-income students in high-capacity schools. Others offer summer programs for wealthy students. Some magazines for educators provide single lessons that can be incorporated into traditional academic disciplines, while others were offer a sustained introduction to a related field, like economics or architecture, without necessarily addressing questions of planning. My goal in writing this thesis was to provide students with a sustained introduction to urban planning, and do so in a way that complemented and reinforced traditional academic subjects. I think there is inherent value in learning about the built environment, and I think it is worthwhile for student to understand how choices, layered over time, create the communities they know.

What I am proposing is a six-week curriculum module that is independent from, but reinforces, traditional subjects. that examines the evolution of a particular built environment. In this case, the module focused on Roxbury and Dorchester, both neighborhoods of Boston, Massachusetts. There are few sustained programs focused on the built environment that prove such a curriculum would work. However, there is ample evidence that analogous programs in science and environmental education have been successful. In particular, place-based learning, in which students focus on the natural environment immediately adjacent to their schools rather than learning about biomes around the world, has proven particularly effective at engaging students. Teaching students the built history of their neighborhood takes a similar approach and directs students toward a more holistic understanding of their community (especially when partnered with a concomitant emphasis on place-based learning across curricula). At the same time, a vast literature on project-based learning has shown that giving students a more open-ended approach to learning and curriculum can yield a much deeper understanding of material, and foster higher-order thinking skills that students can then apply elsewhere.

While there is growing support for project-based learning and place-based learning in the sciences, the humanities have not found a way to incorporate, much less celebrate, the communi-

5 Personal Interview, Anne Spirn, September 2010.

ties where students grew up and the places they know and understand intimately. The disconnect between students' everyday lives and their academic work is encapsulated by the Massachusetts State Standards for eighth grade through high school: there are a number of ways that schools can elect to teach history, but only one year even offers teachers the option of teaching students about the history of Massachusetts.

However, this oversight can be rectified easily. Appendix A contains a draft lesson plan that serves as a case study for the ideas presented here. The lesson plan is designed to be implemented at Mother Caroline Academy, a private, tuition-free, all-girls private middle school in Dorchester, a neighborhood in Boston. Roxbury and Dorchester, the neighborhoods in which most students live, are both among the oldest communities in the country. Drawing on ideas of place-based learning, project-based learning, and the few successful programs that have incorporated the built environment, one can build a case for the likely success of a program that teaches students about the built environment. The curriculum took inspiration from educational literature and from many pre-existing programs, three of which are described in detail in the Case Studies section. Faculty at Mother Caroline participated in the development of the curriculum and are eager to begin its implementation in 2011.

## Literature Review

In preparing the curriculum module, I looked at several distinct bodies of literature. First, there are a number of books and articles advocating a new approach to education to better incorporate creativity and alternate paths to learning. Second, I looked at more traditional educational literature. I placed a particular emphasis on articles that review project-based curricula and books designed for students of education -- the how-to manuals on planning a curriculum, scheduling and pacing a lesson, and incorporating technology into the classroom. Third, I looked at books and articles written about design education (almost entirely at the college or graduate level) that explored the dynamics of design studios; Donald Schon is the most famous author of this type of text. Finally, I looked at case studies of existing educational programs working to introduce youth

to planning and design. Although the textbooks themselves were an important part of the literature review, I will deal with textbooks or written course materials in the case study section, and deal here with the other types of literature. Likewise, I did substantial research on the history of Boston (with a particular emphasis on Roxbury and Dorchester). Because there are so many books about Boston, I elected to include those that are directly relevant in the curriculum itself, under a “Resources for Teachers” section at the end of each lesson, rather than provide a comprehensive literature review or bibliography. No assessment of resources pertaining to Boston is provided here.

Throughout the thesis, there is heavy reliance on the philosophies of John Dewey, who is considered the grandfather of project-based education. The first category of literature that I looked at, which was mostly inspirational, was undergirded by Dewey’s writings on education. Throughout his several books on the topic, Dewey emphasized that education is social and must have relevance to the outside world. In *My Pedagogic Creed*, written in 1897, he writes, “I believe that much of present education fails because it neglects [the] fundamental principle of the school as a form of community life...I believe that the child should be stimulated and controlled in his work through the life of the community.”<sup>6</sup> In a refinement of his ideas in 1916, Dewey wrote that “a democracy is more than a form of government; it is primarily a mode of associated living, of conjoint communicative experience.”<sup>7</sup> It follows, Dewey explained, that the role of education was to prepare children for democracy by “enabling children to share a common life.”<sup>8</sup> In his conception, this meant that students should learn traditional academic skills, but that the development of social skills and an ability to connect school to the outside world were equally important aims of education. The connection of academic learning to personal experience is a theme of both *My Pedagogic Creed* and *Democracy and Education*, as well as Dewey’s other writings. In *Democracy and Education*, he writes, “To avoid a split between what men consciously know because they are aware of having learned it by a specific job of learning, and what they unconsciously know because they have absorbed it in the formation of their characters by intercourse with others becomes an increasingly delicate task with every development

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<sup>6</sup>John Dewey. *My Pedagogic Creed*. New York: E.L. Kellogg and Co, 1897, pp. 8-9.

<sup>7</sup>John Dewey. *Democracy & Education*. New York: The MacMillan Company, 1922. P. 7-8.

<sup>8</sup> *Ibid*, p. 8.

of special schooling.”<sup>9</sup>

The types of teaching and learning for which Dewey advocated have had a powerful impact on American and British teaching in the last 100 years. He is considered to be the founding father of project-based learning, “in which students explore real-world problems and challenges. With this type of active and engaged learning, students are inspired to obtain a deeper knowledge of the subjects they’re studying.”<sup>10</sup> The school he founded at the University of Chicago is still in operation. Its website states that “The University of Chicago Laboratory Schools provide an experience-centered, rigorous and well-rounded education for a diverse community. Recognizing that students have a variety of needs at each developmental stage and learn in different ways, the Schools are committed to help each student.”<sup>11</sup> Dewey’s philosophies have directly informed the literature that subsequently inspired this thesis and all of the case studies from which practical lessons regarding curriculum design are drawn.

Dewey’s legacy was particularly evident in the book *The Third Teacher*, published in 2009. It is a collaboration between OWP/P-Cannon Design, Bruce Mau Design and VS America (a furniture company). The book presents the state of school design in light of research on children’s learning patterns, pointing out areas of improvement for traditional classrooms. Although not directly related to curriculum design, the book served as the jumping-off point for the entire thesis. *The Third Teacher* argues that place has instructive power, and that schools need to radically rethink their design in order to better serve students of the twenty-first century. It presents 79 ideas for how to make schools better, from basic facilities improvements to changing schools’ relationships to the community and the natural environment. The book was written by three design firms, none of which have a planning component; as such, their suggestions were architectural and confined to the site scale. While a focus on the school itself provided ample material for a book, recommendations at the neighborhood, city and regional scale were noticeably absent, and begged the question: what can urban planners contribute to the discussion? How can the school serve as a third teacher for a

9 Ibid., p. 11.

10“ Project-Based Learning.” Edutopia.org. <http://www.edutopia.org/project-learning-introduction> Accessed 7 May 2011.

11 University of Chicago Laboratory School Website, <http://www.ucls.uchicago.edu/about-lab/mission-statement/index.aspx>. Accessed 7 May 2011.

community? Using design to improve the experience of learning at all ages and at a variety of scales is something that no one has comprehensively addressed, and it was the book *The Third Teacher* that first inspired the question about how to encourage a closer union between schools and communities.

The book *Out of Our Minds: Learning to Be Creative*, was written in 2001 to advance a similar argument from a different perspective than *The Third Teacher*. Author Ken Robinson states that traditional education vastly undervalues creativity and stifles individuals' opportunities to discover their own talents.<sup>12</sup> In a 2010 TED talk, Robinson asserts, "I believe fundamentally...that we make very poor use of our talents. Many people go through their whole lives having no real sense of what their talents may be."<sup>13</sup> He argues for an expanded sense of what is worth teaching, and an expanded sense of how to teach things. Part of his prescription is exposing students to different ways of learning about the world: by movement, for example, or by first-hand experience. Nel Noddings echoed this sentiment in a 2008 article entitled "Schooling for Democracy." The article states, "an excellent plumber is infinitely more desirable than an incompetent philosopher. The society that scorns excellence in plumbing because plumbing is a humble activity and tolerates shoddiness in philosophy because it is an exacted activity will have neither good plumbing nor good philosophy. Neither its pipes nor its theories will hold water."<sup>14</sup> Robinson's theories seemed to be to apply to questions of planning, which is typically not taught in schools until college because educators do not see it as something worth teaching.

Arriving at the problem from a third perspective, Ed Glaeser, in his 2011 book *Triumph of the City*, argues that American public school systems are facing a crisis that requires cities (and the nation) to rethink the "lumbering public monopolies" of public-school education.<sup>15</sup> All three sources have underscored their idea that planners need to start considering education in a much more

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12 Ken Robinson. *Out of Our Minds: Learning to Be Creative*. 2001.

13 Ken Robinson, February 2010. Ted.com [http://www.ted.com/talks/lang/eng/sir\\_ken\\_robinson\\_bring\\_on\\_the\\_revolution.html](http://www.ted.com/talks/lang/eng/sir_ken_robinson_bring_on_the_revolution.html)

14 John Gardner quoted in Nel Noddings. "Schooling for Democracy." *The Phi Delta Kappan*, Vol. 90, No. 1, Sep 2008. pp. 34-37.

15 Glaeser, Edward. "To Get America Growing Again, It's Time to Unleash Our Cities." [www.Freakonomics.com, http://www.freakonomics.com/2011/02/14/to-get-america-growing-again-its-time-to-unleash-our-cities-a-guest-post-by-ed-glaeser/](http://www.freakonomics.com/2011/02/14/to-get-america-growing-again-its-time-to-unleash-our-cities-a-guest-post-by-ed-glaeser/) Glaeser has addressed the question of education in his most recent book (mentioned above); in several related articles for the New York Times and its affiliated blogs, including Freakonomics and Economix, and in an address at the American Planning Association Conference in Boston, April 12, 2011.

fundamental way than they have in the past. All three works urge a rethinking of education vis-à-vis globalization and urbanization, and it is apparent in all three books that urban planners are, at present, not part of the conversation. Urban planners need to start thinking about schools, both by addressing the place of school in communities from a design perspective and by thinking about how to bring students to a more sophisticated understanding of place.

The book *Place-Based Education: Connecting Classrooms & Communities*, by David Sobel, draws on some of the themes of *The Third Teacher*, *Out of Our Minds* and *Triumph of the City*, and asks educators to reevaluate the relationship between school and place.<sup>16</sup> *Place-Based Education* focuses on environmental education but emphasizes the need for customized education that is mindful of student experience. In particular, Sobel, who works in New Hampshire, argues that teaching students about distant ecosystems is silly, when students have such a perfunctory understanding of the system in which they live. He introduces the concept of the environment as an integrating concept (what he calls EIC learning) and begins to outline the ways that all schools could use it. Rural schools have an easier time, but any school can use a park or a nearby green space to introduce students to the environment in which they live. Sobel draws on Dewey, who said that in 1933 (the time of writing), “...the great waste of school comes from his inability to utilize the experiences he gets outside the school in any complete and free way within the school itself.”<sup>17</sup> Sobel’s book underscores the need to rectify the disconnect between school and afterschool and emphasizes the performance gains that schools have seen when they have incorporated place-based learning into their curriculum. The concepts of place-based learning Sobel outlines can easily be expanded to include the built environment.

Having established the validity of planning as a framework for learning, the next question is how to use the principles outlined in the texts that served as inspiration to actually make material accessible to adolescents. There are many books and publications devoted to explaining the mechanics of curriculum design to aspiring educators. Stone Wiske’s book *Teaching for Understanding*, which

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16 Sobel, David. *Place-Based Education: Connecting Classrooms and Communities*. Great Barrington: The Orion Society, 2004, pp. 63.

17 John Dewey quoted in David Sobel. *Place-based education : connecting classrooms & communities*, Great Barrington, MA : Orion Society, c2004.



argues that students must be made to demonstrate their mastery of material through performance, is particularly helpful. Essentially, teaching for understanding means that students have a sense that their work has implications beyond the immediate classroom realm (it will be read by peers, for example, or they will have to explain the material to a classmate or younger student).<sup>18</sup> Equally useful was *Understanding by Design*, by Grant Wiggins and Jay McTighe, a manual that breaks down curricula into component parts and helps educators navigate the iterative nature of curriculum design by providing a framework for synthesizing overarching pedagogical goals with the minutiae of classroom activities. In other words, the book provides a way for curricula designers to think about their large-scale, long-term pedagogical goals while also thinking clearly about how to best transmit the components on a day-to-day basis.<sup>19</sup>

There are also myriad articles that provide sample lesson plans or offer descriptions of successful pedagogical practice. The National Art Education Association has published sample lesson plans on designing sidewalk paths; on the socio-cultural and artistic merits of graffiti; and on assessing the merits of public art, among other topics. In 1989, the journal *Art Education* devoted an entire issue to incorporating architecture into classrooms, arguing that “the study of architecture promote[s] a sense of responsibility toward the environment” and that “the goal is to enable every student to live in harmony with the natural environment and to participate in establishing a quality human environment.”<sup>20</sup> However, *Art Education* and the National Art Education Association have offered little in the way of sustained interaction with and understanding of the built environment or even of art - their lesson plans have no continuity and vary in age-appropriateness.<sup>21</sup> In addition to single lesson plans, however, there are a number of articles in education journals that provide frameworks for teaching, many of which are very similar despite the fact that they had been piloted across a variety of subjects and for different age groups. Here, they are grouped under the heading “project-based learning,” which was the most descriptive phrase for what the articles were advocat-

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18 Wiske, Martha Stone. *Teaching for understanding : linking research with practice*. San Francisco : Jossey-Bass Publishers, c1998.

19 Jay McTighe and Grant Wiggins. *Understanding by design handbook*. Alexandria, Va. : Association for Supervision and Curriculum Development, c1999.

20 Lewis, Hilda Present. “Overview: Education Through Architecture.” *Art Education* Sept. 1989. pp. 4-5.

21 *Art Education* Vols. 42, 45, 49, and 57.

ing. The definition of project-based learning, culled from a variety of articles published in education journals, hinges on the following precepts: first, that projects involve the solution of a problem (working individually or in groups); second, projects involve initiative by the student or student group; third, that they result in an end product (something that can be incorporated into a portfolio or compendium of student work); fourth, work often goes on for a considerable amount of time; and fifth, teaching staff play an advisory, rather than authoritarian role.<sup>22</sup> The essentials of project-based learning were culled from definitions provided by the articles “Project-Based Learning in Post-Secondary Education: Theory, Practice and Rubber Sling Shots”; “Achieving Equitable Science Education”; and “Doing with Understanding: Lessons from Research on Problem- and Project-Based Learning.”<sup>23</sup> One common theme across the education literature, regardless of whether or not they used the phrase “project-based learning,” was a move away from the traditional view of student-as-knowledge-receptacle. There is an abundance of classroom models that advocate for a view of students as participants in the learning process. These models have been called the Teaching for Understanding framework, performative learning, Science/Technology/Society, project-based learning, and constructivist classrooms. Each of these various models provides a twist on project-based learning, but share many essential characteristics; all take their cues from the legacy of Dewey, progressive education and project-based learning.

Project-based learning owes much to studio-style design and workshop classes offered at the college and graduate level. Since most undergraduate and graduate planning students come to the discipline with no previous formal training, it is appropriate to look at the classroom methods by which students are introduced to design and city planning. Some teaching tools are universal. When teaching architecture students about section versus elevation drawings, for example, it is common to use an apple as a teaching tool (sketch the whole apple, then cut it in half) - and that is true whether

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22 Helle, Laura et al. “Project-Based Learning in Post-Secondary Education: Theory, Practice and Rubber Sling Shots.” *Higher Education* Vol. 51, No. 2, March 2006 pp. 287-314.

23 Helle, Laura et al. “Project-Based Learning in Post-Secondary Education: Theory, Practice and Rubber Sling Shots.” *Higher Education* Vol. 51, No. 2, March 2006 pp. 287-314.

Weld, Jeffrey. “Achieving Equitable Science Education: It Isn’t Rocket Science.” *The Phi Delta Kappan*, Vol 80, No. 10, June 1999, pp. 756-758.

Barron, Brigid et al. “Doing with Understanding: Lessons from Research on Problem- and Project-Based Learning.” *The Journal of the Learning Sciences*, Vol 7 No 3.4, Learning through Problem Solving (1998), pp. 271-311.

the novice architects are in middle school, high school, college or graduate school. However, in the vast majority of cases, the literature aimed at graduate students is too abstract to be directly applicable to middle school students. Furthermore, writing on the studio method used to teach design to college and graduate-level students is largely anecdotal. Donald Schön's books *The Design Studio: an Exploration of its Traditions and Potentials* and *The Reflective Practitioner* address interesting questions but do not establish a methodology for evaluating studio quality or designing a better system for design education.<sup>24</sup> Other books and theses written on codifying the studio process have been similarly anecdotal, or have been case studies rather than prescriptive or data-driven analyses of how to teach design -- the 2010 MIT architecture thesis *More Seeing in Learning* is an example.<sup>25</sup> Given that design educators learn to offer criticism and guide pupils through a project based entirely on their own experience as students, it is unsurprising that no rigorous method for studio classes has developed. Architecture professors are trained in how to make architecture and not how to teach it. Each studio is largely dependent on the personality of the instructors and, unlike traditional educational assessment, there are no established metrics for evaluating the success or failure of design educators, and as such no prescribed strategies for how to achieve a specific result. As a result, I found that the body of literature exploring studio methods was not helpful.

The literature that most directly informed the design of my case study curriculum and informed my thinking about how to structure a module was not books about education, but books and materials for education. I looked at design and planning programs from across the country; where textbooks, teacher resources or videos were available, I took advantage of them. The case studies were a sufficiently rich source of material that they are explained in their own chapter, rather than incorporated into the literature review.

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24 Schön, Donald A. *The design studio : an exploration of its traditions and potentials* / [Donald Schön]. London : RIBA Publications for RIBA Building Industry Trust ; Portland, OR : Exclusive distributor, ISBS, c1985

Schön, Donald A. *The reflective practitioner : how professionals think in action* / Donald A. Schön. Aldershot [England] : Arena, c1991.

25 Arida, Saeed. *More Seeing in Learning*. MIT Architecture Ph.D Thesis, 2010.

# Chapter 2: Lessons from Elsewhere

## Case Studies and Existing Programs

Many schools and professional societies have used cities and architecture as an educational tool, and some have developed rigorous and successful programs. There are also excellent resources on the value and power of mapping - one of the central themes of the curriculum. That said, none have had the same emphasis as what I am proposing. Programs like UrbanPlan, a real estate development program for high school students, have been implemented in resource-intensive schools and have been aimed at students taking advanced-placement economics or government classes.<sup>26</sup>

Model-building programs are also popular methods for teaching planning and spatial relationships. Many such programs have evolved from Box City, promulgated by Ginny Graves, in which students plan and build a scale model of a city (real or imaginary).<sup>27</sup> James Rojas, an urban planner based in Los Angeles, has also used the concept of model-building to educate youth (and the general public) about urban planning. Unlike Box City, Rojas' models emphasize unique combinations of found objects.<sup>28</sup> Graves' and Rojas' programs do not constitute a curriculum per se, but they have been an important and successful means of introducing planning to a lay audience. Rojas in particular has focused on educating a spectrum of ages, working with students as young as eight or nine years old but also running workshops for adults.

Dozens of methods exist for introducing students to planning; but very few of them are place-based, and most of them are short-term (less than a week, and often just an afternoon). Many of the more sustained programs have focused on things related to urban planning, like architecture

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26 UrbanPlan: Discovering the Fundamental Forces in Development. <http://www.uli.org/CommunityBuilding/UrbanPlan.aspx>

27 Graves, Ginny. Box City: An Interdisciplinary Experience in Community Planning. Box City 1999.

28 James Rojas personal interview. 26 April 2011.

or urban economics (as is the case with the Chicago Architecture Foundation and UrbanPlan, detailed below).

A few other inspirations bear mention. First, Anne Whiston Spirn's work with Sulzberger Middle School in West Philadelphia provided much of the impetus for this project. The collaboration between Spirn, then at University of Pennsylvania, and Sulzberger lasted from 1995-2002 before changes in the Philadelphia Public School System in 2002 led several key figures to resign. However, for four years of the seven-year collaboration, graduate and undergraduate students at Penn worked with 8th grade students at Sulzberger once a week. Their curriculum, like mine, focused on the students' neighborhood. They focused on landscape literacy, with a particular emphasis on issues surrounding the Mill Creek sewer line, including widespread subsidence and a series of cave-ins over the course of the twentieth century.<sup>29</sup>

Another important group working to unite planning and education are planning and design charter schools, several of which have been founded independently of each other and are in operation around the United States. The Philadelphia Charter High School of Architecture and Design (CHAD), the New York City Academy of Urban Planning, and the School of Urban Planning and Architecture (SUPAR) in Milwaukee are all urban charter schools that have taken urban planning or design as their guiding principle, although they operate on somewhat different models.<sup>30</sup> CHAD uses a model in which they try to incorporate art and design into all academic subjects - designing models in physics, for example. The school is geared toward preparing students for all types of careers in design, from architecture to industrial design, and does not have an explicit concentration on urban planning. The New York City Academy of Urban Planning does have an explicit urban planning focus, and seeks to integrate planning into the curriculum while offering elective classes in planning at each grade level. Finally, SUPAR, in Milwaukee, was founded in partnership with the University of Wisconsin-Milwaukee (UWM) and operates in a much less structured way than the other two. Students engage in a series of projects, earning points toward graduation upon

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29 Spirn, Anne Whiston. "Restoring Mill Creek: Landscape Literacy, Environmental Justice and City Planning and Design." *Landscape Research*, Vol. 30, No. 3, 395 – 413, July 200

30 Philadelphia School of Architecture & Design; School of Urban Planning and Architecture <http://www.chadphila.org/>; <http://www.supar.org/>

project completion; they also attend weekly seminars given by UWM planning and architecture faculty. While all three schools are interesting models, I did not look at them closely because I was interested in developing a model that any school could replicate easily. All three schools are located in urban areas and have an explicit goal of introducing minority populations to the fields of design and urban planning, fields where they are vastly underrepresented. While their efficacy is unproven, they are doing laudable and interesting work, and are introducing many students to planning who would not otherwise have had a chance to learn about it. However, it seems unlikely that any school district is going to make urban planning the guiding principle of their entire school district, and so it seems wise to explore options that can be applied in a more catholic fashion. Furthermore, all of the schools are charter schools, which means that even though they target underserved urban populations, their immersion model is unlikely to be taken up at a large scale.

Y-Plan, at the Berkeley Center for Cities and Schools, provides a framework to educators and districts interested in teaching students about the built environment.<sup>31</sup> It is a model of project-based learning conducted by schools in conjunction with University of California-Berkeley's Center for Cities and Schools. The Center connects interested schools with Berkeley students (as mentors); the college students gain academic credit and the schools gain access to expertise and to a number of modules that are customized to the school's needs by the Center for Cities and Schools. The program's use of urban planning stems from three fundamental principles: "[1] Planning projects are authentic, inquiry-based learning opportunities... [2] City planning initiatives provide important professional context... [and 3] Planning offers excellent vehicles to connecting cities, schools, and communities."<sup>32</sup> Emily Pilloton, principal of Project H Design, has also pioneered a design curriculum in a rural area: her model of "Design for Change" in Bertie County, North Carolina, has garnered particular attention. In her TED talk, "Teaching Design for Change," she speaks to the three types of design strategies that her company is pursuing to help reinvigorate a rural and impoverished community: design for education (upgrading educational facilities); redesigning education (introducing more flexibility into the curriculum and creating conditions under which change is possible)

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31 Center for Cities and Schools, <http://citicsandschools.berkeley.edu/yplan.html>

32 Debra McCoy et al. Y-Plan Handbook. Berkeley: Center for Cities and Schools 2010, p. 2

and design as education, in which a group of twelve students participate in a design studio over the course of year and ultimately build and unveil a new community space.<sup>33</sup> Ultimately, Pilloton argues, design *is* education, because designers must constantly work to reinvent themselves.<sup>34</sup> The Build San Francisco Institute is another program that uses a design-build strategy to create a bridge between student learning and the real world. The Institute is a partnership between the San Francisco Unified School district and the Architectural Foundation of San Francisco. Boosters within the school system have described the program as “the fastest way to integrate academic skills into a real-world setting.”<sup>35</sup> Many other programs have worked to teach students about cities using technology, ranging from video games to ESRI/Arc software.<sup>36</sup> Edutainment games like SimCity, Cities in Motion and Caesar II, in which players look at an axonometric view of a city as they build it, teach students the rudiments of urban planning and are developing increasingly sophisticated models for determining what constitutes a successful city.<sup>37</sup> There are also many extracurricular programs that work to get students engaged in their community, such the Dudley Street Neighborhood Initiative in Dorchester has a program for at-risk youth, as does the City of Somerville (both communities are in Massachusetts).<sup>38</sup>

## The Chicago Architecture Foundation

In the last seven years, the Chicago Architecture Foundation has produced a resource book for k-8 teachers called *Schoolyards to Skylines*, with complete lesson plans for all five core subjects (social studies, science, math, language arts, and fine art), and a textbook called *The Architecture Handbook*, intended as a textbook or supplemental resource for high school drafting classes. The books

are focused explicitly on Chicago architecture, and were designed with Chicago Public Schools in

33 Emily Pilloton TED Talk, [http://www.ted.com/talks/lang/eng/emily\\_pilloton\\_teaching\\_design\\_for\\_change.html](http://www.ted.com/talks/lang/eng/emily_pilloton_teaching_design_for_change.html) Accessed 14 January 2011.

34 Ibid.

35 Richard Rapaport. “Immersing Students in Civic Education: The Build San Francisco Institute is devoted to the architecture of building adults.” Edutopia.com, <http://www.edutopia.org/build-sf-intelligent-design>, Posted 7 August 2008, Accessed 7 May 2011.

36 Personal Interview, Josh Sheldon, February 21 2011.

37 Jeff Ferzoco, “In Praise of the Urban Sandbox: Computer games aren’t just games anymore. They’re learning experiences.” *Planning Magazine*, April 2011. <http://www.planning.org/planning/default.htm> Accessed 7 May 2011.

38 “Engaging Youth in Planning” Panel. American Planning Association Conference, 12 April 2011.

mind as a client.<sup>39</sup> Although the book is even-handed in its treatment of urban, suburban and rural landscapes, all images are drawn from Illinois and all buildings featured in the resource guide are in Chicago, many in the Loop or immediately adjacent. That said, the book had to contend with the substantial variation in school quality even within the one school system. As one of the biggest public school systems in the country, Chicago Public Schools run the gamut in terms of student preparedness, parental involvement, and even classroom resources.

The first book, *Schoolyards to Skylines*, is not a textbook per se; instead, it has freestanding lesson plans for elementary school teachers in core subjects. There is at least one lesson for every grade in every subject. In other words, there are nine social studies lessons, one for kindergarten, one for first grade, and all the way up to eighth grade. The same is true for math, science, and so on. Additionally, while lessons have been designed for a particular grade, they have also been designed to be scaled up or down - a fifth grade lesson could potentially be scaled up to be used by eighth grade students or scaled down to be made appropriate for third graders. Author Jen Masengarb of the Chicago Architecture Foundation explained that they wanted to provide “no excuses” lessons for teachers: all of the handouts, background material, and instructions are provided, along with time estimates and the state and city educational standards fulfilled by the lesson. There are also proposed extensions and connections to other subjects, and supplemental books and websites that the teacher might consider incorporating into the lesson. In other words, each lesson is exhaustively and comprehensively planned and packaged; educators need only photocopy the handouts.

Typically, the lessons span three days; none last longer than a week. However, with the “extensions” listed in each lesson, most topics could be extended to a week or two weeks and could cover a range of subject matter. In elementary school, teachers have much more opportunity to introduce cross-disciplinary material. Furthermore, the extensions (which are given as one-paragraph suggestions) are typically longer-term projects, sometimes involving independent research or group projects.

Most of the lessons involve projects, or (in rare cases) field trips, all of which serve to illumi-

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<sup>39</sup> All information on Chicago Architecture Foundation publications was gathered from the textbooks themselves or from two interviews with author Jen Masengarb conducted on 14 January and 19 April, 2011.



nate the built environment.

In general, *Schoolyards to Skylines* is an innovative way to introduce students and educators to planning, though it is certainly not perfect. The lessons for young children are so perfunctory that they are not architecture-related, per se. Furthermore, some of the science lessons do not pertain to architecture so much as happen in the midst of architecture - a second-grade science lesson, for example, teaches students about temperature by using shade and sunlight. It is an innovative lesson, but it does not necessarily explain architecture, construction, or the built environment. The superficial nature of some of the lessons is made especially clear by those lessons that are particularly effective: one of the best, a third-grade science lesson, uses the students' limbs to explain cantilevers, post-and-lintel-construction, and trusses.

Although there will understandably be variation in lesson quality in a book with nearly fifty lesson plans, the lessons' ability to stand on their own is both a strength and a weakness. As mentioned above, all of the lessons have suggestions for related lessons, many of which span disciplines. However, within the lessons provided, there is little consonance between subjects. For example, the third-grade science lesson is completely unrelated to the third-grade math lesson. It is also completely unrelated to the fourth-grade science lesson. Therefore, there is no continuity across subjects or years, even if an entire school decides to use the resource book and follow it to the letter. At present, there are no plans to expand or revise the book. *Schoolyards to Skylines* has gone through three printings, and as of the time of writing, its future was uncertain - the Chicago Architecture Foundation had not committed to a fourth printing. They have disseminated the book through the internet and through teacher workshops but are unsure about future upgrades -- as of writing, Chicago Architecture Foundation is just beginning to consider how a *Schoolyards to Skylines* website might work.<sup>40</sup>

*The Architecture Handbook*, another Chicago Architecture Foundation publication, has a more certain future. The *Handbook* has been in use in Chicago Public Schools since its completion in 2007 and has also been used around the country. The book was designed to supplant a drafting textbook from 1951 by providing a more relevant set of skills to high school students. It is designed to intro-

40 Interview with Jen Masengarb of the Chicago Architecture Foundation, 21 April 2011.

duce high school students to the rudiments of the design process, and give students some familiarity with computer-aided drafting software. Using the F10 house, the winner of an affordable housing competition constructed on Chicago's west side, the book details block, site and building plans.

As with *Schoolyards to Skylines*, *The Architecture Handbook* must deal with a wide range of schools and students. The tension of trying to provide in-depth information about architecture and the design process while also providing a rigorous academic experience is evident in the textbook. In addition to drafting exercises and activities relating to traditional architectural techniques (like creating sections and elevations), the book features news articles and book excerpts on the history of Chicago, drawing from classic high school texts like Sandra Cisneros' *The House on Mango Street*. In addition, a section at the end of each of the eight chapters, titled "Math," provides remedial math (appropriate for seventh or eighth grade students) inspired by the chapter. Topics include calculating slope, reading topographical maps, and interpreting scale maps. In some cases, the authors were able to hint at some of the more sophisticated types of math - statics, acoustics, etc - that architects use in designing buildings, but in some cases the math was more pedestrian. A section on Frank Lloyd Wright windows, for example, was followed by a math section on how to calculate slope.

*The Architecture Handbook* is a textbook that grew out of shop class. Jen Masengarb reported that teachers were happy with the textbook they already had - although it was from 1951, the book broke the curriculum down in an accessible, easy-to-teach way. But the book was outdated, and more importantly, so was the skill it was teaching. The drafting classes were a relic of an era when drafting was a viable career for people just out of high school. In the past fifty years, the number of drafting jobs has been steadily constricting. Updating the drafting classes to include lessons on CAD is useful, but also problematic - CAD software is expensive and is fast-evolving, so software proficiency has limited utility. Where teachers were using more contemporary textbooks, they were using contractors' manuals or books that went into more detail than was useful. The *Handbook* is an attempt to approach the architectural process more holistically.

Where the *Handbook* succeeds is in the way it introduces students to the various components of a plan, explaining different scales at which architects work and the different plans and draw-

ings involved in ultimately producing a building, even one as modest as a single-family home, from the block plan to the electrical wiring diagrams. It introduces students to various components of sustainable design like passive heating and methods of air circulation. The material is presented in a systematic and logical way, and is supplemented with interesting text - on the history of the site, for example, or on the history of Chicago vernacular architecture (there is a section devoted to the Chicago bungalow).

On the other hand, the *Handbook* is trying to be many things to many different schools and students. Nowhere is this more apparent than in the Frank Lloyd Wright window math assignment, mentioned above. The math and reading portions of the textbook were developed to reinforce core skills for students who were in shop class (now architecture class), and, as such, creative lesson plans were valued only insofar as they helped teach reading and math. In another context, the Frank Lloyd Wright windows lesson could have included a section on native plants of the prairie (Wright's inspiration for the windows); could have asked students to design their own windows based on local ecology; or could have been a jumping-off point for explaining the physical properties of glass.

The genesis of the *Handbook* is another source of weakness: the book evolved from shop class. Teachers were not necessarily equipped to teach design or architecture (per se) and the students taking the class were not necessarily interested in learning design or architecture. Many of the students in shop class were not top students. In fact, high-achieving students are not likely to take a class that uses the *Handbook* because they are often pursuing a course of study that includes fine art or music classes instead. The historical roots of the *Handbook* also means that while the explanations and materials are methodical, clear and accessible, there is little opportunity for students to engage in their own design process. The textbook does not incorporate students' own design ideas until the final chapter, and at that point becomes vague about what such a project might entail. The chapter on students' independent projects gives some suggestions and rehashes some of the material from earlier in the book about how to structure the design process, but does not do much more than that. Furthermore, the book uses vernacular architecture from across Chicago as a reference point, but its focus on local residential architecture means that students would have a hard time designing a

civic space, a park, or really anything other than a single-family residence.

The Chicago Architecture Foundation is aware of many of the problems listed above. Some of the things that I have identified as problems are simply the reality of the situation; for example, the *Handbook's* authors felt the book needed to focus on core math skills in order to best serve their target audience. Author Jen Masengarb likewise laments the lack of student-generated design in the textbook. The Foundation is actively working on an expanded version of *The Architecture Handbook* (mentioned above) that will be internet-based; as of May 2011, a beta version, called DiscoverDesign.org, was available; however large sections of the site have yet to be completed. The website is designed to provide a more sophisticated look into the design process, and to function more like *Schoolyards to Skylines* - schools can scale the intensity of use and the level of difficulty according to their students' degree of preparedness. The website was explicitly designed to reach a more sophisticated audience than *The Architecture Handbook*, and to use social media and online networking to connect students to resources and advisors outside their schools. As mentioned above, the website is called DiscoverDesign.org. It will be rolled out at a number of schools nationally in fall 2011.

The website is set up to be fundamentally interactive, with professional architects giving online feedback to students who post SketchUp models and plans. The website offers a gallery of past projects, inspirational photos, and a six-stage process to walk students through the design process. It is intended to appeal to high-achieving students who were overlooked by *The Architecture Handbook*. Since the website is only being used by a few schools, it is too soon to determine its efficacy in terms of national appeal, quality of students' output, or long-term effect on student learning. However, the website does address many of the deficiencies of *The Architecture Handbook* and has already created a forum for students to share their work with design professionals.

### UrbanPlan (Urban Land Institute)

UrbanPlan is a three-week curriculum module designed to fuse economics and government classes by asking students to propose a redevelopment project for the blighted community of Elmwood, in the fictional city of Yorktown. UrbanPlan has been applied at high school, undergradu-



Figure 2: UrbanPlan. Image courtesy ULI.org

ate and graduate levels but has been most widely used in high school economics classes, where students are grouped in teams of five and given three weeks of class to prepare a proposal that they then present to land use professionals who have been called in for the day. The program is designed to introduce students to concepts of real estate economics and the tradeoffs involved in development, rather than about the discipline of urban planning per se. In fact, Anne Meyer, the ULI coordinator with whom I spoke, was quick to point out that UrbanPlan is not an urban planning program but rather a new way to understand a traditional AP or advanced high school economics curriculum.<sup>41</sup>

The program was originally designed as a way of enlivening advanced placement economics classes. While urban planners and land use professionals visit the class periodically, the module is run by the teachers. Everyone involved - teachers and ULI members alike - are given training (teachers for the real estate components; ULI members for the teaching components). Although it was only founded in 2004, it has reached over 20,000 high school students and is being taught in 148 schools as of the 2009-2010 academic year.<sup>42</sup>

Because it is designed specifically to be an improvement to advanced placement classes, UrbanPlan has been most commonly implemented in high capacity communities. In the Boston area, for example, the module has been used at Cambridge Rindge and Latin High School, Brookline High School, and Newton North. All three are high-capacity schools with large numbers of students taking advanced placement courses, and many students continuing on to four-year universities or colleges. When I asked the Boston ULI's representative about making the program appropriate for younger students or for lower-achieving schools, she was skeptical. Ms. Meyer was concerned

41 Personal Interview with Anne Meyer, 11 January 2011.

42 UrbanPlan: Discovering Fundamental Forces in Development. <http://www.uli.org/CommunityBuilding/UrbanPlan.aspx>

that students younger than eleventh grade could grasp the complexity of the real estate development project, and said quite plainly that she was uninterested in making the program more catholic in its appeal. She was unapologetic about the program's rather elite bias: it is sufficiently difficult to get teachers and students interested in the program, she explained, that it has to be rigorous and clearly pull its weight for teachers to want to participate. Furthermore, UrbanPlan is a huge undertaking for the ULI and is, in some places, at capacity. Ms. Meyer pointed out that, as the economy has begun to recover, the professionals on whom the program relies have become busier and school visits have been more difficult to coordinate. Working with high-achieving students is a way to ensure that professionals have a good experience in the schools, and are willing to continue to volunteer their time.<sup>43</sup>

UrbanPlan was a logical model to look at because its fifteen class-hour format made it a close analog with my proposed 18 class-hour format. However, there were a few basic elements of the program that did not correspond with my overall conception. Most importantly, the key to UrbanPlan's nation-wide adoption is its use of a fictional real-estate development scenario. The fictional model is easily replicated across space and time, and assures that professionals can move across school districts or even states without any extra training in the program. The use of a made-up scenario also ensures that students grapple with a few important issues every time (including the question of balancing economic development with social justice, combined with the traditional AP economics course material).

As a model for engaging students in planning topics, UrbanPlan is a useful example. It has received largely positive reviews from the teachers who have used it, many of whom teach the curriculum repeatedly. Anecdotal evidence suggests that students become invested in the project, dressing up and investing extra hours of preparation for their final presentation.<sup>44</sup> Teachers have reported that it is a way of combating senioritis, and the use of a fictional city means that the curriculum can be taught across the country with no need for additional place-based research. However, as a model for reaching younger students, and for making students aware of change in their own neigh-

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43 Personal Interview with Anne Meyer, 11 January 2011.

44 Burr Snider, "The UrbanPlan Project-Learning Program Builds Business Skills Fighting urban blight with teenage might." Edutopia.com, <http://www.edutopia.org/building-blocks-learning-business-skills-for-the-real-world> First Posted 1 Feb 2006, Accessed 7 May 2011.

borhoods over time, UrbanPlan is of limited utility.

## MPACT, Paterson, New Jersey

In 1998, Paterson, New Jersey engaged Professor Roy Strickland (then of MIT, now of the University of Michigan) to redesign their public school system, both architecturally and programmatically. His methodology for doing so is chronicled in the 2001 publication *Designing a City of Learning*, which details both the changes to the built environment and the changes to the curriculum that Strickland and his team implemented as part of his Cities of Learning framework.<sup>45</sup>

One of the goals of City of Learning was to mitigate the common phenomenon of stronger or more affluent students leaving the public schools to attend private high schools. To encourage those students to stay, City of Learning recommended that Paterson establish a network of smaller schools, including one devoted to physical planning and design (called MPACT, short for Metro Paterson Academy for Communication and Technology). The school was located downtown, in a rehabbed commercial building - the idea was both to bring activity into the downtown and to give students access to the resources (including the mayor and city council) located in the heart of the city.

One of Strickland's students at MIT, La Tonya Green, became a teacher at MPACT after graduation, and was there for two years, at which point she felt that the school's core mission had begun to mutate. Ten years later, MPACT still exists, but after its establishment, it quickly moved away from an emphasis on urban planning and became more technology-focused. Today, the MPACT website states that



Figure 3, LaTonya Green at MPACT. Image courtesy Cities of Learning

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<sup>45</sup> Strickland, Roy et al. *Designing a City of Learning*. Roy Strickland 2001.

the goal of the school is “to offer students an opportunity to explore course work in Architectural Design, AutoCAD and Engineering in an effort to inspire future contributing members of society in these areas and related areas.”<sup>46</sup> The school is still very small, as originally intended, with no more than three teachers per academic department and an emphasis on college preparation. In the school’s first years, however, the students studied traditional academic subjects in the morning and had a more free-form studio class in the afternoon - the intent being to mimic college-level studio environments and encourage students to take more responsibility for their work (in this respect, the school seems very like SUPAR, the Milwaukee charter school affiliated with the University of Wisconsin-Milwaukee). That structure has largely been replaced by a more traditional model, with academic departments responsible for making connections to “architecture and urban planning themes.”<sup>47</sup> Different departments prioritize the school’s urban planning mission to the degree that they deem appropriate.

MPACT, although it is an academically successful model of a small school within an urban public school system, has struggled from the beginning with recruiting and retaining qualified faculty members and administrators, and faced a number of challenges external to the curriculum. Although MPACT (and others like it in the Paterson school system) is not a traditional public school, it was designed and implemented just slightly in advance of the charter school movement - it is a similar model, but without many of the perks that have come to characterize charter schools. Specifically, charter schools are often freed from some of the hiring constraints imposed on public schools, making it easier for a school like MPACT, organized around a particular theme, to hire practitioners as teachers. Charter schools also often have more flexibility in terms of their use of classroom time, and are not always held to the same testing standards as public schools, which allows for much greater flexibility. There was also tension between teachers and administrators from the beginning as to how much of MPACT’s mission was communication and how much was technology. Green, for instance, taught both studio classes and computer classes, and her classroom materials include quizzes on the history of computing and assignments on learning to read a neighborhood.<sup>48</sup>

46 MPACT Website, <http://www.paterson.k12.nj.us/schools/mpact/mainframe.html>

47 MPACT Website, <http://www.paterson.k12.nj.us/schools/mpact/academic/socialstudies.htm>

48 From the personal papers of La Tonya Green, March 2011.



As the curriculum increasingly emphasized technology, those teachers able to teach urban planning became disenchanted and left. While AutoCAD is still listed as an essential part of the curriculum on the school's website, MPACT seems to have fallen into the pattern that the Chicago Architecture Foundation was endeavoring to dig Chicago Public Schools out of: an emphasis on software skills has undermined an emphasis on critical thinking, at least as far as design is concerned. Student learn to use AutoCAD but do not learn how to think critically about buildings or the built environment.

There are three central lessons of the case studies. First, the curriculum should be focused on students' homes and schools, rather than something imaginary (as with UrbanPlan) or regional (as with the Chicago Architecture Foundation). Imaginary and regional approaches can be effective, but hyper-local history and solutions are particularly effective for low-income students who are not necessarily familiar with areas outside their immediate neighborhoods, either because they are impoverished or because they are sheltered. Second, a sustainable curriculum should be entirely implementable by the school and by the educators already working there. Programs that require substantial inputs from professionals require ongoing organization and outreach, and many falter due to the costs of organizing outsiders. That means that curricula that are future-oriented must couch their lessons in a way that teachers can feel comfortable teaching. Third, a successful program should work to reinforce traditional skills - math, reading and writing - while also teaching concepts of planning. It should be explicit about how and what it is teaching core academic skills.

# Chapter 3: Planning Curricula in Practice

## Introduction: A Model Curriculum for Mother Caroline

The central question of the thesis is, “how can urban planning be a vehicle for interdisciplinary, project-based learning?” As an answer, the thesis includes a six-week curriculum module for 8th grade students at Mother Caroline Academy and Education Center in Dorchester, a mostly low-income neighborhood of Boston, Massachusetts (for the full text of the curriculum, please see the appendix). If implemented, the curriculum will be part of a larger class called Interdisciplinary Studies that will be taught as a series of modules, each addressing topics overlooked by traditional education. The curriculum hinges on three interrelated goals: first, to introduce students to the discipline of planning in a way that was accessible, interesting, and cogent, such that what students were learning



Figure 4: Mother Caroline Academy. Image courtesy of the author.

would have meaning for them outside the classroom. The second goal was to design lessons that reinforced the things students were learning in other classes and that emphasized skillbuilding in math, reading and writing. Finally, the third goal was to design lessons that worked both as part of a larger module, where one lesson prepared students for the next, and that could be incorporated by other schools that did not plan to commit to teaching the full six-week module. My research and background information are geared toward Roxbury and Dorchester, the neighborhoods from which Mother Caroline Academy (MCA) draws the bulk of its students.

Mother Caroline Academy (MCA) is a private, tuition-free, all-girls middle school located on the Roxbury/Dorchester line, and draws low-income students primarily from those two neighborhoods. A smaller number of students come from neighborhoods to the south, particularly Mattapan and Hyde Park; there are at present no students from East Boston or from more far-flung low-income neighborhoods. The student body is mostly African-American or Latin American, and all students must be low-income Boston residents to attend. There are up to sixteen students per class from fifth grade through eighth grade, meaning that, at capacity, the school has sixty-four stu-

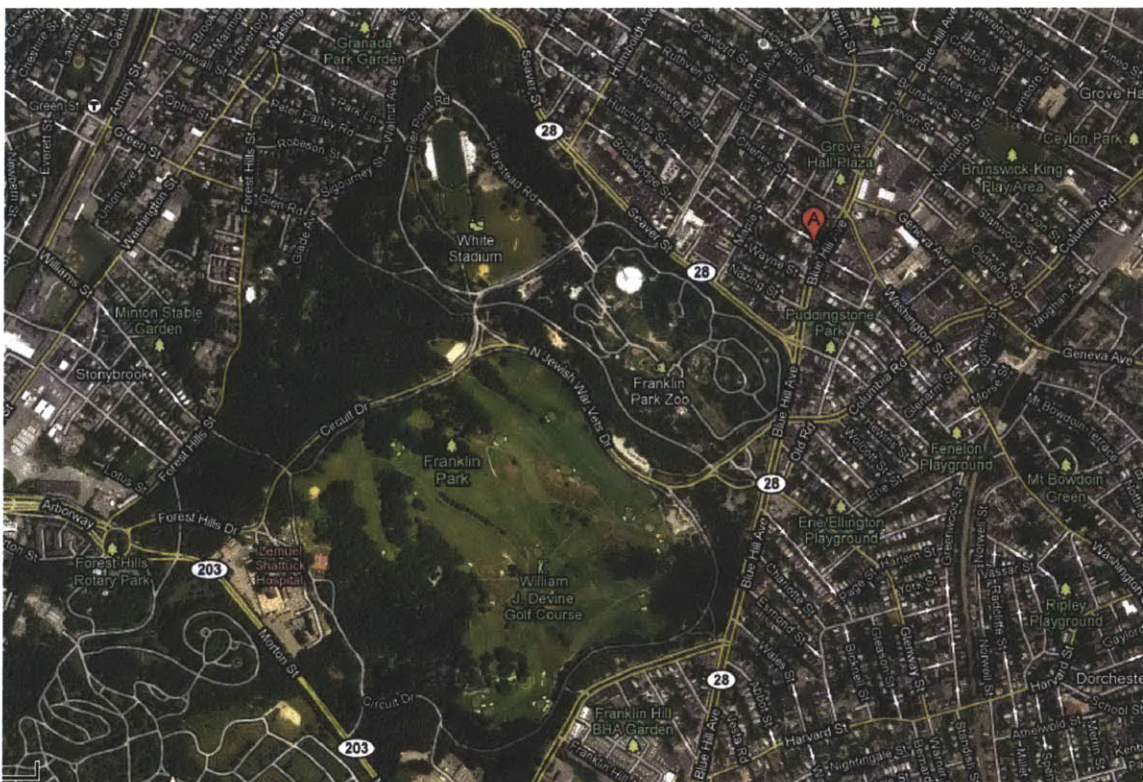


Figure 5: Mother Caroline Academy's location (indicated by "A"). Image courtesy Google Maps.

dents. At the time of writing, there were fifty-nine girls attending. There is a small full-time staff (both teaching and administrative), but the majority of the faculty members are AmeriCorps volunteers who earn room, board, masters' degree tuition, and a small stipend in exchange for their work in the classroom, and who stay at the school for two years. This means that, at any given time, about half the teaching staff is in their first year of teaching. The school uses a co-teaching model, so there are always two teachers in the classroom with students (a lead teacher, and a support teacher). My goal in writing this curriculum was to break lessons down for new teachers and make the material -- of which they most likely will have no knowledge -- accessible for teachers and students alike. Because the school is so small, teaching staff must be flexible. However, a successful curriculum would, ideally, be equally flexible, by allowing teachers to focus on those topics within the discipline of planning that speak to their strengths. For those lessons where neither teachers nor students are familiar or comfortable with the material, the lesson plan needs to be clearly written and contain clearly stated goals.

Teachers at Mother Caroline were already looking into developing a new Interdisciplinary Studies class and thought that my thesis would be a good match. The class meets three times per week, and students have a double period on Wednesdays called Convivium, a time that for presentations or short field trips. I chose to focus on eighth graders for several reasons. First, my own background includes teaching ninth graders and coaching middle school students, so it is an age with which I am familiar. Second, while I had originally thought to target ninth graders, educators with whom I spoke suggested that the substantial tracking that occurs in most high schools would make any meaningful intervention difficult - students may take core English and history classes, but take science, language, and math classes according to their proficiency in each subject. Finally, ninth grade is a common year for standardized testing. While it is possible to focus on sixth grade students, older students are better equipped to deal with some of the nuances of cities that make them interesting, such as questions surrounding eminent domain, the provision and care of parks (and how they should be used), and how to understand more abstract varieties of mapping and representation. Furthermore, research has shown that teenagers and early adolescents are particularly sensi-

tive to questions of social justice and are therefore at a perfect age to be addressing urban planning questions.<sup>49</sup>

## Curriculum Overview

The module is arranged thematically: each week addresses a different facet of urban planning. In addition to the themes, it is designed to begin with simpler and more straightforward topics and progress to more nuanced issues. The early weeks are intended to give students the tools they need for later weeks. For this reason, the curriculum begins with mapping and methods of representation, and with an emphasis on the tools that planners use for analyzing and understanding different spaces. Students learn both to read and generate maps, and about the value of representative versus abstract mapping. From there, the curriculum introduces students to land use, which demands that students continue to push their understanding of maps and representation as they approach different types of land use, the evolution of land use over time, and the use of mapping in planning. Lessons focus on the language of land use, adaptive reuse, and the evolution of land use over time (with a focus on nearby Franklin Park). Once students grasp concepts of land use, they can begin to understand the relationships between land use and transportation, particularly as the two have influenced the development of Roxbury and Dorchester. The curriculum specifically addresses the relationships between streetcars and the neighborhoods' vernacular architecture, the economics of transportation, and the state of the art (including bike sharing, mobility on demand, and other up-and-coming transportation technologies).

After students gain an understanding of the physical layout of the city, the curriculum turns to population and demographics, using historic census data to illustrate the extent to which the neighborhoods around the school have changed in the last seventy years. Finally, the curriculum ends with a documentary about the Dudley Street Neighborhood Initiative, a community organization that emerged from decades of serious urban decline in the Dudley Street neighborhood, gaining power of eminent domain within a fifty percent vacant area known as the Dudley Triangle.

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<sup>49</sup> Barry Checkoway, "Engaging Youth in Planning" panel, American Planning Conference panel. April 12, 2011.

The lessons have also been ordered to enable students to complete a long-term project within the six week module. On the final day of the curriculum (week six, day three), students turn in a children's book based on the classic children's book *The Little House*. The book assignment asks students to write a history of their neighborhood told from the perspective of their house or a community building, such as a church, and asks them to extrapolate from that history to make projections about the future of their neighborhood.

Over the course of the six weeks, the curriculum is arranged roughly chronologically - many of the maps are from the 17th and 18th century, while the topics addressed in the fifth and sixth weeks are much more geared toward teaching students about the second half of the twentieth century. The weeks typically begin with a history-oriented lesson, while "Future Fridays" allow the students time for learning about the state of the art in planning and for thinking of creative ways to improve on their neighborhoods. The visioning exercises at the end of the week help students to think critically about how their neighborhood might evolve in the future, something they are asked to do in the long-term assignment. The particular advantage of Future Fridays, as conceived in the curriculum, is that they allow students to participate in a visioning process without asking educators to supervise a design project or to take on a role that they are not able to fulfill. Friday lessons also build on knowledge gained at the beginning of the week and allow students to imagine a future unburdened by reality. Jaime Zuckerman, head educator for the humanities at Mother Caroline, confirmed that all of the students at the school are familiar with the bus and with the MBTA. She liked that the transportation visioning exercise moved students away from thinking about the quantity of buses and provision of public transit, and instead pushed them to think of new types of public transit.

The strongest parts of the curriculum, and the parts that Mother Caroline faculty reacted most favorably to, are the points where lessons take information or skills that students are not familiar with -- such as mapping or section drawings -- and make the material applicable to students' worlds. This is not surprising: John Dewey made a case for connecting schools to students' outside lives, and that notion has been echoed across decades and countries since. While there is much

in the curriculum that will be new to students, the lessons are sufficiently anchored in traditional subjects and skill-building exercises that nothing should feel completely foreign. The lesson plans throughout the curriculum are designed to manage the tension between introducing new material and providing students and educators with points of entry for each lesson.

The development of the curriculum was an iterative process. It was important to include tools used by planners, such as mapping, as part of the curriculum; furthermore, it was important that students understand not only how to read and understand maps but how to generate them. However, the themes for each week were chosen from a large pool of potential themes. The other topics that the curriculum addresses, in the format in which it is presented in the appendix, were included because of their particular relevance in Roxbury and Dorchester, and to the community that the school seeks to serve. The section on land use includes a section on adaptive reuse, for example, because there are so many buildings in both neighborhoods that are either being adaptively reused or are vacant and in need of reimagining.<sup>50</sup> Likewise, including a lesson on Franklin Park was a natural choice because it is so close to the school -- close enough for students to walk or for an easy afternoon field trip. The utility of the transportation week has been detailed above, but it bears mentioning the Mother Caroline students are much more transportation-savvy than students who attend neighborhood schools. Many of the girls commute to school, and some come from carless families and are therefore completely reliant on public transit.<sup>51</sup>

Most elementary school students are exposed to the rudiments of map-reading and geography in the fifth grade. Mother Caroline students know state capitals and the walls are decked with maps of the world. However, most students have not been exposed to the idea that map generation has value unto itself. Understanding how to look at maps and how to use them to understand a place lies at the heart of spatial planning. The decision to begin the curriculum with an emphasis on mapping was easy, because facility with maps, map-reading and map generation are so essential to understanding place. Furthermore, mapping is a way for people to understand what they know

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<sup>50</sup> The land use week asks students to do a site analysis of the Home for Aged Couples, a complex of three vacant buildings on Columbus Street. Should the buildings be redeveloped, there are many other sites to choose from.

<sup>51</sup> The Google Street View image of Mother Caroline shows a group of MCA students boarding a bus in front of the school (students are identifiable by their uniforms).

about a city, and educators interviewed in the course of researching this thesis routinely referenced the value of cognitive mapping in helping students to articulate what they know about their neighborhoods. The project “A People’s Atlas of Chicago” has compiled hundreds of hand-drawn mental maps

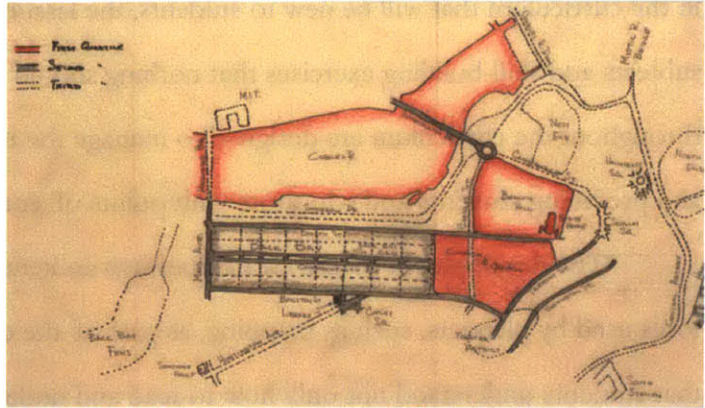


Figure 6: Mental Map, courtesy Bostonography.com

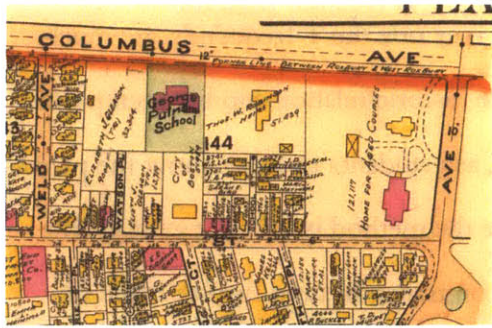
of the city over the past several years (posted on the internet at <http://chicagoatlas.arcaprojects.com/>), but the technique has been adopted by the Chicago Architecture Foundation and by Y-Plan, as well. The explanatory and pedagogical power of mapping was something I wanted to tap into early in the curriculum, so that students would have time to produce maps over the course of the curriculum and so they could read maps more easily later in the module. It was also important to highlight the extent to which mapping is only one technique for representation: plans, sections and elevation drawings are a different way to express something similar, and each method of representation complements others. Mapping is also an appealing tool for interdisciplinary learning because many students who feel that they are not good at art or at hand drawing are less intimidated by cartography, even though drawing good maps requires the same sort of eye for graphic design.



Figure 7: SimCity. Image courtesy SeriousGamesBlog.blogspot.com

After mapping, the curriculum moves to land use. The notion that the city is designed - that it evolves from a series of choices about how to use space - is a central tenet of urban planning and one of the most important ideas that the curriculum was designed to impart. Introducing land use as something that determines resi-





Figures 8-9: Bromley Maps, courtesy Rumsey Cartography Collection, and Home for Aged Couples, courtesy Wikimedia Commons.



dents' experiences of their neighborhood - and as something that can be changed, rearranged, and improved upon - will hopefully encourage students to bring a discerning eye to their own neighborhoods, especially as they begin to imagine the future of their houses or community institutions.

It was difficult to know how to pitch the introduction to land use. Students who have spent time playing SimCity, Cities in Motion or other city building games will be familiar with terms like “residential,” “commercial” and “industrial.” However, many students will be unfamiliar with different categorizations of land use. It is tempting to skip the basics of land use to devote more time to more sophisticated topics like adaptive reuse and site analysis, but learning the language of planning is an important part of understanding how a city works. Just as the portions on mapping introduced students to a visual language of planning, the portions that introduce vocabulary introduce students to a verbal language that helps them construct a framework for understanding their city. Furthermore, the lessons on adaptive reuse and park planning are not possible if students do not have the ability to think about the relationships between different types of land uses.

While students will have differing degrees of familiarity with topics related to land use, they should all have some familiarity with (and complaints about) transportation. Although some of its students live nearby, Mother Caroline is not a neighborhood school, and many students commute via MBTA in the morning and the afternoon. All schoolchildren



Figure 10: High speed rail line. Image courtesy of the author

in Boston are given an unlimited MBTA pass, too, and as a result some Mother Caroline students have an in-depth knowledge of the city. Others, though they may ride the T frequently, are much more sheltered. The lessons on transportation underscore the historic relationship between public transportation and urban growth in Roxbury and Dorchester, ask students to think about the provision of public transportation in economic terms, and evaluate the method by which city residents move around. Students who are inclined to push the lessons on transportation further could develop their alternative transportation ideas using drawings, clay, and maps; if students are very keen, some computer games have transportation modeling included in the game, or students can download free trial versions of professional transportation modeling software. Many people have a more sophisticated knowledge of the transportation system than they realize, and asking students to make that knowledge explicit could both engender a sense of personal pride and help them to see where and how the system could be improved.

The first four weeks are focused on getting students comfortable with the rudiments of spatial planning, and of analyzing and understanding physical environments. The final two weeks are designed to expand students' ideas of what constitutes urban planning by introducing demographic information and community organizing. The lessons of the final two weeks are also meant to underscore the fact that there are all sorts of ways to understand a place and a neighborhood, and that a person can arrive at an understanding of their city through many different avenues. The week on demography works to incorporate quantitative learning into the curriculum by presenting data analysis as another route to understanding a place. The power of data analysis is underscored by the use of different data visualization techniques, including maps that show the changing racial composition of Boston (and particularly Roxbury and Dorchester) over the past seventy years. An understanding of data allows students to make educated guesses about the future demographic profile of their neighborhood, and combines traditional data analysis skills (box plots and graphing) with the idea that data can be made interactive and exciting.<sup>52</sup>

Finally, the last week addresses a cornucopia of issues around the history of urban renewal,

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<sup>52</sup> Hopefully, this point also comes through in one of the first lessons on mapping, in which students listen to a cartographer talk about how he understands his neighborhood. The cartographer in question is the author Denis Wood; his book is called *Everything Sings*.

eminent domain and community organizing. The week centers on two documentaries made about the Dudley Street Neighborhood Initiative, a community organization whose primary service area begins about a mile northeast of Mother Caroline Academy (and where a portion of the student body lives). The movies, and therefore the lessons, focus on the legacy of urban renewal in urban neighborhoods, with a particular emphasis on Dorchester. The Dudley Street Neighborhood Initiative was formed as

a response to a plan for urban renewal in the 1980s. The organization became the first of its kind in the country to gain the power of eminent domain, and today has built 1300 new housing units in an area that, thirty years ago, was half-vacant.<sup>53</sup>

The logic of each topic and of each lesson was to encourage students to see and understand cities -- and their communities in particular -- in new ways. It simultaneously allows them to gain a holistic understanding of their neighborhood -- its history, its current state, and its probable trajectory. Ultimately, the topics included in the curriculum were chosen because of the way they related to each other, and because each topic allowed students to gain a different perspective on their neighborhood. The particular lessons were chosen in part because of their applicability to the community and in part because of the specific resources available to the school. Had the historic and present-day maps of Franklin Park not been available, for example, the nature of the land use week would have been different. It is also worth noting that the draft lesson plan is the result of many earlier drafts, and arose from difficult decisions and educated guesses about what material would be most exciting for eighth graders. It was also very constrained by time, both the time it takes to write



Figure 11: Olmsted's map of Franklin Park. Courtesy Franklin Park Coalition.

53 "Engaging Youth In Planning" panel. American Planning Association Conference, 12 April 2011.

a curriculum and the time Mother Caroline has allotted to teach it.

Any of the five topics could easily have been expanded to include more topics and more in-depth explorations of topics. The section on mapping and representation might have included a section on birds-eye views (using a combination of historic birds-eye scenes and Bing maps). Such a lesson might have incorporated one-, two- and three-point perspective or a history of the city as imagined from the air.<sup>54</sup> Another example is the transportation section, where students could begin to learn about the provision of public transit: how can you design a system that works in the morning and the evening without having a glut in the middle of the day? There are logical extensions for every single topic; every week could be made into a course by itself. The “extensions” section might empower teachers to pursue some of the topics further in other classes. Because Mother Caroline’s teaching staff is so small, there are more opportunities for academic cross-pollination there than at other schools. Head teacher Jaime Zuckerman is so excited about the curriculum that she hopes to make it a daily (rather than thrice-weekly) class in the future, using the extensions proposed at the end of each lesson to fill in Tuesday and Thursday. She was also optimistic about using the extensions section during Convivium, a weekly flex period in which students can take field trips, attend lectures, or participate in special programs. Ms. Zuckerman is planning to adapt some of the lessons for all-school programs.<sup>55</sup>

The curriculum framework took as a central premise that the lessons should be easily understood by teachers and students, so that everyone could find something in it to work from. The fact that Mother Caroline’s teaching faculty is excited about adapting the lessons is a good sign, indicating that the lessons are structured enough that educators feel comfortable teaching them but flexible enough that the lessons can be customized to individual teachers’ interests and strengths. The curriculum took as a central premise the idea that lessons should not be overly reliant on current events or on local issues that are likely to be resolved. Finally, it is designed to be taught completely in-house; while outside experts can be brought in as a bonus, the lessons are not dependent on one outside the school community for success. All of these parameters constrain the type of topics

<sup>54</sup> The Norman Leventhal Map Center did an exhibition on birds-eye maps in 2008 and assembled lesson plans and educational resources.

<sup>55</sup> Personal Interview with Jaime Zuckerman, 9 May 2011.

that the curriculum could contain, but even with a stringent set of requirements, the curriculum is missing many things that are educational, interdisciplinary and interesting. If the curriculum could be longer, there are three topics that are particularly important: immigration, ecology (which is many topics) and agriculture.

Roxbury and Dorchester have long been havens for immigrants - first Irish, then Jewish, the African-American, and today Puerto Rican and Dominican. In a walk through the neighborhood around Mother Caroline, a visitor can see a grand old synagogue (now a church) identifiable by its engravings and by the adjacent courtyard apartments with “Mishkan Tefila” (the name of the congregation) engraved about the door. The congregation and its headquarters have moved to Brookline, but the buildings they constructed in the 1920s and 1930s are still there, and still inhabited. Over the course of the school’s history, the vast majority of Mother Caroline students have been minorities; many are the children of immigrants.<sup>56</sup> The idea that white people used to be immigrants is something new; the idea that immigrants left a tangible, built legacy that affects their own lives is something that has not occurred to most current students. The notion of Roxbury and Dorchester as host to a series of immigrant communities is something that would be useful for students to understand. While such a lesson would be instructive and potentially very eye-opening, ultimately it was omitted for three reasons: first, some of the material can be covered in the lesson on adaptive reuse. Second, there was not time to incorporate it into the curriculum. Third, it was a topic that most educators would not be familiar with. While there are resources on immigration in Roxbury (most notably the book *Urban Exodus* by Gerald Gamm), there are few accessible historical sources on immigration that would be appropriate for middle school students. However,



Figure 12: Engraving above apartment building door. Image courtesy of the author

<sup>56</sup> At the time of writing, there was one Caucasian student at Mother Caroline, in the eighth grade. One more has been admitted to next year’s entering class.

# Intellectual Progression: Six Week Curriculum Module

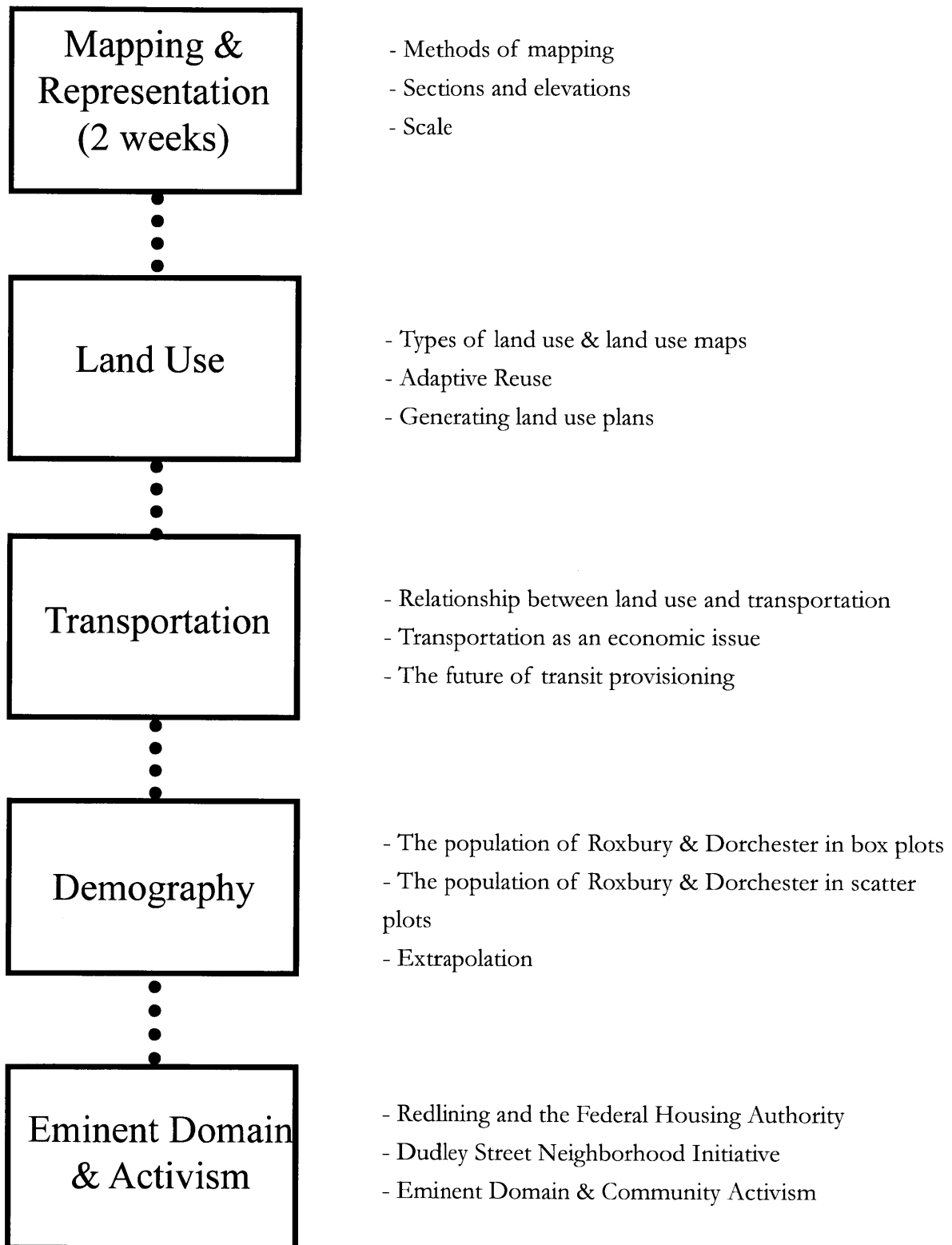


Figure 13: Curriculum outline. Courtesy of the author

the omission of the Jewish chapter of Roxbury and Dorchester's history is unfortunate.

The second topic to insert into the curriculum is actually many topics, all of which were given regrettably little attention in the curriculum. The module in its present form does not meaningfully address questions of ecology and landscape, something I grappled with throughout. Early drafts of the curriculum included sections on watersheds and geology, using Franklin Park as a laboratory. Landscape and hydrology are topics that are particularly relevant to the history of Roxbury and Dorchester, because of the way the area was developed and then dismantled from 1870-1980. Homes built over a buried stream (that were lower quality to begin with) in the late nineteenth century were disproportionately demolished during periods of civil unrest, redlining, and discriminatory housing practices in the 1960s and 1970s, a fact addressed more comprehensively in the following section on the history of Roxbury and Dorchester. Even without considering patterns of vacancy, it is possible to read the landscape on a regional level. The watershed boundary between the Charles River and Boston Harbor is just up the block from Mother Caroline, in front of the Mishkan Tefila synagogue. From the top of a large hill, the street slopes dramatically down for several hundred yards before intersecting with Blue Hill Ave, one block from Mother Caroline.

Franklin Park, Boston's answer to Central Park, is just across the street from Mishkan Tefila. Designed by Frederick Law Olmsted, the park includes many picturesque outcroppings of native rock known as Roxbury Puddingstone, so called because it is a conglomerate of many different pebbles formed in the last Ice Age. Most local residents do not know what puddingstone is, but when it is explained to them they can instantly describe it to you. Puddingstone unique to Massachusetts and particularly concentrated in the area around Franklin Park. Because Roxbury and Dorchester are so old, and not built on fill like many other neighborhoods in Boston, learning to read the landscape can yield particularly rich insights into the history of both communities.

Paradoxically, topics pertaining to ecology were ultimately omitted because there was too much information available about each of them and it was too difficult to decide where to start. In defense of that decision, much of the research on project-based learning has been conducted in the sciences, which are possibly the easiest subjects to adapt to a project-based format. Existing science

curricula could easily be altered to incorporate the local landscape. While landscape and ecology were not addressed in my curriculum, they absolutely should be addressed elsewhere; they are important things for residents to know and another meaningful way for students to learn to contextualize their neighborhood.

Along the same lines, none of the lessons in the module address agriculture. Roxbury and Dorchester today are very urbanized. Many of the houses are large and low-rise, but they are set very close together on small lots and usually set very close to the road. Streets are narrow and there are few street trees (although some houses have large backyards). It is difficult to imagine that Roxbury and Dorchester were farming communities for hundreds of years before being settled as street-car suburbs. However, there were farms left in both communities even up to the end of the nineteenth century. Today, Dudley Street Neighborhood Initiative has built greenhouses on the historic site of a pear orchard and is bringing urban farming back into the neighborhood. This thesis did not address agricultural education, but there are many existing programs serving a variety of young people that use agriculture to teach ecology, from an inner-city high school for single mothers in Detroit to an elite East Coast boarding school with a term-long agriculture immersion program. Mother Caroline's planning curriculum would have a rich legacy to draw on if the school wanted to include a week on agriculture.



Figure 14. Greenhouses built over a buried stream in Roxbury. Image courtesy of the author.

## Curriculum: Historical Background

Roxbury and Dorchester are old communities with long and well-documented written histories; both of their histories can be divided into three major eras with historical pivot points in between. The first era is 1630-1840 - from the beginning of colonial settlement to the arrival



of the railroads.<sup>57</sup> The second era, characterized by development along rail corridors, runs until 1900. The neighborhood was slow to change from 1900 to 1930, at which point the largely Jewish population began to move to Brookline and Newton, and African-Americans began to move it (a phenomenon that accelerated through the 1960s, by which point the neighborhood was majority African-American).

Both communities were settled concurrently with Boston in 1630 and are located a few miles south of the Shawmut peninsula, which today forms the bulk of downtown Boston. Due to its large harbor, Boston became an industrial port city, while Roxbury and Dorchester became part of the city's hinterland and remained small farming communities until the growth of railroads in the nineteenth century. Parts of Dorchester Neck (today South Boston) were less than two miles south of Boston Common as the crow flies, but were separated from downtown by tidal marshes and a bay, both of which are now largely filled in. While Boston was geographically constrained on all sides by ocean or tidal flats, Roxbury and Dorchester were not. Roxbury originally included what



Figure 15. Courtesy Norman Leventhal Map Center

57 For background on New England before the arrival of Europeans, William Cronon's book *Changes in the Land* chronicles the way that different groups of Native Americans manipulated the landscape prior to the arrival of colonial settlers.

are today many distinct communities, including Jamaica Plain and West Roxbury. The Dorchester boundary originally stretched all the way south to Rhode Island.<sup>58</sup> The communities were adjacent, and separated by a stream that ran right through today's Dudley Triangle.

While Boston had advantages for trade, it was geographically tiny - barely two square miles. Roxbury and Dorchester, which were much larger, were better suited for farming. Roxbury, in particular, was further inland and upland than Boston, and unlike Boston was built on much more solid land. While both were farming communities until the 19th century, the village of Jamaica Plain (now a neighborhood of Boston, but then part of the independent community of Roxbury) was a popular location for wealthy New England families, many of whom built country estates there while maintaining homes in the city of Boston, as well. The trend toward country estates accelerated in the 1840s, when railroad tracks laid between Roxbury and Boston allowed the wealthy to commute back and forth much more quickly. Roxbury officially became a city in 1846, and as it expanded, it began to experience its share of urban problems. In particular, the northernmost portions, which were walking distance from industrial areas of Boston, were densely occupied by impoverished immigrants (most of them Irish, in the mid-1800s), many of whom were reliant on more or less nonexistent social services. Roxbury, which still occupied a large amount of land, was divided into two camps regarding the future of the municipality. Wealthier residents, to the south and west (particularly in Jamaica Plain), wanted to retain the rural character of their neighborhoods, and were loathe to pay for social services for undesirable immigrant settlements miles away. When the city of Boston annexed Roxbury in 1868, Jamaica Plain seceded from Roxbury and Boston.

In the portion of Roxbury that was subsumed by Boston in 1868, suburbanization intensified again in the 1870s, with the expansion of streetcars. This phenomenon is documented by Sam Bass Warner in his book *Streetcar Suburbs*, which focuses on Roxbury and Dorchester. While suburbs were built in order to help residents achieve a rural ideal, in fact even the homes of the wealthy were built close together, in order to allow residents easy access to transportation. While neighborhoods were strictly segregated by income, historical records do not show segregation by race, ethnicity or

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<sup>58</sup> Rawson, Michael. *Eden on the Charles : the making of Boston* / Michael Rawson. Cambridge, Mass. : Harvard University Press, c2010.

religion until later. Those who were least dependent on transit - the wealthiest - moved the furthest from Boston, while the middle class and lower-middle class occupied bands of space closer to downtown. Paradoxically, the suburban areas with the smallest homes were also the most expensive, at least in terms of square feet, because they were occupied by those who were the most dependent on streetcars and therefore had the least flexibility to choose their neighborhood. The historic downtown of Boston, with the exception of Back Bay (constructed 1860s to 1880s), was jammed full of truly poor people, many of whom were recent immigrants (first Irish, then Italians and Jews, and later, African-Americans migrating from the South).



Figure 16. Image courtesy of the author.

Boston in 1896 was in the middle of a rapid period of expansion. The communities of Roxbury and Dorchester had been independent until 1868 and 1871, respectively, and had been farming backwaters until the 1840s, when wealthy residents of Boston began to build estates in the portions around Jamaica Pond (Jamaica Plain was, at that point, part of Roxbury). At the same time, the portions of Roxbury were settled by immigrants (mostly Irish) who wanted to live within walking distance of factories in Boston. Roxbury and Dorchester's growth was enabled by improvements in public transportation that made it fast and affordable to take the train into the city. The neighborhood developed very quickly between 1870 and 1900, mostly by individual builders constructing houses that they then lived in. Most builders did not have any training in architecture or carpentry, and so opted for simple frames modeled of others in the neighborhood. It was this phenomenon that led to the explosion of three-decker housing, particularly in Dorchester.<sup>59</sup> Housing on the periphery was generally of much higher quality than housing in the center of the city, much of which

<sup>59</sup> There is a lesson on three-deckers later in the curriculum.

did not have indoor plumbing, lighting or central heating. The new neighborhoods allowed more light to enter into the house than the row houses of downtown, and also provided things (like running water) that were important for improving health and hygiene. While today triple deckers seem unglamorous or humdrum, at the time of their construction they represented a huge improvement in the residents' quality of life.

Hyde Park and Mattapan, which are south of Roxbury and Dorchester, were largely developed in the twentieth century. While they have some of the same opulent homes found to the north, for the most part they lack the built heritage of older communities. Mattapan, however, does have some commercial strips dating from the early and mid-twentieth century that were primarily developed by Jewish communities in the first half of the 20th century. It is also home to the High Speed Rail Line, a 2.6-mile extension of the Red Line that runs from Ashmont to Mattapan, and is built on top a historic rail corridor first built in 1842. The line was modified for trolley service and opened in 1929, and is particularly notable because all of the cars are historic streetcars from the 1930s.

The population of all four communities in the early part of the twentieth century was heavily Jewish, a fact still evident today from the number of synagogue buildings (now converted to other uses) and from a dense agglomeration of courtyard apartments with Hebrew engraved ornamentation above the door. Roxbury's most famous native son, apart from William Lloyd Garrison (a famous abolitionist) is Leonard Bernstein, who grew up in Roxbury in its most intensely Jewish era.

In the book *Urban Exodus*, Gerald Gamm argues that fundamental differences between the structures of Judaism and Catholicism meant that Jewish residents left the city earlier. Catholic parishes have geographical boundaries while synagogues do not, which meant that a move to the suburbs had a higher transaction cost for a Catholic than it did for Jews. As a result, synagogues closed or relocated while many of the parishes remained in place.<sup>60</sup> Today, many of the synagogues have been repurposed as churches or other community institutions (although some stood vacant for many years before being reused), but are still identifiable from Hebrew engravings and Jewish stars on the

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<sup>60</sup> Gamm, Gerald H. *Urban exodus : why the Jews left Boston and the Catholics stayed* / Gerald Gamm. Cambridge, Mass. : Harvard University Press, 1999.

exterior. The Jewish population began leaving the city for Brookline and Newton in large numbers in the 1930s, but the area retained a large Jewish community into the 1950s.

In the post-World War II era, both communities saw a substantial decline. The Federal Housing Authority's (FHA) practice of "redlining" began in 1934 and accelerated after World War II with the building boom and easy availability of credit for veterans (the "Homes for Heroes" program). The term "redlining" arose from the FHA practice of classifying neighborhoods according to an assessment of "residential security" based on the ethnicity and race of the residents rather than their earning potential or actual financial security. Areas of the map that were determined to be non-viable were marked in red, and included many minority neighborhoods in cities across the country. The result was that many minorities, particularly African Americans, were unable to secure mortgage loans in their own communities, and many neighborhoods experienced large-scale abandonment. Additionally, since many landowners could not sell their property, many elected to set fire to their buildings and collect insurance money -- Dorchester was one of many urban neighborhoods in the US in the 1960s and 1970s that saw arson epidemics, particularly in low-lying areas where housing stock was of lower quality to begin with.. The resulting abandonment and vacant lots became home for illegal activities and for illegal trash dumps, respectively. Many of the large suburban homes built in the nineteenth century were torn down for public housing, making a neighborhood resurgence in the twenty-first century less likely.

However, some parts of both communities have proven incredibly resilient. One area of Roxbury, Mission Hill, is located immediately south of New England Medical Center and is a popular address for medical professionals. Other areas of Roxbury contain historic homes surrounding pocket parks that are meticulously maintained despite being adjacent to unattractive public housing - the neighborhood around Horatio Harris Park, north of Franklin Park, is a particularly notable example. Even those areas that were hardest hit by arson have a triumphant story: in 1984, the Dudley Street area of Dorchester was slated for redevelopment. The community, upset at having not been consulted, formed the Dudley Street Neighborhood Initiative (DSNI) and ultimately gained power of eminent domain over a large area of blighted residential properties. DSNI was then able to begin

building affordable housing and today presides over a 1300-unit urban village, a youth center, a youth and community empowerment program, and an economic development arm. The trials and successes of the Dudley Street community and the DSNI have been chronicled in two documentaries, *Holding Ground* (1996) and *Gaining Ground* (2009), and was the subject of the 1994 book *Streets of Hope* by Peter Medoff and Holly Sklar.

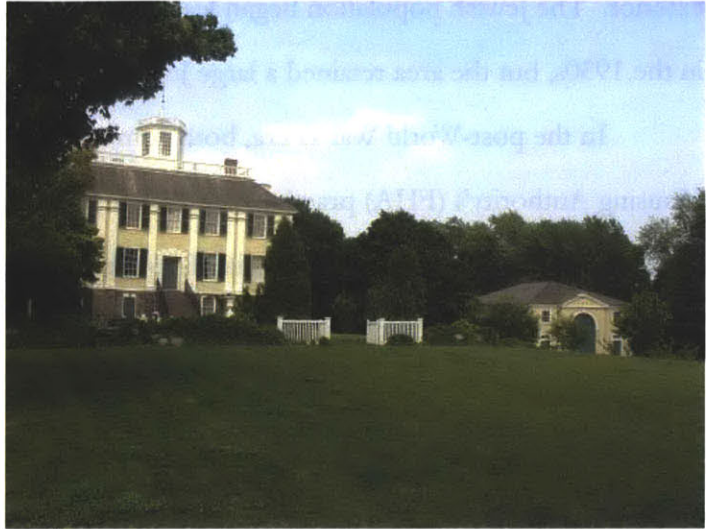


Figure 17: there is noticeable dropoff next to the Shirley Eustis House.

Despite the academic and popular attention the neighborhood has received, none of the aforementioned materials address the landscape issues that lie at the heart of the vacancy in Roxbury and Dorchester. The two communities have historically been separated by a stream that has been buried in sewer pipes. Anne Whiston Spirn writes,

*The Dudley neighborhood, fully built with homes and businesses by the end of the nineteenth century, is now 30 percent vacant. This statistic is misleading, however, for it conceals a striking pattern: 90 percent of the land within the original floodplain is vacant, with only a few, scattered vacant lots on higher ground. Floodplains and low marshy areas, now vacant, were the last spots developed. They were less favorable locations environmentally, and the houses built on them -- many as rental properties for multiple families rather than homes owned and inhabited by a single family -- were undoubtedly plagued by wet basements. Some of these properties were already vacant by the early twentieth century, many by the end of the Depression, and most by the 1960s.<sup>61</sup>*

Today, the Dudley Street Neighborhood Initiative has rebuilt on many of the vacant lots that plagued the area thirty years ago. The story of arson, redlining, and patterns of discrimination are

61 Spirn, Anne Whiston. "Reclaiming Common Ground: Water, Neighborhoods and Public Space." *The American Planning Tradition: Culture and Policy*, ed. Robert Fishman. Washington, D.C. : Woodrow Wilson Center Press ; Baltimore, Md.: The Johns Hopkins University Press, c2000, p. 302

Figure 18: Black population in Boston, 1940. Image courtesy Social Explorer

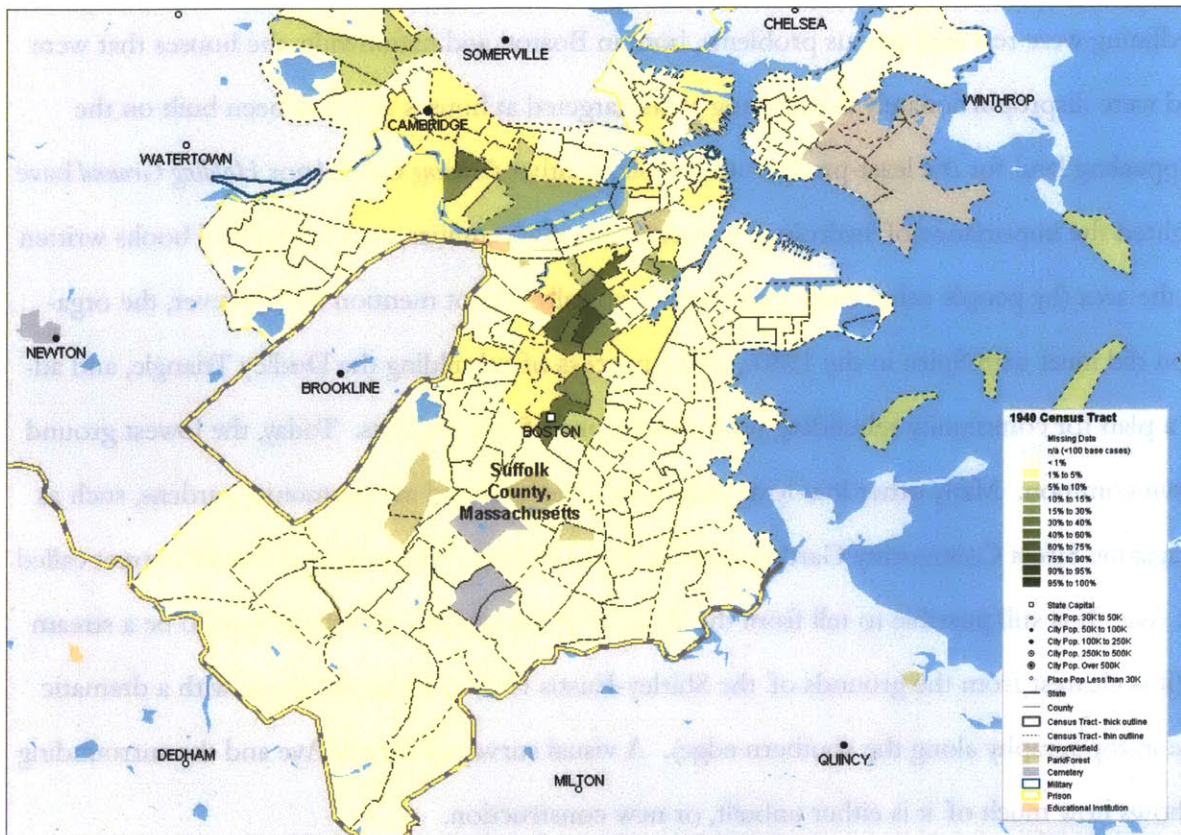
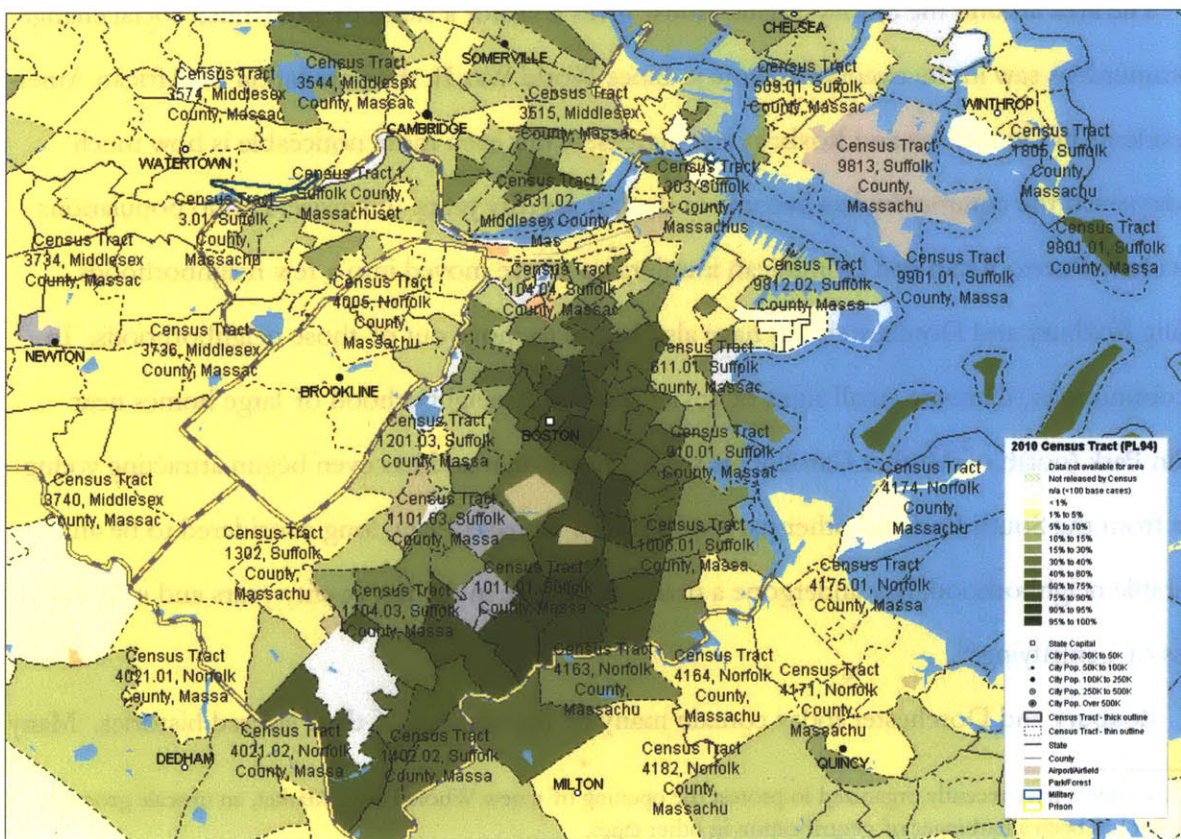


Figure 19: Black population in Boston, 2010. Image courtesy Social Explorer



often told to explain the blight of the second half of the nineteenth century. However, while arson and redlining were real and serious problems, both in Boston and nationwide, the houses that were burned were disproportionately in low-lying areas, targeted at houses that had been built on the least appealing land for the least-prosperous people. Neither *Gaining Ground* nor *Holding Ground* have highlighted the importance of hydrology in sustainable communities, and articles and books written about the area (by people other than Anne Spirn) typically do not mention it. However, the organization did meet with Spirn in the 1980s, in the process of rebuilding the Dudley Triangle, and adopted a plan for community rebuilding proposed by one of her students. Today, the lowest ground is a town common. Many other low-lying areas have been recycled as community gardens, such as the Magazine Street Community Garden and The Food Project. The stream followed a street called Brook Ave. It is still possible to tell from the changes in topography that there used to be a stream there (it is clearest from the grounds of the Shirley-Eustis House, a historic house with a dramatic change in topography along the southern edge). A visual survey of Brook Ave and the surrounding area shows how much of it is either unbuilt, or new construction.

The area around the Shirley-Eustis House gives a visitor a sense of how much social change the communities saw in the twentieth century. Since World War II, the population of African American residents in Dorchester and Roxbury has increased, but even more noticeable is how much more dispersed the community has become in the last seventy years. Likewise, Latino populations - particularly Puerto Rican and Dominican immigrants - have moved into a few neighborhoods, including Roxbury and Dorchester, but have also begun to move out of those neighborhoods. In both communities, there are small signs of revitalization. A neighborhood of large homes near Franklin Park (north of Mother Caroline) is seeing investment and has even begun attracting young people from the South End and other parts of the city. Jamaica Plain, long considered to be an undesirable neighborhood, has undergone a dramatic change in the last twenty years and is in the process of gentrifying.<sup>62</sup>

Roxbury and Dorchester today contain many of the vestiges of their layered histories. Many

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<sup>62</sup> Local residents have recently organized to protest the opening of a new Whole Foods Market, an upscale grocery store that has been a harbinger of gentrification in other cities.



of the main thoroughfares through Roxbury were established in the early years of settlement. Blue Hill Ave., Washington Street and others are historic pathways. Both Roxbury and Dorchester have old homes from the great wave of suburbanization at the end of the nineteenth century, and many areas of both communities have churches adapted from synagogues that the Jewish population built in the early twentieth century, along with blocks of low-rise courtyard apartments decorated with Jewish stars and Hebrew inscriptions built to house Jewish immigrants. Roxbury in particular is home to a variety of parks designed by Frederick Law Olmsted as part of Boston's famous "Emerald Necklace," many of which house their own monuments. Roxbury, Dorchester and neighboring communities can be treated as their own textbook - and they are textbooks that schools and institutions in the area have been largely overlooking.

# Chapter 4: Conclusion

## Reflection and Next Steps

The goal of the curriculum is to use project-based learning to help students achieve an understanding of their city and community while simultaneously using that learning to reinforce traditional academic skills. A critical part of the philosophy undergirding the curriculum is that students should arrive at that understanding through individual inquiry and reflection, connect academic knowledge to knowledge gained outside of school, and use multiple academic skill sets to pursue a nuanced understanding of their communities. While six weeks is enough time to learn some of the essentials, it is not enough time to touch on all of the topics relevant to urban planning, or to get a sense of how many ways people can approach the built environment (although hopefully the emphasis on mapping will help). For a curriculum to really delve into the intricacies of urban planning, the students need more time. The curriculum proposed in the appendix is ambitious in what it tries to cram into each lesson and where it hopes to get students in terms of their understanding of cities. If the length were extended to nine or even twelve weeks, or the schedule expanded to a daily class (or both), the degree of sophistication could increase correspondingly. There is a line between what students would learn in an ideal situation and what a sustainable, realistic, and implementable curriculum can contain.

An ideal curriculum would take a more holistic approach to urban planning, and would ideally employ teachers coming from different disciplines and working in concert.<sup>63</sup> Topics would include those addressed here -- demography, history, transportation, land use and eminent domain -- but would also include science, English/Language Arts, and potentially even foreign languages and physical fitness. The first thing to add to the curriculum is natural history and geology, both of

<sup>63</sup> Because of Mother Caroline's co-teaching model, this might be achievable. The school has been hiring teachers with a view to their ability to teach this curriculum.

which fit in nicely with the rich history of environmental writing and the landmaking traditions of Boston and the greater New England area. Learning about the evolution of the land itself - from glaciers to the present - would be a different way for students to understand their neighborhood, and might appeal to a different category of students than those are captivated by the built environment. Furthermore, Roxbury (and other areas south of the Shawmut Peninsula) is covered by Roxbury Puddingstone, a unique type of rock that has been compared to plum pudding. The fact that it is easily recognizable makes it an appealing teaching tool. Additionally, there are large puddingstone boulders throughout Franklin Park and more than thirty churches throughout the area built of puddingstone, so it serves storytelling purposes on many levels. Finally, Oliver Wendell Holmes wrote a poem about puddingstone that could segue with a lesson about the area (called *The Dorchester Giant*, it is a tall tale about the way puddingstone was first created). Lessons on natural landscapes complement historical knowledge of the built environment. For example, the Dudley Triangle -- 64 acres of land in Dorchester, which at one point was over half vacant -- sits in a lowland area on top of a buried sewer. The houses that were built in the Dudley Triangle were the last to be built, and were of lower quality than houses built on upland areas. Not only were they subject to problems related to shoddy construction, they were also more subject to problems stemming from wet basements and a high water table.

With more time, the curriculum could also include a segment on watersheds and hydrology. Most eighth graders have learned about the rudiments of the water cycle; however, most have not been exposed to the concept of a watershed or realize that they live in a watershed, albeit a highly disrupted one. Mother Caroline Academy is located two blocks from a hill that marks the division between the Charles River watershed and the Boston Harbor watershed, and it is easy to see the way that topography dictates the flow of water. From there, it is also easy to understand topography and provides a point of entry for talking about topographical map-reading. Additionally, if there was a staff member who was particularly tech-savvy, the school could also begin to introduce students to 3D modeling with ArcMap (or more likely ArcExplorer, the free version) or other modeling software. Teaching hydrology would also give educators a different way to talk about urban growth,

by teaching the historical versus current hydrology of an area. There is one lesson in the current curriculum, involving an 1896 US Geological Survey map, that begins to get at the idea that many streams and rivers have had their courses altered or have been put into sewers. However, it is useful to make the connection explicit, especially since culverted streams have been associated with problems of subsidence and flooding. It is particularly relevant to Mother Caroline students since some of them live in the Dorchester Triangle, an area of the city that until the 20th century was a bay, and has historically been an underserved and disinvested area.

While there are many things that students can learn about the history and present situation of their neighborhood, planning is a future-oriented discipline, and learning about the past is only important insofar as it empowers students to think about the future. A real “planning” curriculum would include space for students to make suggestions about the future trajectory of their neighborhood at various scales and from various perspectives, and should include aspects of physical planning and design, economic development, and an understanding of the tradeoffs inherent in designing good cities. It would allow students several weeks to develop their ideas and allow them to present to their classmates, community members and possibly elected officials. Roxbury and Dorchester are neighborhoods faced with a variety of planning challenges. Although the neighborhoods are more stable today than they were thirty years ago, they are still predominantly low-income, and are the sites of most of the city’s crime. Both neighborhoods are facing issues stemming from abandonment and decay, and aging housing stock that is expensive to maintain. The challenge of providing decent affordable housing without gentrifying is a persistent concern of residents and the city. Such challenges could generate a rich dialogue amongst eighth grade students, but require that teachers be comfortable facilitating such a dialogue, and that teachers -- many of whom are not native to the area -- are on top of local development projects and their social and economic implications.

At the time of writing, there is a particular case study that exemplifies the sorts of questions with which students might grapple. In January of 2011, upscale grocery Whole Foods announced that they were opening a store on Centre Street, two miles from Mother Caroline Academy in



Figure 20: Ferdinand Building. Image courtesy of the author.

The dynamism of a city can become a liability when educators look to implementing an urban planning curriculum over the long term. There is some space in the curriculum dedicated to envisioning the future, but the ideal curriculum - in addition to introducing students to traditional planning topics, natural sciences, and social and economic concerns surrounding neighborhood change - would also expose students to technological improvements as they pertain to planning. Asking students to imagine the power of social media and handheld devices, for example, could yield an elegant synthesis of technology and planning education (especially in the next five to ten years, as smartphone market penetration improves).

While a perfect curriculum could include current events, design, and computing literacy, a successful and sustainable curriculum will be more modest in its goals. First, there is the amount of

Jamaica Plain (a rapidly gentrifying neighborhood that was originally part of Roxbury and is today adjacent to it). Residents of Jamaica Plain are concerned about the Whole Foods, which will replace Hi-Lo Foods, a neighborhood institution known for its large supply of affordable Latin American foods. A number of residents have organized to protest, on the grounds that Whole Foods will bring gentrification (as was seen when a Whole Foods opened in an analogous Washington, DC neighborhood in 2001).<sup>64</sup> The introduction of an upscale grocery store, that has historically caused a rise in nearby property values, raises a lot of questions that eighth graders have not been asked to deal with, but that have immediate relevance to their lives. Is the Whole Foods a good thing? On one hand, it will bring economic development and will also provide jobs. On the other hand, Whole Foods is expensive, and many of the residents in the area will not be able to afford to shop there. The question of Whole Foods provides a point of entry for students to start thinking about economic development in a holistic way. Furthermore, there are many examples like the Whole Foods that students might investigate. The Ferdinand Building, in Dudley Square, is a historic structure that the city has purchased and intends to put city offices in. That has also begun to generate some controversy. Using these buildings in the classroom would encourage students to become involved in the political process - attending community meetings could even be made a homework assignment.

After investigating some of the ramifications of different developments, students might propose solutions. If not a Whole Foods, then what? If a Whole Foods, how can the city try to head off threats of displacement? Should the Ferdinand building hold city offices? If not, what is the best use of the building? The problem with using this model is that it is not possible to write a curriculum, per se, because the subject matter is always changing, and requires that educators be familiar with the neighborhood (which many Mother Caroline faculty are not) and with the players in each of the various development debates that students study. There is a rich opportunity to develop an afterschool program, perhaps in conjunction with the Dudley Street Neighborhood Initiative or in conjunction with other private schools or charter schools in the area.

<sup>64</sup> Degan, Kristen and Jason Haber, "Washington, DC: The Impact of Whole Foods on 14<sup>th</sup> St. and Greater Logan Circle Area" 9 May 2005. <http://www.schipani.org/blog/wp-content/uploads/2008/04/Degan%20Haber%20Final%20Project%205-9-05.pdf>

time required for students to work through the topics and understand the implications of transportation, land use, and other, thornier questions like eminent domain. Second, there is the challenge of ensuring that educators have the experience and confidence to work through these topics with their students. Many programs that endeavor to introduce students to architecture and planning have floundered for lack of qualified educators. The MPACT experience in Paterson, New Jersey is an example of the challenges of sustaining a curriculum that requires non-traditional expertise from educators. A more local example can be found within Mother Caroline itself: this curriculum is slated to replace Latin, a subject for which the school has had a hard time finding instructors.<sup>65</sup>

While research shows that students get more out of classroom materials than they do from after-school activities, it is also possible for students to learn the fundamentals in school and then do more action-oriented work through afterschool programs. There are a number of programs across the country that engage youth in planning, including the Dudley Street Neighborhood Initiative, which is most active in a neighborhood where many Mother Caroline students live. Programs through the Charles River Watershed Association invite youth to offer recommendations to authorities.<sup>66</sup> The Community-Based Learning Initiative at Princeton works to engage youth on a number of broadly-construed social issues, including housing and homelessness; community development; and environment/conservation - all topics with clear relevance to the field of urban planning.<sup>67</sup> And, as mentioned above, the Chicago Architecture Foundation is working to attract higher-performing students by offering programs in design through their new website.<sup>68</sup>

In my original thesis proposal, I envisioned writing a curriculum that could be integrated into a traditional classroom, or, ideally, two or more traditional classrooms. As first conceived, planning would be the means by which students learned traditional subjects, and the question in curriculum design was, “how can planning be an agent of interdisciplinary learning?” I pictured students learning about landscape and the built environment simultaneously in history and science classes, perhaps conducting oral histories in English class or using census data in their math class. The classes would

65 Jaime Zuckerman, personal interview. February 8 2011.

66 Pallavi Kalia Mande, Urban Restoration Specialist. Lecture, 3/28/2011.

67 Princeton University Community-Based Learning Initiative <http://www.princeton.edu/~cbli/> Accessed 17 April 2011.

68 The Architecture Handbook 2, [www.DiscoverDesign.org](http://www.DiscoverDesign.org). 63 -

pursue traditional material but would use students' neighborhoods as the text, building on students' implicit knowledge of their communities and helping prepare them for a life of engaged citizenship. Teachers would teach their subject but work together to make connections across disciplines and to make those connections explicit to the students. This is, to some extent, the model that has been followed by a small number of urban planning charter schools across the country. However, nothing in a traditional curriculum is future-oriented, and one of the things that I particularly wanted to emphasize by teaching students about planning was the role of imagination in shaping cities, and the importance of thinking about trajectory of cities.

Throughout the curriculum I strove to emphasize the fact that understanding cities is a cross-disciplinary challenge that requires both an understanding of the past and a capacity to imagine a variety of alternatives in the future. Each individual lesson is, for the most part, not interdisciplinary, but the sum is greater than the individual lessons, and will help students approach cities with multiple perspectives and a critical eye. Perhaps even more importantly, the curriculum will underscore basic skills, particularly reading, writing and speaking, and help students develop higher-order thinking skills as well. I wrote the curriculum to cater to Mother Caroline's population and ability to implement. However, while other schools may not have the time or resources to implement the curriculum, it was designed such that any of its component parts are implementable at a smaller scale. The curriculum is heavily weighted toward developing local knowledge of Roxbury and Dorchester, the neighborhoods from which the school draws most of its students. However, I think the overarching narrative (or its component parts) could be used more widely than at a single school - perhaps a school district or even region- or state-wide, given appropriate research and teacher preparation.

## Conclusion

I began with Mother Caroline because they were interested in implementing my ideas immediately, and they were generous enough to allow me into the classroom and give me feedback over



the course of the year. The plan is for Mother Caroline to implement the curriculum wholesale, but the hope is that it will also serve as a resource and an inspiration for other schools. Boston Public Schools, for example, might also use it as a resource. Other Boston educational institutions may also find this thesis useful, such as the Normal Leventhal Maps Center at the Boston Public Library, the Citizen Schools project (also staffed by AmeriCorps), and charter schools in the Roxbury/Dorchester area (including Roxbury Prep, City on a Hill Charter, Dorchester Collegiate Academy, and Neighborhood House Charter School.) Roxbury and Dorchester are geographically very large and densely settled, and while charter schools have the most leeway to implement new programs, the lessons contained herein are appropriate for all students and could be adopted by public schools throughout the area. For schools not in the Boston area, the general outlines and the “Extensions/Field Trips” sections may still provide inspiration for lesson plans.<sup>69</sup>

I offer the draft curriculum as a first attempt at making students aware of their own neighborhood, and of the ways it has evolved and changed. There are many programs that attempt to use design as a teaching tool, and an increasing number of programs that ask youth to become involved in their communities as citizen planners. However, there are very few programs or curricula that equip students to form thoughtful opinions about their neighborhood while using the lessons as an opportunity to teach students traditional academic skills. The draft curriculum proves that it is possible to use planning as a tool for interdisciplinary learning; in fact, the challenge is not whether it can be done, but how to choose the best method of interdisciplinary teaching and learning from the many options that urban planning provides. There are many effective ways to teach students about their neighborhood, across all academic subjects. The challenge is finding the very best ways for students to learn about their community: to design a module that teachers and students are both comfortable with, that does not require substantial inputs of time or financial resources, and that engages students and extends their learning beyond the classroom. Learning about urban planning is, at its core, learning about the synthesis of different subjects and the ways that academic topics relate to each other; teaching planning to students means teaching them about the fundamental in-

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<sup>69</sup> Information on Mother Caroline’s pedagogical model was gathered over a series of interviews and site visits in February, 2011.

terrelatedness of knowledge. Even more importantly, to teach planning is to teach an important and overlooked form of civic education. Students deserve to understand the history of their communities and should be encouraged to imagine its future. In so doing, youth can begin to understand their capacity to influence the built environment and the importance of citizen participation in the planning process. As the draft curriculum shows, teaching planning is pedagogically useful because it provides opportunities for students to reinforce skills like reading, writing and math. But it also provides students with a new understanding of their communities and a new way to understand their world.

# Appendix A: Draft Lesson Plan

## Week 1: Cartography and Representation

### Objectives for Students

- Become more comfortable with map-reading and map-making
- Understand the importance of scale and orientation in spatial representation

### Day 1.1: Introduction & Mapping

#### Theme/ Take-away message

Students will use a variety of source materials to understand that cities are dynamic places that evolve over time. Cities are a function of changing social and economic realities, transportation, and technological changes.

#### Objectives:

- Become familiar with the goals of the curriculum and the trajectory of the curriculum

#### Background for Teacher

This is the first lesson in a six-week module in which students will produce their own work of children's literature inspired by their own neighborhoods and homes. Each student will produce a children's storybook in which the narrator/hero is their home or apartment (or another home of their choosing). If their building is relatively new construction, it may be better to have the students tell the story from the point of view of their yard. What has the building/yard seen over the years? Why was the neighborhood built in the first place (and for whom) and how has it changed?

The book *The Little House* was first published in 1942. The author, Virginia Lee Burton, said that she was not trying to write a parable on urban sprawl but rather illustrate change over time. Burton also wrote other famous children's books, including *Mike Mulligan and His Steam Shovel*, *Maybelle the Cable Car*, and *Calico the Wonder Horse*. The book, taken apart from its social commentary, is more appropriate for 1-3rd graders than for 8th graders, but is richly illustrated and is a good model for students to aspire to.

The curriculum is arranged into five themes, one for each week. The first two weeks focus on methods of representation - maps, plans, and simple ways to represent building exteriors. The third week, on land use, introduces students to the different categories of buildings and open space in a city. Students should begin to articulate what most understand intuitively - no one wants to live next to a trash dump, for example. They should also get a more nuanced idea of when mixing uses is appropriate and desirable. The fourth week asks students to think about how to move around Boston and to envision better ways to do so. The fifth week introduces students to basic statistics and demography; the sixth week focuses on redlining, eminent domain and the role each played in the history of Dorchester.

There are two organizing principles of the curriculum. The first is the long-term project, wherein students research the history of their neighborhood and use that information to make projections about the future of their neighborhood. The other anchoring idea is the organization of the curriculum within each week. With the exception of the first week, each week is organized with a history lesson on Monday and a future-oriented exercise on Friday (“Future Fridays”).

### **Vocabulary**

urban: relating to cities

suburban: a district lying immediately outside a city or town, especially a smaller residential community.

### **Activities**

1. Read *The Little House* together (10 min)
2. What is the central theme of the book? If the students were to teach the book to a class of younger students, what would they focus on? Why?
3. Review the long-term assignment as a class; take any questions (5 min)
4. Preview the six-week module & discuss goals, challenges, etc. (20 minutes)
5. Ask students to get out their laptops and look at their block (and vicinity) on Google Street View using Historical Imagery (View --> Historical Imagery). Ask students what they notice changing in the past fifteen years. Can they remember any changes to their neighborhood?

### **Materials**

- A copy of *The Little House* to be projected (or copies for the entire class to read)
- A way to project it (Google eBook, overhead projector, scan & PDF/PowerPoint, etc)<sup>70</sup>
- Handout A: Children’s book long-term assignment sheet

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<sup>70</sup> Please note that copyright laws may make the Google eBook the easiest option (\$5.99)

## Teacher Prep

- photocopy six-week syllabus (one per student) (See beginning of course packet for materials)
- photocopy Handout A: Long-term assignment sheet (one per student)
- Bring a copy of *The Little House* (or copies for class, if you have enough)
- Ensure that there is a way to project *The Little House* if necessary

## Homework:

Students should choose whether they will map their own house, or another house; if they choose a building that is not their own, they should decide which one it will be. If students elect not to choose their house, it should be a building whose interior they can access - their church or place of worship, for example, or potentially a community center or school. It is up to the teacher to decide if students may choose Mother Caroline as their subject.

Harvey Weiss, *Maps: Getting From Here to There* pp. 1-35

## Extensions/Field Trips

- In 1952 Disney made an animated short of the book. It is viewable on YouTube and it is 8 minutes, 20 seconds. Teachers may wish to assign the cartoon as homework, and ask students to compare and contrast the book and the video. The Disney movie is much more explicitly anti-urban than the book. <http://www.youtube.com/watch?v=Y881yjtFluQ>
- Read the first vignette in *The House on Mango Street* by Sandra Cisneros, which describes the house and neighborhood of a young Hispanic girl (about the same age) in Chicago

## Resources for Teachers

Google Street View



Figure 21 Courtesy *The Little House*, by Virginia Lee Burton

### **Handout A: Long-term Assignment**

Write a children's story-book about your house (or a house or community institution of your choosing)

Using *The Little House* as your inspiration, write a children's story-book told from the perspective of your home or another Roxbury building. The story should tell the history of your neighborhood as well as you can, by answering the following questions:

- what was the area like before there were houses?
- when was your neighborhood first built?
- how has your lot changed over time? was there a different house on it before yours?

Your book should also consider what your neighborhood will be like in the future. How can the past inform your ideas about the future? What is the best thing that could happen to your neighborhood? Is it likely to happen?

The material we will cover in class in the next six weeks will help you answer the questions above. The book is due on the last day of the unit, six weeks from now, but you will be developing materials for your final product throughout the unit and will be handing in portions of the assignment along the way.

As we move through the unit, you should be thinking about how to apply the lessons learned in the classroom to your book. Every lesson has been designed to help you understand the history of Boston (specifically Dorchester and Roxbury) and to write a book explaining the history to others. If you have questions about how the in-class activities or the homework relate to your assignment, ask your teacher.

The final product should include:

- a story appropriate for third-grade students told from the point of view of your house or building (or another building of your choice)
- at least 2 maps of your neighborhood, street, or block (one must be drawn to scale)
- 1 section and 1 elevation drawing
- information on the residents of your neighborhood in the 20th and 21st century

You may also include:

- old newspaper articles or images
- old photos
- old postcards
- your own drawings or sketches of your neighborhood
- historic maps (including maps used in class)

**Resources:**

MIT's Flickr Page has historic photos (circa 1950s) of Washington Street and other Boston neighborhoods: <http://www.flickr.com/photos/mit-libraries/sets/72157614966285159/>

Boston Public Library has a Flickr pool of historic images from Roxbury, Dorchester and JP:

[http://www.flickr.com/photos/boston\\_public\\_library/sets/72157625232134777/](http://www.flickr.com/photos/boston_public_library/sets/72157625232134777/)

[http://www.flickr.com/photos/boston\\_public\\_library/sets/72157625418483598/](http://www.flickr.com/photos/boston_public_library/sets/72157625418483598/)

[http://www.flickr.com/photos/boston\\_public\\_library/sets/72157625418492074/](http://www.flickr.com/photos/boston_public_library/sets/72157625418492074/)

[http://www.flickr.com/photos/boston\\_public\\_library/sets/72157626335889064/](http://www.flickr.com/photos/boston_public_library/sets/72157626335889064/)

Boston elevated: [http://www.flickr.com/photos/boston\\_public\\_library/sets/72157625304982334/](http://www.flickr.com/photos/boston_public_library/sets/72157625304982334/)

## **Day 1.2: Mapping Everything**

### **Theme/Take-Away Message**

Mapmaking is a way to tell stories. Almost anything can be made into a map, and can be mapped in a variety of different ways.

### **Objectives for Students**

- Understand that mapmaking is a way to represent information visually, and can be used at different scales and to represent different parts of the built and social world.
- Generate their own ideas for maps

### **Background for Teacher**

For additional background, read the section titled Curriculum: Historical Background.

Activity 1: Below is a sample for what a list of neighborhood attributes might be. If students' answers are too vague, or not focused on the built environment, you can steer them toward more concrete answers by using the items on this list as prompts.

- mix of single family houses (wood) and apartment buildings (mostly brick)
- large number of churches and religious institutions (variety of architectural styles; probably developed over time; also, different denominations. Some converted Jewish temples.)
- Blue Hill Ave. is an important commercial corridor
- Franklin Park and Puddingstone Park are most important recreational amenities
- Behind school, cream-colored brick buildings all built at roughly the same time; have Jewish stars or inscriptions on them)

Activity 2: *This American Life* is a National Public Radio show that chooses a theme every week and tells a series of stories predicated on the theme. The idea is to tell extraordinary stories about ordinary people. In episode #110, the theme is "Mapping." To explore the concept of mapping, the show tells five stories about mapping - one for each sense. The geographer interviewed in the 2nd segment has since published a book about unconventional maps called *Everything Sings* (see below for more information).

The segment will hopefully get students thinking about maps and mapping, and how different types of maps convey different information. This realization will hopefully continue with Activity 3.

### **Personal Interview with Anne Meyer, 11 January 2011.**

Activity 3: These maps were chosen because they depict things that students should already be familiar with, such as an MBTA map or a land use map that includes Franklin Park. The maps include



information that students already know - most will probably have seen a T map, for example - but the point is to get students to think critically about how the maps are conveying information; when maps should be to scale; and when diagrammatic or schematic maps are appropriate.

Activity 4: Students may require some prompting, so it may help to start small - with the classroom, or the school - and work up to the neighborhood scale. A variety of prompts is listed below to help the class get started.

Classroom:

- infrastructure: where are the desks/lockers/tables?
- pathways: students can map their average day
- storage spaces: where are the biggest storage spaces? can they be diagrammed by size and location?
- teacher space vs. student space

School:

- “land use” map (classroom vs. administrative space)
- pathways: students can map their average day and/or a teacher’s average day
- emergency exits: how would you leave the building in a fire?

Neighborhood:

- land use (see BRA map for inspiration. please note that the colors the BRA used are standardized; for example, blue is always used for water and for institutional buildings, while green always represents open space).
- figure ground (buildings in black, everything else in white)
- streets (no buildings or parks)
- infrastructure: where are the streetlights, fire hydrants, utility poles? are there overhead electrical lines?

## **Vocabulary**

cartography: the production of maps, including construction of projections, design, compilation, drafting, and reproduction.

## **Activities**

1. Begin by talking about the maps that students have already seen. What have the different maps shown? What did the maps that they made see on Monday show them about mapping? How many

different kinds of maps can they imagine? (~5 min)

2. Listen to two short stories from the radio show *This American Life* on mapping (~6 min)

3. Show students a slide show of different maps, progressing from the more-familiar to the less-familiar: a land use map (identify Mother Caroline on the map); a T map; etc (the maps are organized in a recommended order in the handout section). Talk about each one in turn: what do they show? How is it different from other maps students have looked at? How is it different from the previous map? The maps mentioned in the *This American Life* story are included in the slide show. (~15 min)

4. Ask the students to make a list of potential map types. If students need prodding, start with maps of Mother Caroline. How do people get to school? How do they leave school? Where do they walk in the course of a day? What spaces are for adults, and what spaces for students? What are the active spaces (hallways, gym, playground) and what are the passive spaces (places designed for sitting, like classrooms)? Other potential maps include:

- plumbing (or rooms with plumbing)
- maps for a fire drill
- places occupied primarily by students vs. those areas primarily occupied by adults (classrooms vs. teachers lounge and admin offices)
- All-school spaces (chapel, cafeteria, computer lab)

5. With any remaining time, allow students to begin working on a schematic map for their final project

### **Materials**

- Copies of maps (either as handouts or in a projectable format)
- Internet access or downloaded copy of *This American Life* episode #110 (episode can be streamed; can also be purchased for \$1.00 from website)

### **Teacher Prep**

- Ensure that you have access to a projector and/or printed copies of each of the maps in the links above
- Ensure that you have streaming audio or a downloaded copy of the radio segment, plus speakers or a means of sharing the clip with the class
- Become conversant and comfortable with each of the maps listed above (if you would prefer, you can supply your own). It is also advisable to preview the *This American Life* segment, so that you

can help the students put the maps in context

### **Homework**

Choose one thing (for example, all the furniture; all the carpets; the path of your pet through the house; all of the flower gardens on your street) to map in your home, yard or neighborhood. Come to class ready to present your map.

Harvey Weiss' *Maps: Getting from Here to There*, pp 35-65

### **Extensions/Field Trips**

- Have students listen to rest of *This American Life* episode #110, and write a review. Ask students to propose their own stories about mapping. How would they have approached it?

### **Resources for Teachers**

*Everything Sings: Maps for a Narrative Atlas*, by Denis Wood, is a book published by the geography interviewed in the 2nd radio segment.

## **Day 1.3: Plans, Sections & Elevations**

### **Theme/Take-away Message**

There are many ways of representing space, and successful representation doesn't necessarily require artistic skill. You can communicate a lot of information very economically if you think about how to use color, line thickness, and diagrams.

### **Objectives**

- Learn to draw plans, sections and elevations of buildings
- Understand the value in all three to communicate different things about a building and about space

### **Background for Teacher**

Many students will be nervous about drawing, and will think that they have inadequate artistic skill. Certainly, artistic skill is helpful, but the most important thing is that students are patient with themselves. They are learning a new skill set - spatial reasoning - that is related to, but not dependent on, artistic skill. Additionally, everyone is familiar with design, whether they are aware of it or not, and are designers on a regular basis - when people decide what to wear, when they write a paper, or arrange their bedroom, they are engaging in a design process.

As a teacher, you may not be familiar with sections and elevation drawings. Most adults have seen plans before - they are a line drawing showing the outlines of rooms from a top-down perspective. However, in planning and architecture, sections and elevations are equally important. Elevations show what a building looks like, and sections show how it is used. If you have different uses on each floor, a section will help communicate that. Plans, sections and elevations are important for individual buildings, but they can also be applied to large-scale developments because they can be used to show the relationships between buildings and convey a sense of the public space. Things like building heights, changes in topography (if there are hills on the site) and anything happening underground can be conveyed by section, but are very difficult to show from a plan view. Likewise, plans are useful for showing the size and scale of open spaces and parking lots relative to the buildings, and elevations give you a sense of what the completed version will look like and what the style of the building is. All three are different ways of visualizing a completed product.

Any real estate developer, urban planner, or architect will use all three types of drawing when designing a new building or set of buildings. They are useful for conveying a lot of information about the final product and its uses in a small number of images.

### **Vocabulary**

Plan: a drawing or map showing all of the rooms in a building; may include stairs, bathroom fixtures,

and furniture

Section: an illustration of what a building interior looks like, representing a building sliced down the middle

Elevation: an illustration of the outside of a building. Often identified by what side of the building is depicted (front elevation, side elevation)

### **Activities**

Before you begin, explain to the students that artistic skill is not a prerequisite for a good section drawing, and that what is most important is that students focus on communicating the idea. They can try as many times as they want within the time given, and the activity is just so that they can practice for their final projects.

1. Explain the basic concepts of the three types of drawing, then ask the students to partner up. If their desks are already arranged in groups of two, keep them that way.

Focus on elevation drawings first. Distribute apples to all the students, but do not allow them to eat any yet! Make sure that students have a piece of paper and a pencil before the lesson starts, and give them a few minutes to draw their apple from the side. (Note: to draw an elevation, students should) look at the apple straight on. Have them put their chin on the desk and draw from there, rather than from above. (~10 min)

2. Cut half the apples in half (from the top to the bottom). This is a section of the apple. Again, have the students sketch the apple looking straight at it (~10 min)

3. Take the other half of the apples and cut them in half the other way (middle to middle). Have the students look straight down at their apple and draw it from above. This is a plan drawing (~8 min).

(when this part is done, students may eat their apples)

4. Show students a variety of plan, section and elevation drawings of buildings (where there are multiple drawings in one slide, have students identify which is which). Each type of drawing communicates something specific about the building. Note that parks and open spaces can be included in section drawings too, and that things along the cut are in dark or bold lines, whereas things behind the cut are represented with thinner lines and lighter colors.

5. As a class, make a list of things that you can represented by a combination of plan, section and elevation (suggestions: layer cake, locker, bowl of cereal, a closet, a dresser, a shoe, a refrigerator).

Have students begin working on a plan, section & elevation drawing for their homework with any remaining time. Remind students that they must include a section, elevation and plan in their final project, and that the drawings will be due next week.

### **Materials**

- one apple per student
- a knife to cut apples in half
- paper and pencils for students to draw

### **Teacher Prep**

- buy or bring one apple per student (you may also form groups of four, and have one apple per group)
- bring a knife sharp enough to cut apples in half
- bring a computer and a projector for showing pictures of architectural plans, sections and elevations

### **Homework**

“Inventing the Suburbs” from the book *Eden on the Charles*, part 1 (pp. 128-154)

### **Interim Deadline for Monday**

Choose something in your home (or your home itself) and draw a plan, section and elevation. If you live in an apartment building, you don't have to worry about drawing the entire building plan and section - you can just draw your house. If your project is about a house you do not live in, you may have to guess about the plan. Think critically about what makes sense - what does a house need? Where are different rooms likely to be?

### **Extensions/Field Trips**

- Ask students to draw plans, sections and elevations of Mother Caroline Academy (as a super-bonus, have them draw plans of all three floors)
- Draw a plan, section and elevation of their dream house. Make sure it has bathrooms, bedrooms, a kitchen, and stairs if it's more than one floor
- The MIT Museum has an architecture and design collection. Contact Gary Van Zante Curator, Architecture & Design, [vanzante@mit.edu](mailto:vanzante@mit.edu), for information about how to access the museum's resources

**Resources for Teachers**

*Castle, Cathedral, and Underground*, by David MacAulay all have great drawings of plans, sections and elevations

*Barmi*, by Xavier Hernandez et al, has lovely bird's-eye drawings (a vantage point not included because it is very difficult to draw).

**Handouts**

none

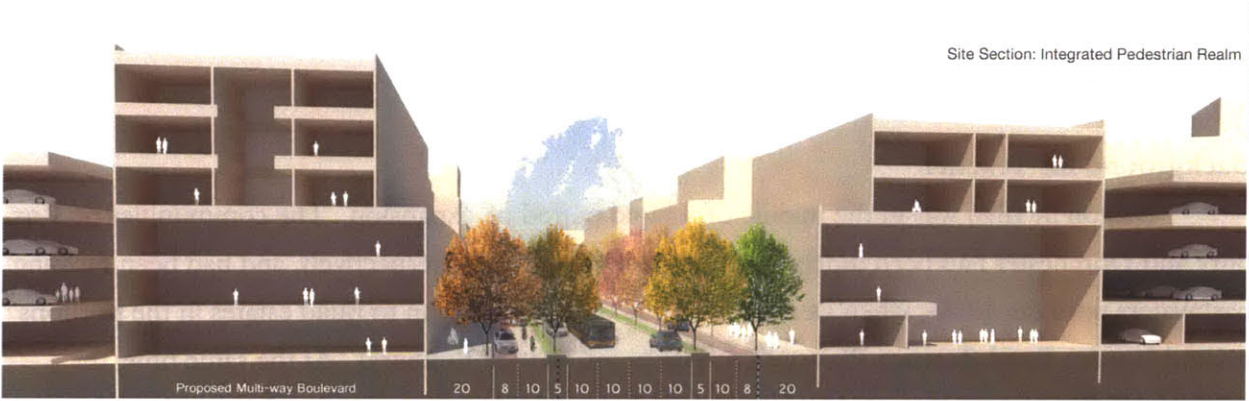


Figure 22. Image courtesy [www.uli.org](http://www.uli.org)

## **Week 2: Mapping to Tell Stories**

### **Objectives**

- Understand the power of maps to show all sorts of things (both literal and schematic)
- Learn to look at maps for the layers of information they contain

### **Day 2.1: Deep Diving into a Single Map**

#### **Theme/Take-away Message**

A single map can tell you many things about the city, and can be broken into component parts to make things more clear or to make a point.

### **Objectives**

- Understand that a single map can be used for all different purposes
- Understand that maps can be diagrammatic and still have meaning

#### **Background for Teacher**

Boston in 1896 was in the middle of a rapid period of expansion. The communities of Roxbury and Dorchester had been independent until 1868 and 1871, respectively, and had been farming backwaters until the 1840s, when wealthy residents of Boston began to build estates in the portions around Jamaica Pond (Jamaica Plain was, at that point, part of Roxbury). At the same time, the portions of Roxbury were settled by immigrants (mostly Irish) who wanted to live within walking distance of factories in Boston. Roxbury and Dorchester's growth was enabled by improvements in public transportation that made it fast and affordable to take the train into the city. The neighborhood developed very quickly between 1870 and 1900, mostly by individual builders making houses that they then lived in. Most builders did not have any training in architecture or carpentry, and so opted for fairly simple frames modeled of others in the neighborhood. It was this phenomenon that led to the explosion of three-decker housing, particularly in Dorchester.<sup>71</sup> Housing on the periphery was generally of much higher quality than housing in the center of the city, much of which did not have indoor plumbing, lighting or central heating. The new houses allowed much more light into the house than the row houses of downtown, and also provided things (like running water) that were really important for improving health and hygiene.

A number of neighborhoods in Boston had been conjured out of tidal flats by dumping trash, gravel, coal ash and other fill materials to raise the level of the land, usually with no understanding of how that would affect the ecology, hydrology, or sewage flow of the region. The most

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<sup>71</sup> There is a lesson on three-deckers later in the curriculum.



famous example of Boston landmaking is Back Bay, which used to actually be a bay. The South End was also a landmaking project, as was the airport. As you can tell from the 1896 map, large portions of Boston and Cambridge have yet to be created in 1896, including the chunk of Cambridge that MIT sits on top of, and a large chunk of Dorchester. Unlike many neighborhoods in Boston, Roxbury was not built on filled land (which is why Franklin Park was ultimately located there). However, it was out of the range of the historic port city, which is why it developed slowly until the coming of the railroad.

On the map, students might notice that chunks of the city are missing (are water); they might also notice the large number of streams and wetlands that have today either been filled in or culverted (put into underground pipes). Many of the wetlands no longer exist - they have been filled in. And many of the railroads, if they are still there, are a much less important feature (but the T is just being built at this point).

### **Vocabulary**

streetcar: a type of public transportation where tracks are embedded into the road (like the Green Line when it is above ground)

wetland: an area of swampy or marshy land, especially considered as part of an ecological system

### **Activities**

1. Divide students into 4 small groups and have students push desks to the walls, to create a large work space in the middle (~5 min)

3. Give each group a poster-sized printout of the 1886 US Geological Survey Map and a piece of trace paper large enough to cover the map. Allow the students to spend some time with the map, and have each group make a list of things they notice about the map. How does it compare to the maps that they looked at last week? How does it compare to what they know about Boston today? What is there, and what is missing? (~10 min)

3. Give each group one of four categories: wetlands, water, major roads and railroads, major areas of settlement. Ask the students to use the map to create a second, simpler map that highlights their given topic. Remind students to use PENCIL first, then go over their pencil lines with ink or marker. Teachers should circulate and prod students to articulate what they notice about their topic. Where do the railroads start and end? Why? Are they surprised by how many rivers and streams there were in Boston a hundred years ago? (~20 min)

4. Hang the four maps up around the classroom, and have each group give a brief presentation

about how they decided to represent their given topic, and what they found out about their topic by looking at it in isolation. (~10 min)

5. As a class, begin overlaying the trace paper maps on each other. Do you learn something new when you combine settlements and wetlands? What about railroads and settlement? (~10 min, or until the end of class)

### **Materials**

- 4 copies of Rumsey map
- 4 pieces of trace paper

### **Teacher Prep**

- Make sure that you have four copies of the Rumsey map
- Bring a roll of trace paper or a pad of trace paper with tear-off sheets

### **Homework**

“Inventing the Suburbs” from *Eden on the Charles*, part 2 (pp. 154-178)

### **Extensions/Field Trips**

- Do a side-by-side comparison with a present-day map of Boston and make a list of the changes
- Visit an area of filled land and take notes about the shore (there are literally hundreds of places to go; the Kennedy Library, which is built entirely on filled land, offers field trips for middle school students, although they do not address the site at all).

### **Resources for Teachers**

*Eden on the Charles*, Michael Rawson

*Gaining Ground*, Nancy Seasholes

*Streetcar Suburbs*, Sam Bass Warner

*Boston: A Topographical History*, Walter Muir Whitehill

### **Handouts**

none

U.S. GEOLOGICAL SURVEY  
J.W. POWELL,  
DIRECTOR.

PRELIMINARY EDITION, SUBJECT TO CORRECTIONS.  
MASSACHUSETTS  
BOSTON SHEET

STATE OF MASSACHUSETTS  
FRANCIS A. WALKER,  
HENRY L. WHITING,  
N.S. SHALER, COMMISSIONERS



Figure 23. Image courtesy Rumsey Cartographic Collection

## **Day 2.2: Historic Maps of Roxbury & Dorchester**

### **Theme/Take-away Message**

Maps are a tool for understanding the city and its evolution. They are important because they help us understand the history of neighborhoods.

The things that people choose to map, and how that changes over time, can also tell us about the people who lived here before us and what their life was like.

### **Objectives**

- Gain a facility for reading maps
- Think critically about the evolution of a city; read maps for clues about the era in which they were produced and articulate the logic behind it.

### **Background for Teacher**

Both communities were settled concurrently with Boston in 1630 and are located a few miles south of the Shawmut peninsula, which today forms the bulk of downtown Boston. Due to its large harbor, Boston became an industrial port city, while Roxbury and Dorchester became part of the city's hinterland and remained small farming communities until the growth of railroads in the nineteenth century. Parts of Dorchester Neck (today South Boston) were less than two miles south of Boston Common as the crow flies, but were separated from downtown by tidal marshes and a bay, both of which are now largely filled in. While Boston was geographically constrained on all sides by ocean or tidal flats, Roxbury and Dorchester were not - Roxbury originally included what are today many distinct communities, including Jamaica Plain and West Roxbury. Dorchester originally stretched all the way south to Rhode Island.<sup>72</sup>

While Boston had advantages for trade, it was geographically tiny - barely two square miles. Roxbury and Dorchester, which were huge, were better suited for farming. Roxbury in particular was further inland and upland than Boston, and unlike Boston was built on much more solid land.

While both were farming communities until the 19th century, the village of Jamaica Plain (now a neighborhood of Boston, but then part of the independent community of Roxbury) was a hotspot for wealthy New England families, many of whom built country estates there while maintaining homes in the city of Boston, as well. The trend toward country estates accelerated in the 1840s, when railroad tracks laid between Roxbury and Boston allowed the wealthy to commute back and forth much more quickly. Roxbury officially became a city in 1846, and as it expanded, it began to experience its share of urban problems. In particular, the northernmost portions, which were

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<sup>72</sup> Eden on the Charles

walking distance from industrial areas of Boston, were densely occupied by impoverished immigrants (most of them Irish, in the mid-1800s), many of whom were reliant on more or less nonexistent social services. Roxbury, which still occupied a large amount of land, was divided into two camps regarding the future of the municipality. Wealthier residents, to the south and west (particularly in Jamaica Plain), wanted to retain the rural character of their neighborhoods, and were also loathe to pay for social services for undesirable immigrant settlements miles away. When the city of Boston annexed Roxbury in 1868, Jamaica Plain seceded from Roxbury and Boston.

In the portion of Roxbury that was subsumed by Boston in 1868, suburbanization intensified again in the 1870s, with the expansion of streetcars - a phenomenon documented by Sam Bass Warner in his book *Streetcar Suburbs*, which focuses on Roxbury and Dorchester. While suburbs were built in order to help residents achieve a rural ideal, in fact even the homes of the wealthy were built close together, in order to allow residents easy access to transportation. While neighborhoods were strictly segregated by income, historical records do not show segregation by race, ethnicity or religion until later. Those who were least dependent on transit - the wealthiest - moved the furthest from Boston, while the middle class and lower-middle class occupied bands of space closer to downtown. The historic downtown of Boston, with the exception of Back Bay (constructed 1860s to 1880s), was jammed full of truly poor people, many of whom were recent immigrants (first Irish, then Italians and Jews, and later, African-Americans migrating from the South). The city of Boston considers Roxbury today to be the heart of the African-American community, but there has been an influx of Puerto Rican, Dominican and other Latino populations.

Hyde Park and Mattapan, which are south of Roxbury and Dorchester, were largely developed in the twentieth century. While they have some of the same opulent homes found to the north, for the most part they lack the built heritage of older communities. Mattapan, however, does have some commercial strips dating from the early and mid-twentieth century that were primarily developed by Jewish communities in the first half of the 20th century. It is also home to the High Speed Rail Line, an 2.6-mile extension of the Red Line that runs from Ashmont to Mattapan, and is built on top a historic rail corridor first built in 1842. The line was modified for trolley service and opened in 1929, and is particularly notable because all of the cars are historic streetcars from the 1930s.

## **Vocabulary**

none

## **Activities**

1. Group students into small groups and give them each a packet of maps that have not been organized in any way and have had the dates removed (see thumb drive). Ask the students to examine

each map individually and then organize them chronologically. (~20 min)

2. Regroup and arrange the packet as a class. Arrange the maps chronologically around the classroom and give students Handout A, Compare and Contrast Sheet. (~10 min)

3. Allow students time on their own to walk around the class and note a. the location of their house (if possible) and b. the things that change between each map. To ensure that they stay on task, inform them that you plan to collect their handouts at the end of class. (~10 min)

4. Regroup and ask students what they noticed. Where did the biggest changes occur? Why? What surprised them about the maps?

5. Approximating distance and other ways of measurement:

Measure out fifty feet of hallway with a tape measure, and ask students to walk along it one at a time, counting their steps. Have each student do this two or three times, then average their three results. When back in the classroom, explain that students can use their paces to measure the length of blocks, streets, yards, etc. Students may also use a standard tape measure, or, for longer distances, can use the “Measurement” tool in Google Earth. (~8 min)

### **Materials**

- Maps (see thumb drive)
- Map key with dates

### **Teacher Prep**

- Photocopy Map Packet (1 per group/4 per class)
- Photocopy Handout A, Compare and Contrast Sheet
- Bring a tape measure 50 feet long and/or measure hallway in advance.

### **Homework**

Measure (with a tape measure/Google and with their feet):

- the length of their block
- the width of their street
- the area of their yard/lot
- the size of their bedroom
- the area of their bed
- the length, width and area of their home
- the length of an average car
- the length and width of every room in their home
- any other measurements relevant

### Extensions/Field Trips

- Ask students to visit one of the sites they noticed on the map and talk about how the area has changed. Are there more roads? Are there fewer roads? Were the buildings indicated on the map? How are those different?

### Resources for Teachers

Norman B. Leventhal Map Center at the Boston Public Library, <http://maps.bpl.org/>

David Rumsey Map Collection, <http://www.davidrumsey.com/> -- There are Bromley Insurance Maps for most of Roxbury and Dorchester available here. Students should be able to find their neighborhood using the key.

### Handouts

none

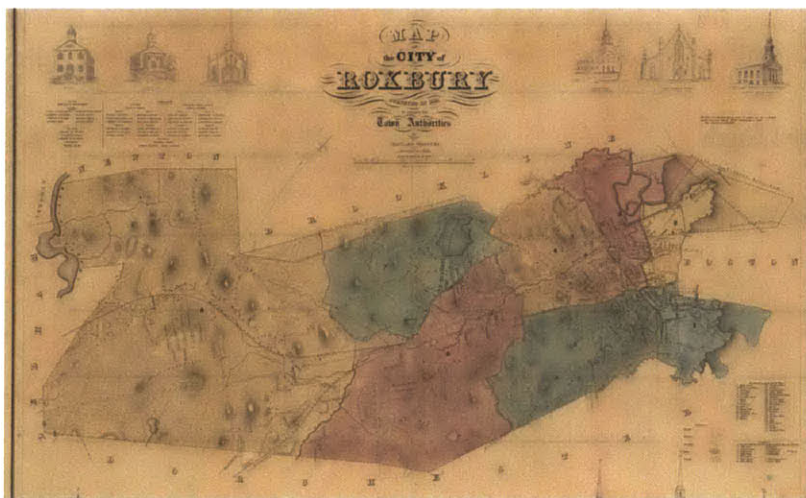


Figure 24 Courtesy Norman Leventhal Center

Day 2.2

# Handout A: Measuring Your Home

Below is a list of some of the things you might want to include in a scale map of your home. Measure them with your steps and then estimate the distance. Get a precise measurement using a tape measure or Google Earth. If there are other things you think should be included, include them at the bottom. BE CAREFUL MEASURING STREETS!!!!

Name: \_\_\_\_\_

Steps Per 50

Feet: \_\_\_\_\_

<b>Item</b>	<b>Paces</b>	<b>Estimate of Dimensions</b>	<b>Precise Measurement</b>
Block Length	_____	_____	_____
Street Width	_____	_____	_____
Width of a Lane of Traffic	_____	_____	_____
Sidewalk Width	_____	_____	_____
Distance Between Streetlights	_____	_____	_____
Distance Between Houses	_____	_____	_____
Home Width	_____	_____	_____
Home Length	_____	_____	_____
Car Length (any car)	_____	_____	_____
Garage Length	_____	_____	_____
Garage Width	_____	_____	_____
Neighbor's House Length	_____	_____	_____
Neighbor's House Width	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____



## **Day 2.3: Mapping to Scale and Mapping the Future**

### **Theme/Take-away Message**

Some maps can be drawn schematically, but some must be drawn to scale.

There are many new technologies for displaying maps, many of which are animated, that help convey a sense of place over time.

### **Objectives**

- Understand occasions when maps must be drawn to scale
- Understand the reasons for drawing a map to scale versus schematically
- Know the difference between a ratio scale and a graphic scale

### **Background for Teacher**

The most difficult part of this lesson is understanding the difference between a ratio scale and a graphic scale, which can be difficult to grasp at first. Most maps have a graphic scale, which is the black bar in the corner of the map that indicates the amount of space represented by that length. This is probably what you are most familiar with. The value of this type of scale is that the scale is embedded in the map itself, so the map can be made bigger or smaller without affecting the scale.

When you use a ratio scale, you are setting up a particular relationship between the size of the map and the size of the earth; for example, you might use a 1:100 scale. A 1:100 scale means that 1 unit (one inch, one mile, one anything) on the map represents 100 units on the ground. The first number is always 1.

It is probably useful to explain to the students that there are two distinct halves to the lesson, one half on scales and one half on thinking about mapping in the future. If you do not have enough time to do both halves, it is fine to assign the future portions for homework or to jettison them completely.

### **Vocabulary**

Ratio: measure of the relative size of two classes expressible as a proportion

Ratio scale: indicates how many units on the earth's surface is equal to one unit on the map (that is, one inch on the map equals one foot of the real thing. The size of the map cannot be changed because the scale will no longer be accurate)

Graphic scale: a line marked with distance on the map (can be represented at all different sizes without losing accuracy)

Topography: the relief features or surface configuration of an area

Topographical map: a type of map characterized by large-scale detail and quantitative representation of relief, usually using contour lines in modern mapping,

### **Activities**

1. Scale mapping: draw a scale map of the classroom (on the whiteboard? in small groups?)

Make a list of everything that you should include in the map (size of room, size of desks, size of lockers, length of windows) and measure them as a class (to save time, the teacher might want to measure them in advance). Use a ratio scale (1:100, for example) (~15 min)

3. To explain the difference between a ratio scale and a graphic scale, ask the students what would happen if they changed the size of their maps. How would they reconfigure the scale? What if they put the scale on the paper?

If the scale is on the paper, then the map can change sizes an infinite number of times and the scale is still accurate. However, if it is a ratio scale (for example, one inch = one mile), then any change in size will alter the relationship between the map and the actual site.

3. Future mapping: this activity requires that the class switches gears to think about mapping and technology in the future. The class will watch a 4-minute animation of the London Bike Share program (a program that allows people to check out bikes in one part of the city and return them in another part of the city). Also show students the interactive Twitter SuperBowl map. Both maps display the extent to which information can be spatialized.

4. Divide students into pairs for the remainder of the class and assign them each an interactive map (the 2010 census map has enough information to sustain the whole class). Ask students to find MCA on the map, then to find their home. Students should note what they see in each map and turn in their observations in at the end of class.

### **Materials**

tape measure

paper

rulers for students

Animation: <http://vimeo.com/19486470>

Twitter Super Bowl Map: [http://www.nytimes.com/interactive/2009/02/02/sports/20090202\\_superbowl\\_twitter.html](http://www.nytimes.com/interactive/2009/02/02/sports/20090202_superbowl_twitter.html)

Immigration Map: <http://www.nytimes.com/interactive/2009/03/10/us/20090310-immigration-explorer.html>

Supermarket Map: <http://www.arcgis.com/home/webmap/viewer.html?webmap=153c17de00914039bb28f6f6efe6d322>

2010 Census Map: <http://projects.nytimes.com/census/2010/map> (use the “View More Maps” drop-down menu)

### **Teacher Prep**

- Measure distances in classroom
- Make sure you have a tape measure & rulers
- Photocopy Handout A, Measurement Homework Worksheet

### **Homework**

Ask students to make a list of all the different ways land is used, first in their neighborhood (houses, apartments, businesses, etc) and then to think about all the ways land can be used (farms, parks, factories, etc). Students’ lists will be collected on Monday.

### **Extensions/Field Trips**

- Give students a rough map of the area around Mother Caroline and ask them to map what they know about the area (this idea is based on Kevin Lynch’s mental mapping; see thumb drive for example)

### **Resources for Teachers**

Beveridge’s book *Frederick Law Olmsted: Designing the American Landscape*, pp. 83-94

### **Handouts**

Land Use Homework Sheet

## **Week 3: Land Use**

### **Objectives**

Land use and transportation together are the crux of planning communities. The question of what should go where is central to the discipline of urban planning. By the end of the week, students should understand that there are different types of land use and that how land is used affects your experience of an environment. They should begin to think about what land use is best for their community.

### **Day 3.1: Learning Land Use**

#### **Theme/Take-away Message**

Planners use standardized categories of land uses to describe the mix of buildings in a given neighborhood.

#### **Objectives**

- Understand the categories of land use and why they are valuable

#### **Vocabulary**

residential - pertaining to residences (houses)

institutional - pertaining to institutions (examples below)

industrial- pertaining to industry (factories)

open space- green space or sports fields/courts

commercial- pertaining to commerce (business)

mixed-use - more than one type of land use in a given location (i.e., a business with an apartment above)

#### **Activities**

1. Pool students' lists of land uses on the board (from their homework assignments) (~10 min)
2. Divide students into small groups and ask them to classify each of the land uses listed into their own system (~15 min)
3. Regroup and have students share their lists. See what patterns emerged. (~8 min)
4. Introduce students to standard classifications (listed above in "Vocabulary" changes.) Reclassify

land uses (from master list) as a class according to standardized land uses.

### **Materials**

none

### **Teacher Prep**

- Ensure that you are comfortable with planning land use classifications.

### **Background for Teacher**

Most of the land-use classifications introduced here will be familiar to you, but it may not be the first way that you think to classify land use. A sample list of land uses is included below.

#### Residential:

- single family homes
- multi-family homes
- apartments

#### Industrial:

- Factories
- Former factories (contaminated former factory sites are known as “brownfields”)

#### Commercial:

- Grocery stores
- Restaurants
- Hair salons
- Banks

#### Institutional

- schools
- hospitals
- jails
- libraries
- community centers
- churches

### **Homework**

<http://www.theatlantic.com/magazine/archive/2011/03/how-skyscrapers-can-save-the-city/8387/>  
<http://ksgaccman.harvard.edu/hotc/DisplayPlace.asp?id=11551>

### **Extensions/Field Trips**

- Have students make a photo collage of different land uses types (students could be organized into small groups and each given a land use
- Ask students to map their block according to land uses

### **Resources for Teachers**

*Land Use A-Z*, by David Newton

*Food and Agriculture: How We Use the Land*, by Louise Spilsbury

**Handouts**

none.

## **Day 3.2: Adaptive Reuse**

### **Theme/Take-away Message**

Adaptive reuse is a way for cities to take existing buildings whose past uses are outdated and continue to use them in the present. Adaptive reuse happens in every type of building.

### **Objectives**

- Identify instances of adaptive reuse in students' communities
- Think about what the possibility of adaptive reuse is in the future

### **Background for Teacher**

Adaptive reuse happens all the time, and the neighborhood around Mother Caroline is full of examples of ways that buildings have been re-imagined and reused. The school itself is a former welfare office building (before the welfare building was there, there was a church).

Virtually every building can be rethought - big houses can be made into smaller units, for example, and small homes can be turned into offices. Multi-unit homes can be combined to make a bigger footprint (in the 1980s the Boston Redevelopment Authority actually published a manual on how to convert a triple-decker into a two-family home, in order to help preserve the buildings).

Some buildings are harder to reuse than others. A building type that has received particular attention is big box stores - as large structures built outside the center of many cities, they have been hard to repurpose when WalMart/Target/Lowe's has moved to a different location. However, virtually any building can outgrow its natural use. However, many buildings outgrow the use for which they were designed. There are ample examples of adaptive reuse throughout the area around MCA: houses turned into apartments; houses turned into churches; temples turned into churches; houses turned into museums.

### **Vocabulary**

Adaptive Reuse: the process of adapting old structures for purposes other than those initially intended.

### **Activities**

1. Adaptive Reuse slideshow: show students a variety of adaptively-reused buildings, beginning with Mother Caroline, and ask students what they think the building was originally used for. Then ask students to think of other buildings that are being used for something other than their original purpose. Encourage students to think about all different types of buildings (houses, churches, libraries, police stations, etc.) (~12 min)

2. Ask students what they think their community needs: if they could add anything to their community, what would it be? Make a list of their suggestions on the board (use the land use classifications from Monday to categorize the suggestions). If it is a quiet class, it may help to have students spend a minute or two making their own lists. (~8 min)

3. Show students the photos of the Home for Aged Couples on Columbus St. As a class, begin the site analysis, asking:

- what is already there?
- what is near it?
- what has it been used for in the past?

Use the images from the end of the slideshow to walk students through the site (a map, some site photos, an aerial photo). After going through the photos, use Google Street View to get a better sense of the sight.

4. As a class, review the “Heart of the City” report - it gives a good sense of the history and state of the building.

5. Ask students what they think should go in the Home for Aged Couples. What could it be reused for?

6. After you have collected a variety of suggestions, ask students how the uses could be grouped. Should all the buildings be used for the same thing, or should they be used for different things? Why or why not?

### **Materials**

- Adaptive reuse slideshow
- Means of projecting (computer and hook-up)
- *Adaptive Reuse Slideshow* (thumb drive)

### **Teacher Prep**

- Ensure that you have a way to project slideshow to students

### **Homework**

Beveridge, *Olmsted: Designing the American Landscape*, pp. 83-94



### **Extensions/Field Trips**

- Visit the Home For Aged Couples. Ask students to make notes or sketches about everything in the site - are there many people in the area? What is around it? Is there a lot of traffic? Is it easy to get to Franklin Park? Is there a bus stop nearby? Are there lights at night? What would you do with a parking lot? Ask students to make suggestions for what should go in each building and in the parking lot after their visit.

-Tour buildings that have been reused or that are in the process of being remodeled for reuse. The Museum of African American Art, nearby, is in a building that was formerly a private estate.

- Ask students to imagine how their houses might be adaptively reused in the future

### **Resources for Teachers**

*Big Box Reuse*, by Julia Christenson

*Retrofitting Suburbia*, by Ellen Dunham-Jones and June Williamson

<http://ksgaccman.harvard.edu/hotc/DisplayPlace.asp?id=11551>

### **Handouts**

none

### **Day 3.3: Franklin Park and the Use of Open Space**

#### **Theme/Take-away Message**

Franklin Park has changed dramatically from the park that was originally envisioned, in reaction to the changing needs of the city and the community.

#### **Objectives**

- Think critically about what a park needs, and what a park should have to serve different community members
- Understand the history of Franklin Park and how it is different than originally conceived

#### **Background for Teacher**

Frederick Law Olmsted, who designed Franklin Park, is responsible for some of the most famous parks in the country. He designed Central Park and Prospect Park in New York. In Boston, he is most famous for designing the “Emerald Necklace,” a ring of parks and greenways around the outside of Boston (clearly visible on Google and Bing aerial photos). The Emerald Necklace served an ecological purpose: in addition to providing a recreational amenity to the people of Boston, the Fens served to filter the stormwater entering the Charles River. The park system was over 2,000 acres big when it was completed in 1895.<sup>73</sup>

Franklin Park was originally 570 acres of parkland, and included a meadow with a herd of sheep and shepherds. Today, the park has been reduced in size (and the sheep eliminated) thanks to the introduction of a zoo. The meadow has been turned into a golf course - a dubious land use for a park in a low-income neighborhood short on recreational space.

The site of the park was chosen because of its location on high ground - unlike many areas of the city to the east, no part of the park was on made land or fill. It was also still largely farmland when the city acquired it, just in advance of the building boom Roxbury experienced in the 1870s. Olmsted lived in Brookline, and would have liked to put a park there, but Brookline voted against annexation in 1871 and, as a result, today has very little parkland (the community instead offered larger private yards).

#### **Vocabulary**

pastoral: pertaining to the country or to life in the country; rural; rustic.

landscape architect: someone who arranges features of the landscape or garden attractively (can refer to a private garden, a park, or a big public greening project)

stakeholders: a person or group that has an investment, share, or interest in something (in this case,

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<sup>73</sup> Zaitzevsky, Cynthia. *Frederick Law Olmsted and the Boston Park System*. Cambridge: Belknap Press, 1982, p. 3.

anyone who cares about Franklin Park, or plans to use it)

### Activities

1. Hand out or project the original master plan for Franklin Park. Explain that most cities did not have parks until the mid-19th century - Central Park was the first great American park, and once New York had one, every other city wanted one too. At first, Olmsted, the landscape architect, preferred that his parks be for quiet contemplation, and he actually designed parks so that they would not be appealing for sports or for large picnics or festivals - he thought parks should be for appreciating natural beauty and for reflection. By the time he designed Franklin Park, he had learned that people wanted sports facilities in their parks, and so he included a pastoral landscape and a few sports courts as well. Take some time to record students' impressions of the park. Do they like it? Dislike it? Why or why not? (~7 min)

2. Give students Handout A, the modern map of Franklin Park. What's changed? Make a list of changes on the board, and talk about the logic in each of them (i.e., the original "meadow" has been turned into a golf course. why?) Do the students think the changes are good or bad? Who do they think the changes were for (what is the target population)? (~7 min)

3. Are there things the students think are missing from both parks? What are the components of a park? How can you make a park to serve everyone in the neighborhood? What are the different stakeholders and how can their needs be addressed? (~10 min)

Stakeholders may include:

- parents
- families
- children
- teenagers
- athletes
- skateboarders
- golfers
- the zoo
- people who live around the edge of the park
- joggers
- skiers and snowshoers
- pet owners

4. Ask students to make a list of everything that they would want in their perfect park (~5 min)
5. Suggest that students make a bubble diagram of where they would put things in their perfect park. A bubble diagram is a rough map where different activities are represented by circles (where should you put the pool? do you want the skatepark right next to the golf course?) (~10 min)
6. With any remaining time, give students Handout B, and allow them to design their own version of Franklin Park. Remind them that the park is big, and that they should think about scale as they design the project.

### **Materials**

- Computer & Projector, to show students original map of Franklin Park
- Handout A, copies of the present-day map of Franklin Park
- Handout B, an outline of the park for students to fill in
- Handout C, *Streetcar Suburbs* question sheet

### **Teacher Prep**

- Photocopy Handout A, the modern-day map of Franklin Park
- Photocopy Handout B, the park outline
- Ensure that you have a means of projecting the historic plan of Franklin Park (alternatively, photocopy for entire class)

### **Homework**

*Three Deckers of Dorchester*, Boston Landmarks Commission

### **Extensions/Field Trips**

- Visit Franklin Park
- Incorporate parks into science class: Olmsted's Emerald Necklace had important water-quality implications for the city. What is its legacy?

### **Resources for Teachers**

Charles Beveridge, *Frederick Law Olmsted: Designing the American Landscape*

Cynthia Zaitzevsky, *Frederick Law Olmsted and the Boston Park System*

# Franklin Park



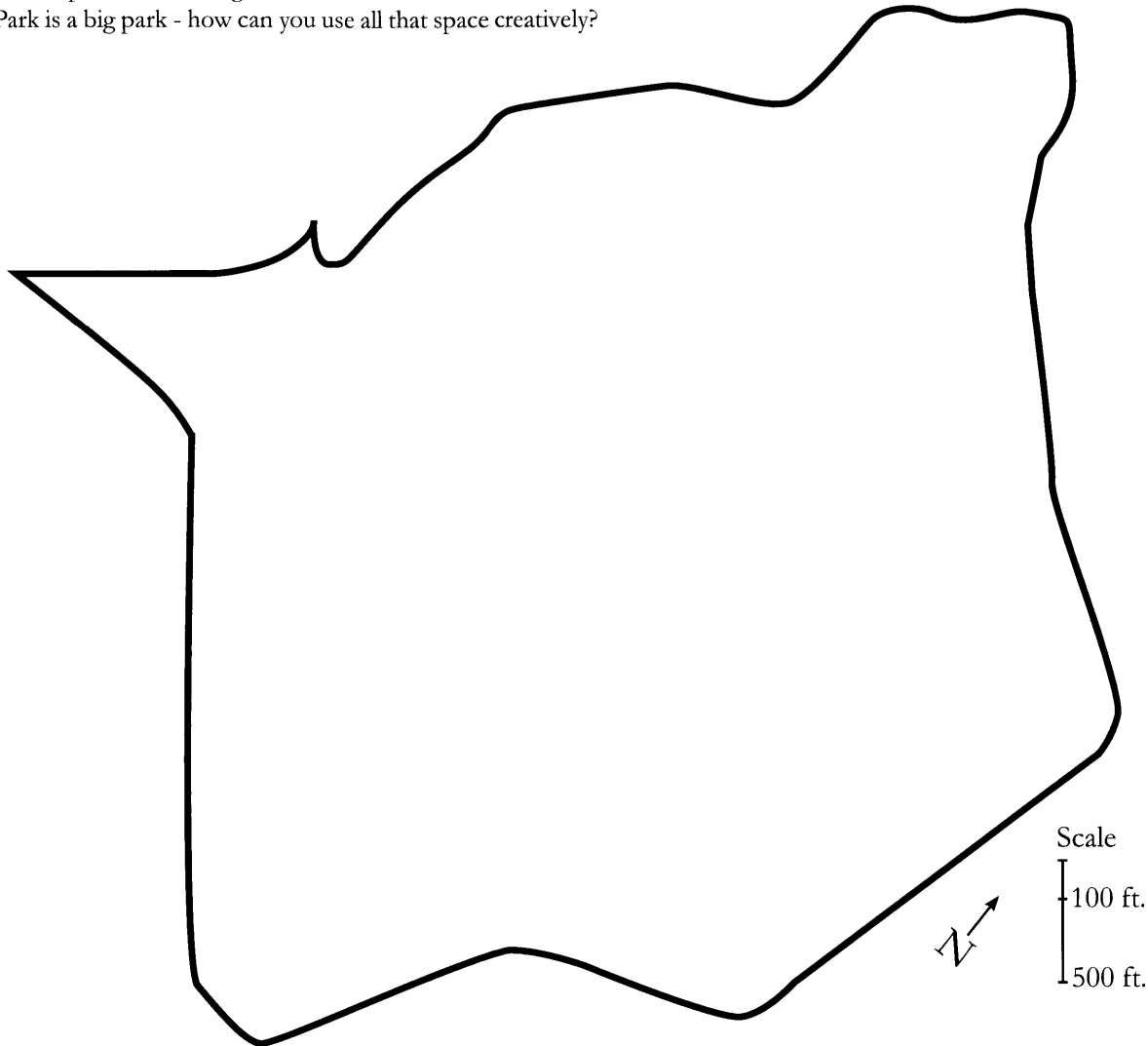
Figure 25 Courtesy Franklin Part Coalition



## Handout B: Franklin Park Outline

Use the outline of the map below to draw your own version of Franklin Park. Think about how you use parks, and what members of your family use parks for. What is Franklin Park missing? What about it would you keep?

Some sports fields are given below for reference. Franklin Park is a big park - how can you use all that space creatively?



Soccer field



300 x 180 ft.

Basketball court



94 x 50 ft.

Baseball field



Edges 200 ft.

Football field



360 x 150 ft.





## **Week 4: Transportation**

### **Objectives**

Students understand the intersection of transit and land use: buildings are designed and sited based on the type of transportation available.

Transportation (& its attendant problems - amount of time spent, expense, pollution) is a big challenge for cities, and thinking critically about how to make any existing systems better or introduce new systems can make life in cities much better for people.

### **Day 4.1: Triple Deckers and Transportation**

#### **Theme/Take-away Message**

Three-deckers (or triple-deckers) are Boston's vernacular architecture. Their presence in a neighborhood tells you something about the history of the area.

#### **Objectives**

- Recognize a three-decker
- Understand that they were (somewhat) unique to Boston, and to the years 1870-1900
- Understand that integration of housing and streetcars

#### **Background for Teacher**

Triple deckers are not unique to Boston - Worcester and New Bedford both have significant concentrations - but Dorchester has the highest density of triple deckers in the world. The popularity of the triple decker makes sense - as a model of affordable housing, it is virtually unparalleled. As mentioned above, the triple decker (for that matter, any housing on the outskirts versus the center city of Boston) was a huge improvement on the housing conditions in the city, which ranged from brick tenement buildings without much light or air, or heating or plumbing, to what amounted to shantytowns (typically populated by recent Irish immigrants) in the vicinity of factories.

The development of triple deckers was facilitated by the growth of the streetcar but also enabled by the expansion of urban services like fire and police coverage and municipal trash pickup and snow removal.<sup>74</sup> While in some cases, triple deckers were built in a kind of monoculture (blocks of nothing but three deckers), typically they were mixed in with single- and two-family homes, as they still are throughout Dorchester.

Today the triple deckers have received renewed attention. In the 1970s and 80s, when many

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<sup>74</sup> While visiting a friend in Brookline in the 1880s, Frederick Law Olmsted was so impressed with the municipal snow removal that he moved there with his family shortly thereafter. He notes in his personal correspondence how civilized Brookline seemed, stating that he was particularly impressed by the speed with which snow was cleared from the streets.

of the triple deckers started to fall into disrepair, the city published a number of guides on how to revamp your triple decker for modern living, including sample floor plans of a triple decker turned into a duplex and turning three-bedrooms into two (with a more modern open floor plan). In the height of the real estate bubble, there was substantial concern about speculation and absentee landlords, particularly for Dorchester triple deckers. A number of housing-related non-profits like the Dudley Street Neighborhood Initiative (DSNI) and Urban Edge have worked to rehab triple deckers and they are still popular for their investment potential and their relative affordability.

### **Vocabulary**

vernacular: a style of architecture exemplifying the commonest techniques, decorative features, and materials of a particular historical period, region, or group of people.

### **Activities**

1. Give students Handout A: Understanding the Triple-Decker. Ask them to work in small groups to answer the questions on housing and transportation, then regroup. (~15 min)
2. Move through the questions as a class. Emphasize throughout the lesson that the housing moved with the streetcar: cities expanded along the spines provided by streetcars like a star (or a sea urchin).
3. Ask students why they think the houses in Dorchester were so popular, and why people were so eager to move out of cities. Explain that cities often did not include modern amenities like plumbing or heat, and often did not have good lighting or air circulation (some rooms had no windows or ventilation at all). Moving to the suburbs, to a new house, represented a significant improvement in their standard of living. (~5)
3. Ask students to imagine the constraints on daily life without cars or motorized vehicles (no buses): how would they move around? How would they decide where to live? (~15 min)
4. For the remainder of class, ask students to think of all the things that they need in the course of a week. Think about all the things that a city might need, and ask students to come up with a classification system for their different land uses.

### **Materials**

- Handout A: Understanding the Triple Decker

### **Teacher Prep**

- Photocopy Handout A: Understanding the Triple Decker

### Homework

Witold Rybczynski, "Downsizing Cities"

*The Undercover Economist*, pp. 81-87

<http://www.theatlantic.com/magazine/archive/1995/10/downsizing-cities/8395/>

### Extensions/Field Trips

- Ask students to design their own triple-decker floor plan, section, or elevation
- The maps in the Boston Landmarks Commission report show the old streetcar routes. Walk the length of one of the routes and look for clues to the neighborhood's development. Can you see where the tracks used to be?

### Resources for Teachers

*Boston's Triple-Deckers*, Boston Mayor's Office

*Breaking out of the static dwelling : redesigning the triple-decker* by Meelena Oleksiuk.

*The Jamaica Plain House* (See thumb drive)

*Streetcar Suburbs*, Sam Bass Warner

*A Tale of Three Decks: The Jamaica Plain House*, by Bruce Irving, chronicles the redevelopment of a triple decker in JP. The house was featured on the television show *This Old House*.



Figure 27 courtesy Wikimedia Commons

1. What is a triple decker?

2.. What about Dorchester's concentration of three-deckers is unique?

3. Why were the first three-deckers built in Roxbury and South Boston?

4. What is the difference between Roxbury and South Boston three-deckers?

5. What do you notice about the streetcar map? Are the lines on streets you are familiar with? Was your street near a streetcar line?

6. What are the two characteristic types of three-deckers? What are the differences between them?

7. Do you live in a neighborhood with triple-deckers? Do you live in a neighborhood with streetcars? How do you think your street or block developed?

## **Day 4.2: Urban Economics**

### **Theme/Take-away Message**

People choose how to get around cities by thinking about the monetary cost, the time cost, and (in some cases) the environmental cost of their method of transportation. Transportation is one example of how everything has costs.

People's choices have expanded as transportation technologies have improved, and will continue to change in the future based on the different types of costs of each type of transit.

### **Objectives**

- Understand different types of cost: cost can be applied to everything (how much a person likes or dislikes driving, for example, or how much the time they spend looking for parking is worth.)
- Think critically about the pros and cons of different methods of transit, and their different costs.

### **Background for Teacher**

The goal of this lesson is to introduce students to economics, by giving them something familiar - the act of moving around their city - and thinking about it through the lens of costs, benefits, and tradeoffs. Asking students to think about their time or their families' time in terms of money will be challenging, since most students are too young to work legally and do not have an expansive frame of reference for how much something should cost, including their time. But the idea is that everything involves tradeoffs - students are engaged in their own type of economic calculations all the time. Even "is it worth it to go to the movies if I have to stand in the bus in the rain?" is a type of economic calculation.

A secondary goal of the lesson is for students to think about the range of costs that an action can impose - both on a user (monetary cost) and society (environmental and spatial costs). Driving seems fairly innocuous, but it is actually an action that has costs on a number of levels. First, driving releases pollutants, both in the form of greenhouse gases and in the form of particulate matter, that can cause or exacerbate asthma and other public health problems. Car-dominated landscapes also create noise pollution. They provide a disincentive to walk, thereby accelerating problems around obesity. Finally, each car on the road imposes a cost on other drivers by increasing (adding a car to a busy street slows down all the other cars).

### **Vocabulary**

Externality: a cost that is not paid by the consumer but is instead paid by society at large. An example is driving, which has environmental and infrastructure costs that are not born by individual drivers (for example, the cost of roads and the cost of air pollution)

Infrastructure: the fundamental facilities and systems serving a country, city, or area, as transportation and communication systems, power plants, and schools.

Mode share: the percentage of trips made by different types of transit (for example, the T has 12% mode share in Boston - meaning that 12% of all trips in Boston are taken on the T).

1. Begin by making a timeline of types of transit. Draw a line on the board and ask students to fill it in as a class. (~10 min)

2. Ask the students to think about transportation in the context of their long-term projects. Is their house on a main thoroughfare? If so, did their street used to have a streetcar or trolley on it? If their house is on a side street, what types of transportation have existed on the street? How did previous inhabitants get around the city (~10 min)

3. Transportation options as they currently exist: what are the pros and cons of different methods of transportation? Make a list on the board of all the different types of transit that you can think of. (~5 min)

4. List the pros and cons of car ownership as a class. Emphasize three types of costs: time, money and environmental costs, and ask students to evaluate each transportation option from that perspective. Split into groups of three for the rest of the transportation options. (~12 min)

5. After regrouping, make four transportation system spectrums on the board: one for environmental, one for time, one for monetary cost, and one for spatial cost. (~10 min)

### **Activities**

1. Begin by making a timeline of types of transit. Draw a line on the board and ask students to fill it in as a class. Leave the timeline on the board for the duration of the class.

2. Ask the students to think about transportation in the context of their long-term projects. Is their house on a main thoroughfare? If so, did their street used to have a streetcar or trolley on it? If their house is on a side street, what types of transportation have existed on the street? How did previous inhabitants get around the city? (~10 min)

3. Ask students to think about the suite of historical transportation options, using the timeline on

the board. What are the pros and cons of different methods of transportation, and how were those pros and cons addressed by technological improvements over time? (~5 min)

4. Emphasize four types of costs inherent in transportation: time, money (to city and to user), spatial costs (the amount of space a transportation mode takes) and environmental costs, and ask students to evaluate each transportation option from that perspective. Split into groups of three and have each group evaluate a different transportation option (~12 min)

5. After regrouping, make four transportation system spectrums on the board: one for environmental, one for time, one for monetary cost, and one for spatial cost. (~10 min)

### **Teacher Prep**

- Ensure that you are comfortable with the four costs that the students will be exploring. See Background for more info.

### **Homework**

*Mobility on Demand*, MIT Media Lab

## **Day 4.3: The Future of Transportation**

### **Theme/Take-away Message**

In thinking about transportation, you can work on improving existing transportation systems or you can think about inventing entirely new ones. There are ways of moving people that haven't been imagined yet.

### **Objectives**

- Become aware of new types of transportation
- Think about the costs and benefits of designing and implementing new transportation systems

### **Background for Teacher**

Bus-Rapid Transit (BRT) is the most well-established of the technologies included here. BRT was pioneered in South American cities and has been installed in a limited way in Pittsburgh, and more recently in Cleveland. The most famous system, in Curitiba, Brazil, was a BRT pioneer. The bus stops are sleek and modern, and very efficient. There are BRT systems in Guangzhou, China; Quito, Ecuador; Curitiba, Brazil; Jakarta, Indonesia, and a number of other cities. BRT is cheaper to install than light rail and moves more passengers than traditional bus systems.

Mobility on Demand grew out of car-sharing programs like ZipCar, and out of bike-sharing programs like Velib in Paris. ZipCar allows users to rent a car for an hour at a time, and cars are parked throughout urban areas. Velib (and copycat systems in Washington, DC, Boulder, Montreal, London, and soon Boston) allows users to check out a bike anywhere in the city and return it at any other kiosk in the city. There is also a long history of "personal rapid transit," which is basically single-person public. The idea behind Mobility On Demand is a combination of the two: you get the speed and ease of a car, but you have something that is more maneuverable than a car and also has a smaller carbon footprint.

Shweeb is a goofy concept currently being piloted in New Zealand. It is unclear if the system will really catch on, but it is included here because of its ability to spark ideas about what transportation systems can look like.

The Copenhagen Wheel was debuted at the Copenhagen Summit in 2010 and has been on the verge of reaching the market ever since. As of writing, the bike is not commercially available.

### **Vocabulary**

Mobility on Demand

Bus Rapid Transit (BRT)

Shweeb



## Bike Technology

### Activities

1. Watch a variety of videos on next-generation transportation systems, then discuss as a class.

Mobility on Demand: <http://www.youtube.com/watch?v=dSKpE2d3BaY>

Bus Rapid Transit: <http://www.youtube.com/watch?v=vJR9uCSyGKM&feature=related>

Shweeb: <http://shweeb.com/>

Bike Technology: <http://www.youtube.com/watch?v=PN7oLQezqqE>

What did students like? Which system looks the most interesting? What did the systems have in common? (All are variations of existing technologies!) (~20 minutes)

2. Assign the students to small groups, and ask them to draw on their work from the previous class to think about how you could design a new transportation system. What would it look like? How would it work? Where would it go? How many people could it move? How much infrastructure would it require? Suggest that students brainstorm a few ideas, and then begin to use sketches or clay (optional) to help visualize their transit system.

3. Regroup, and ask students to present their ideas to the class.

### Materials

- Computer with internet capability
- Projector
- Clay (optional)
- Paper for students to draw their ideas on

### Teacher Prep

- Watch all the videos in advance
- Read the Shweeb FAQ (<http://shweeb.com/index.php?m=faq#f1>)

### Homework

Work on long-term project

### Extensions/Field Trips

- Ask students to make a model of their transportation system using clay or household materials (cereal boxes, buttons, string, aluminum cans, etc).
- Watch “A Convenient Truth: Urban Solutions from Curitiba,” a documentary about BRT

- Ask students to visit and report on this blog, <http://www.paleofuture.com/blog/tag/transportation>, about visions of future transportation (there are sections about other topics as well) and report or build on an entry of their choosign

### **Resources for Teachers**

*A Convenient Truth: Urban Solutions from Curitiba*, a documentary

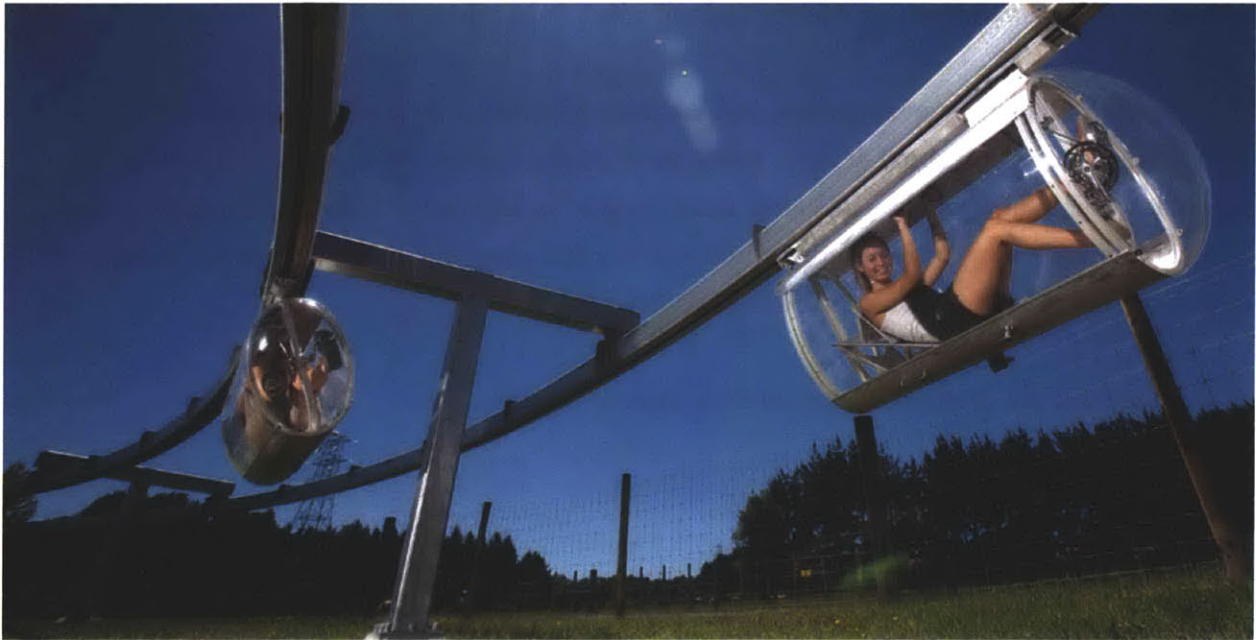


Figure 28 courtesy shweeb.com

## **Week 5: Demography**

### **Objectives**

Students should learn how to read scatterplots and box plots, and should learn how to do simple visualizations from a bivariate data set. Students should also begin to think about when it is appropriate to think outside datasets, and when it is not.

### **Day 5.1: Statistics & Representation**

#### **Theme/Take-away Message**

Complex or large datasets can be represented by simple graphs or charts that are easy to read. Generating these charts is easy to do, both by hand and by computer.

#### **Objectives**

- Learn to read and to make scatterplots and box plots.
- Understand concepts of correlation & outliers

#### **Background for Teacher**

Boxplots are a simple way to show the distribution of data - for example, if you have a dataset where many of the datapoints are closely clustered together or a dataset where datapoints are particularly spread out (with many outliers), it becomes apparent when you look at a boxplot. They are particularly useful when you want to compare many data distributions simultaneously. For example, if you wanted to see how 8th graders at MCA had performed on their MCAS tests over a period of ten years, you could arrange ten years of boxplots side by side. You could glean some of the same information by using a simple chart or graph, but boxplots provide much more information with a similar economy of space - you can see not only what the average is, but how much the scores have varied within each year.

When boxplots are arranged side-by-side, it is usually to show change over time (as with the example given above) or to show the differences between multiple trials of an experiment. Usually box plots assume that the data is bell-shaped, or that there is a point in the middle at which most of the data is clustered.

#### **Vocabulary**

Mean: the arithmetic average of a set of values, or distribution; however, for skewed distributions, the mean is not necessarily the same as the middle value (median), or the most likely (mode).

Median: the middle number in a given sequence of numbers, taken as the average of the two middle numbers when the sequence has an even number of numbers: *4 is the median of 1, 3, 4, 8, 9.*

Mode: the value that occurs most frequently in a data set or a probability distribution (i.e., in the dataset 1, 2, 2, 2, 8, 9, 2 is the mode).

Quartiles: one of three points that divide a data set into four equal groups, each representing a fourth of the distributed sampled population

Percentiles: the value of a variable below which a certain percent of observations fall

Interquartile Range: the area in between quartile 1 and quartile 3 (the middle 50% of the data)

Box Plot: (also known as a box-and-whisker diagram or plot) is a convenient way of graphically depicting groups of numerical data through their five-number summaries: the smallest observation (sample minimum), lower quartile (Q1), median (Q2), upper quartile (Q3), and largest observation (sample maximum). A boxplot may also indicate which observations, if any, might be considered outliers.

Outlier: an observation that is numerically distant from the rest of the data (much bigger or much smaller)<sup>75</sup>

### **Activities**

1. Explain (or, more likely, review) the concepts of mean, median, and mode: have students line up by age, height, or other determining factor. Then have students identify which among them represents the mean, median and mode. If any students have the same birthday, for example, their birthday represents the mode. The tallest and shortest students represent the minimum and the maximum
2. Use the same example to explain quartiles (include teachers if you need to get to 16 people - the 4th, 8th, 12th and 16th people each represent a quartile).
3. To explain box plots, use the floor of the classroom to make a giant box-plot shape. Explain what each part of the boxplot is for (see Teacher Prep) and have students stand in the place that corre-

## 5.1 Boxplots, Explained

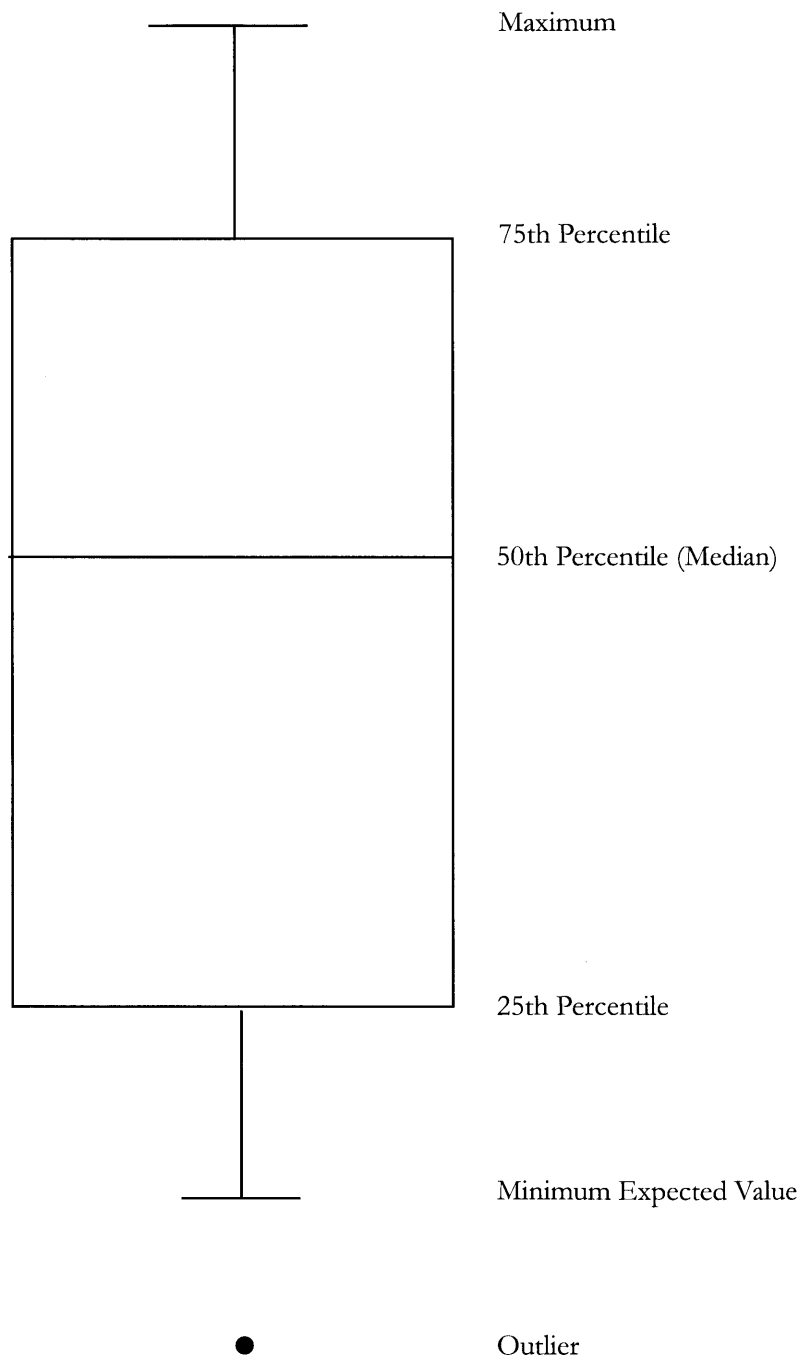


Figure 29 Courtesy of the author

sponds to their place in the distribution (i.e., have the student who is the mid-point of the dataset stand on the second quartile/50th percentile line).

4. Give students Handout A, Boxplots of Boston. Go through the first one as a group, then allow students the remainder of the period to complete the handout as a homework assignment.

### **Materials**

- Masking tape

### **Teacher Prep**

- Use masking tape to make a large-scale boxplot on the classroom or hallway floor.
- Photocopy Handout A, Boxplots of Boston

### **Homework**

Handout A, Boxplots of Boston

### **Extensions/Field Trips**

- Students may read a chapter of Malcolm Gladwell's book *Outliers*

### **Resources for Teachers**

*The Cartoon Guide to Statistics*, Larry Gonick

### **Handouts**

Handout A, Box Plots

## Day 5.2: Statistics and Representation, Continued

### Theme/Take-away Message

Scatter plots are a way to understand the relationships between two variables. They are a way to represent large amounts of data graphically

### Objectives

- Students can read and generate simple scatter plots

### Background for Teacher

Scatter plots are a common device used to show relationships between two variables. They can be used to show relationships that you would expect, like hours spent studying and resulting test scores, but can also be used to show surprising relationships.

When you are making scatter plots, you must decide which of the two variables you are looking at is the *independent* or *explanatory* variable - it goes on the “x” axis. The *dependent* variable goes on the y axis. So, for example, in the test score/hours studied, “hours studied” is the independent variable, and the resulting test score is the dependent variable (it depends on the independent variable.)

An important thing to note, however, is that hours studied cannot be said (in statistics parlance) to have *caused* the higher test scores. Instead, you can say that there is a strong correlation, or relationship, between many hours studied and high test scores.

### Vocabulary

scatter plot: a type of mathematical diagram using Cartesian coordinates to display values for two variables for a set of data.

correlation: the extent to which two variables are related.

### Activities

1. Building off of Monday’s exercise, use the students’ heights and ages to draw a scatter plot on the board. If the dots appear random, explain that there appears to be no correlation between height and age. If there appears to be a relationship, explain that there appears to be a correlation between age and height (older students are taller and younger students are shorter).

2. For a guaranteed example, introduce a fake data set (see Teacher Prep) with the variables “hours studied” and “test scores.” You can see from the data that there is a clear relationship between studying and higher test scores, but when graphed in a scatter plot, it is obvious at a glance.

3. Pass out Handout A, Scatter Plots of Boston, demonstrating the relationships between different

demographic components of the city. Look at the first scatter plot together. What does it tell you about the city?

4. To demonstrate the power of scatter plots, watch Hans Rosling's YouTube clip on global health statistics. (~5 min)

5. Allow students the rest of the period to work on Handout A

### **Materials**

- Handout A, Scatter Plot Worksheet
- Computer & Projector
- Internet Access (for YouTube)

### **Teacher Prep**

- Ensure that you have access to a computer and a projector; queue YouTube video (see link below)
- Photocopy Handout A (one per student)

### **Homework**

Handout A, Scatter plots of Boston

Ed Glaeser Article: <http://economix.blogs.nytimes.com/2011/04/05/as-minority-populations-grow/?scp=7&sq=glaeser&st=cse>

### **Extensions/Field Trips**

- David McCandless TED Talk: [http://www.ted.com/talks/lang/eng/david\\_mccandless\\_the\\_beauty\\_of\\_data\\_visualization.html](http://www.ted.com/talks/lang/eng/david_mccandless_the_beauty_of_data_visualization.html)

### **Resources for Teachers**

A good class blog with clear examples: <http://teller.edublogs.org/2011/02/10/scatter-plot-examples/>

### **Handouts**



## **Day 5.3: Using Data to Predict the Future**

### **Theme/Take-away Message**

Data that has been compiled and organized can tell stories you don't expect it to, and can tell many stories at the same time. It can be combined with the representation techniques learned earlier in the module. On some occasions, data can be used to help prepare for and predict the future.

### **Objectives**

- Students will learn how to read data over time
- Students will learn about changing demographics in Boston 1960-present

### **Background for Teacher**

Much of the historical background for the demographic changes will be covered in Week 6, when the class watches the movies on the Dudley Street Neighborhood Initiative. The movie also gets into the complicated factors that caused white flight (in addition to racism, of which there was plenty), including the practice of "redlining," or denying mortgages for inner-city properties and the easy availability of credit for properties in the suburbs. This is the first time in the module that the educator is being asked to address questions of racism and racial change, and the topic is introduced here for a few reasons. First, the curriculum has been roughly linear and historical. The more recent history comes at the end. Second, Roxbury and Dorchester are often depicted as being unchangeable, perpetually impoverished, and the site of much of Boston's violent crime. I wanted the students to get a longer view of the neighborhoods, as places that have undergone a 400-year process of change and that are continuing to change today. Third, the story told in the data is ultimately triumphant. The city as a whole has become vastly more diverse in the last fifty years, and while it is true that minorities in the city have been subjected to discrimination and unfair treatment, the story today is one of a city enriched through diversity. Finally, the material next week, which addresses the history of the Dudley Street Neighborhood Initiative, deals very directly with the racist federal and local policy of the 1960s and 1970s, and using the data to show students the history of the 1960s and 70s will provide them with a point of entry for the more serious material next week.

Viewed in isolation, each of the three maps has their own stories. The white map shows one of suburbanization; the racism and federal enticements to leave the city are there too. The maps of African Americans show migration into Roxbury and Dorchester (presumably from the south) followed by the population's spread across the city. Likewise, the Hispanic population of Boston was virtually nonexistent in 1940, but over 70 years it is possible to see the development of Hispanic clusters. In later decades you can begin to see a movement away from clustering and toward a lower density of Hispanic people across a larger swath of the city. While there is evidence of racism in the

maps, there is also evidence of an increasingly diverse city.

Unfortunately, there is not very much census data on ethnicity, and so the maps do not show the movement of different Hispanic or Central American communities, and also do not show the location and movement of smaller communities (like Jews or Cape Verdeans). This is something to point out to students.

In the “predicting the future” segment, it may be useful to reference the 2010 Census language - the Census posted advertisements all over the country in places where they were most likely to be seen by low-income populations (there was lots of advertising at bus stops and on buses, for example) that asked questions like “if we don’t know how many people we have, how can we know how many schools we need?”). The Census is taken regularly so that no one has to predict the future. But it is also a tool to make predictions about the trajectories of different populations. For example, it is probably safe to say that the Latin/Hispanic population is likely to continue to increase. If there are many young families in a particular neighborhood, it may be important to start investing in the local schools (by hiring more teachers). While it is foolish to make hard-and-fast predictions about the future, using data to make observations about trends is something that everyone does all the time, and it can be cautiously done at a regional or national level.

### **Vocabulary**

choropleth map: a map that uses color to display density or intensity (such as the maps in this lesson)

extrapolate: to estimate (the value of a variable) outside the tabulated or observed range

### **Activities**

1. Start with the map of the fastest mile times. The fastest recorded mile (the speed a man has run a mile) has been decreasing pretty consistently since 1860, but common sense dictates that it can’t go on forever, because eventually people would be running a mile in negative time. Usually, you can only use statistics to make conclusions about the data you have - you cannot, for example, make predictions about the future mile times. Using the graph of mile times provided, explain the idea of extrapolation: making predictions for values (in this case, the mile speed) outside the observable range (the future.)

2. Put the PowerPoint images of racial change in Boston 1960-2010 on the projector. Go through the slides on the population density of white people as a class, and ask the class what they see. Whites moved out of the city, particularly Roxbury and Dorchester, in very high numbers in the 1960s-1980s, and there was a corresponding rise in the number of African Americans and people of

Latin/Hispanic descent. Looking at the data on white population data, a story on white flight starts to show.

3. Divide the students into groups and give half the class the African American demography map and half the students the Latin-heritage map. Give students time to look at each map in their series and establish a narrative, and then ask each group to tell the class what they learned.

4. Put the three stories together. The three maps in concert tell a complex story. There is a story of white flight and racism, but there is also a story of large-scale migration (neither African Americans nor Latinos were present in any real concentration in 1960) and of generations of minorities in the city. While Roxbury and Dorchester have been a landing spot for minorities and continue to have high concentrations of minorities, there is also a clear trend of the city as a whole getting more diverse and of minorities moving through Roxbury and Dorchester and into adjacent neighborhoods. Ultimately the goal is to show that the three data series together are more than the sum of their parts.

5. The maps show trends over a period of seventy years. Can students use the maps to make predictions about the future? Why or why not?

### **Materials**

- Computer & projects
- PowerPoint file

### **Teacher Prep**

- Ensure that you have a computer and a means of projecting
- Review the map series in advance

### **Homework**

Reading from *Crabgrass Frontier*, by Kenneth Jackson (“Federal Subsidy and the Suburban Dream” p 190 - 219)

### **Extensions/Field Trips**

- Use SocialExplorer.com to look at other sources of demographic change. What else has changed?

How? Why?

### Resources for Teachers

SocialExplorer.com - demographic data available for free on the internet

### Handouts

Handout A, Racial Demographics in Boston (See Thumb Drive)

### Men's record progression

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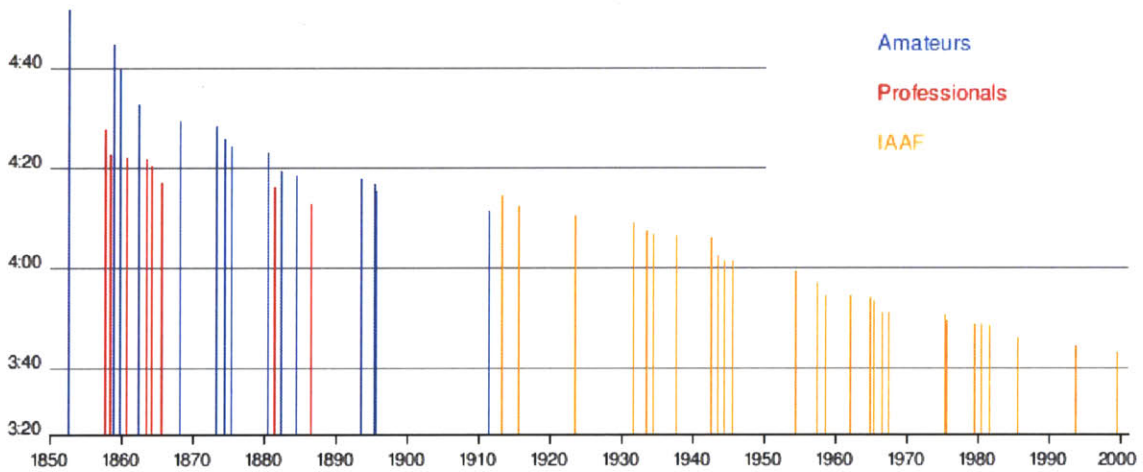


Figure 30 Courtesy Wikimedia Commons

## **Week 6: Eminent Domain and Community Activism**

### **Objectives**

Introduce students to some of the historical urban planning challenges in their neighborhood, and stimulate conversation about the role of government, non-profit organizations, and eminent domain.

### **Day 6.1: Eminent Domain and the Dudley Street Neighborhood Initiative**

#### **Theme/Take-away Message**

While Dorchester and Roxbury experienced a period of rapid change from 1930-1970, and turbulence and violence in the 1960s and 1970s, there is a triumphant narrative of community activism.

#### **Objectives**

Students should understand the history of the Dorchester Triangle and understand the importance of eminent domain as a tool to be used for bad things - like the clearing of the West End - and for good things, like the work done by the Dudley Street Neighborhood Initiative.

#### **Background for Teacher**

The Dudley Street neighborhood is one of the lowest-income neighborhoods in Boston. Thanks to the policies of urban renewal and redlining in the 1960s, the neighborhood saw riots and then saw an arson epidemic (urban renewal led to mass condemnations of whole neighborhoods and large-scale resettlement, while redlining was a policy that made it difficult to get mortgages or loans for inner-city property (the policy was developed by color-coding maps according to an assessment of neighborhood viability; any multicultural and/or inner-city neighborhoods were marked in red). The postwar policies meant that burning a house for insurance money was more lucrative than retaining it as a rental property or selling it - since no one could get a loan to buy it.

In the Dudley Street area, years of arson led to large-scale vacancy . The neighborhood, which had been low-income when the arson began, became even more economically depressed as those who could leave, did.

After decades of economic decline, however, Dudley Street began to turn itself around. The Dudley Street Neighborhood Initiative (DSNI) gained the power of eminent domain, the first group of its kind to do so anywhere in the US. Since 1984, when the group was founded, they have been building houses in the Dudley Square neighborhood, which has also seen some transportation investments, historic preservation, and city investment (the city is renovating the historic Ferdinand's Building and is planning to put city offices there). There have also been new housing units added

adjacent to the reconstructed historic Dudley Square Station. DSNI's mission has expanded substantially since its early days in real estate development, and today (in addition to community planning and housing development) it runs the Kroc Community Center and provides youth opportunities and economic development opportunities, more broadly construed.

A particularly relevant detail of the DSNI story is that its Executive Director, John Barros, first became involved with DSNI as a high school student. He grew up in Roxbury and North Dorchester and at age 17 joined the board of DSNI as a representative of the Cape Verdean community, then returned to the area after college and began working for DSNI in 1996. He has been executive director since 2000.

### **Vocabulary**

eminent domain: an action of the state to seize a citizen's private property, expropriate property, or seize a citizen's rights in property with due monetary compensation, but without the owner's consent. The property is taken either for government use or by delegation to third parties who will devote it to public or civic use or, in some cases, economic development.

arson: the crime of intentionally setting fire to structures or to wilderness areas

redlining: the practice of marking a red line on a map to delineate the area where banks would not invest; later the term was applied to discrimination against a particular group of people (usually by race or sex) no matter the geography. During the heyday of redlining, the areas most frequently discriminated against were black inner city neighborhoods.

### **Activities**

1. Watch *Gaining Ground*, a movie about the Dudley Street Neighborhood Initiative in the 1970s (57 min)

### **Materials**

none

### **Teacher Prep**

- (if possible) Preview  *Holding Ground*
- Visit website of Dudley Street Neighborhood Initiative
- Photocopy Handout A,  *Holding Ground*
- Ensure that you have access to a television (or projector) and VHS video player to watch the movie

## **homework**

work on long-term project

## **Extensions/Field Trips**

- Students could contact a staff member of DSNI and interview him or her about the organization, then write it up as a newspaper article (perhaps to be published on a blog?)
- Students could read sections of Kenneth Jackson's *Crabgrass Frontier*, which explains in detail the manner in which redlining affected cities and led to the types of urban conditions found in the Dudley area in the 1980s.

## **Resources for Teachers**

Dudley Street Neighborhood Initiative (DSNI) Website: [www.dsni.org](http://www.dsni.org)

*Streets of Hope: The Fall and Rise of an Urban Neighborhood*, Peter Medoff and Holly Sklar

*Urban exodus : why the Jews left Boston and the Catholics stayed*, G. Gamm

*Crabgrass Frontier: The Suburbanization of the United States*, Kenneth Jackson

*Building Suburbia: Green Fields and Urban Growth, 1820-2000*, Delores Hayden

## **Day 6. 2: Eminent Domain and the Dudley Street Neighborhood Initiative**

### **Theme/Take-away Message**

While Dorchester and Roxbury experienced a period of rapid change from 1930-1970, and turbulence and violence in the 1960s and 1970s, there is a triumphant narrative of community activism.

### **Objectives**

Students should understand the history of the Dorchester Triangle and understand the importance of eminent domain as a tool to be used for bad things - like the clearing of the West End - and for good things, like the work done by the Dudley Street Neighborhood Initiative.

### **Background for Teacher:**

See background from classv6.1.

### **Vocabulary**

eminent domain: an action of the state to seize a citizen's private property, expropriate property, or seize a citizen's rights in property with due monetary compensation, but without the owner's consent. The property is taken either for government use or by delegation to third parties who will devote it to public or civic use or, in some cases, economic development.

arson: the crime of intentionally setting fire to structures or to wilderness areas

redlining: the practice of marking a red line on a map to delineate the area where banks would not invest; later the term was applied to discrimination against a particular group of people (usually by race or sex) no matter the geography. During the heyday of redlining, the areas most frequently discriminated against were black inner city neighborhoods.

### **Activities**

1. Finish *Gaining Ground*, a movie about the Dudley Street Neighborhood Initiative in the 1970s (30 min)
2. Allow students the balance of time to work on their long-term projects.

### **Materials**

- Handout A, a list of questions that students should be thinking about during the movie



**Teacher Prep**

- (if possible) Preview  *Holding Ground*
- Visit website of Dudley Street Neighborhood Initiative
- Photocopy Handout A,  *Holding Ground*
- Ensure that you have access to a television (or projector) and VHS video player to watch the movie

## **Day 6.3: Conclusion & Reflections**

### **Theme/Take-away Message**

The different neighborhoods of Roxbury and Dorchester share some common themes, but each street has its own history and story.

### **Objectives**

Majora Carter is the founder of the organization Sustainable South Bronx in New York. She has been featured in a variety of documentaries and is a prominent activist for environmental justice. Her talk is a testament to the ability of urban planning to galvanize both neighborhoods and individuals, and her personal story is inspiring.

### **Vocabulary**

none

### **Activities**

1. Take volunteers to share their stories. They can read the story or just summarize it for the class (~10 min)
2. Pass out the Planning Module Reflection Form and give students a few minutes to fill it out, then ask students to discuss (~15 min)
3. Watch TED Talk “Greening the Ghetto” by Majora Carter, about the importance of understanding your neighborhood and taking action (18 min)

### **Materials**

- Handout A, Planning Module Reflection Form
- Computer with Internet & ability to project
- Speakers

### **Teacher Prep**

- Photocopy Handout A, Planning Module Reflection Form (one per student)

### **Background for Teacher**

none

**Homework**

none/prep for next module (at school's discretion)

**Handouts**

none

**Extensions/Field Trips**

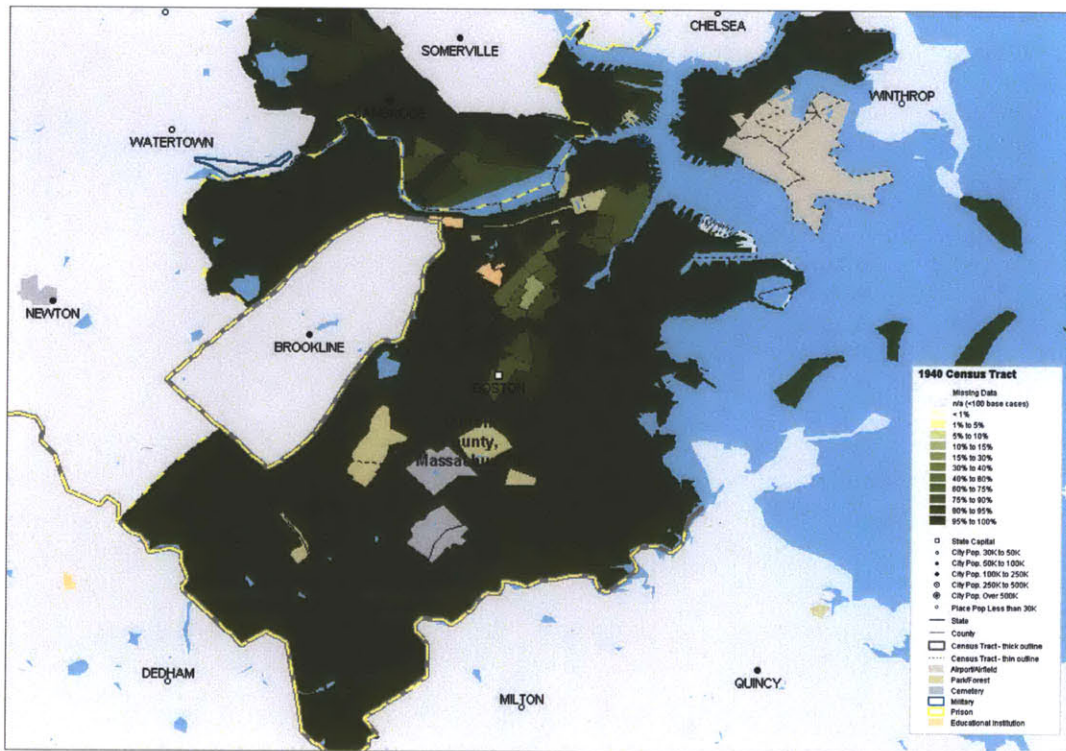
- If students live in the immediate vicinity of the school, students can walk there and can do their presentations in the front yard or point out the things that they included in their story
- Students can meet up with the Shooting Star program to read and discuss their books

**Resources for Teachers**

Google Maps/Google Street View

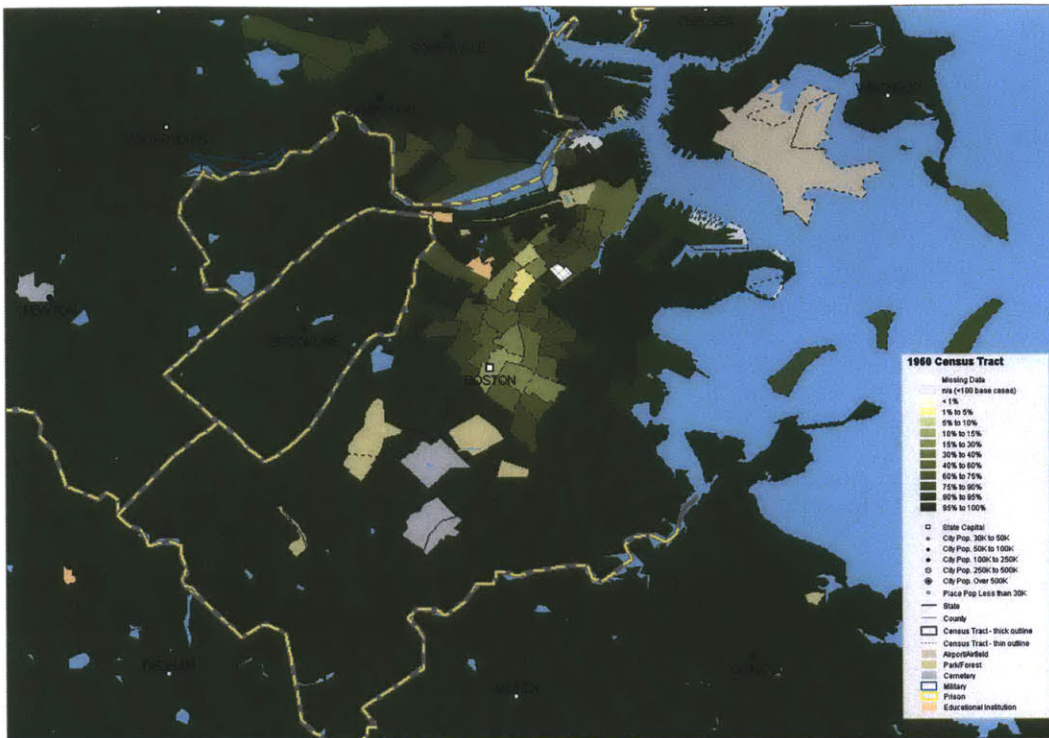
# Appendix B: Demographic Change in Boston

## 1940 Census Tracts: White Population



Figures 31-52 courtesy SocialExplorer.com

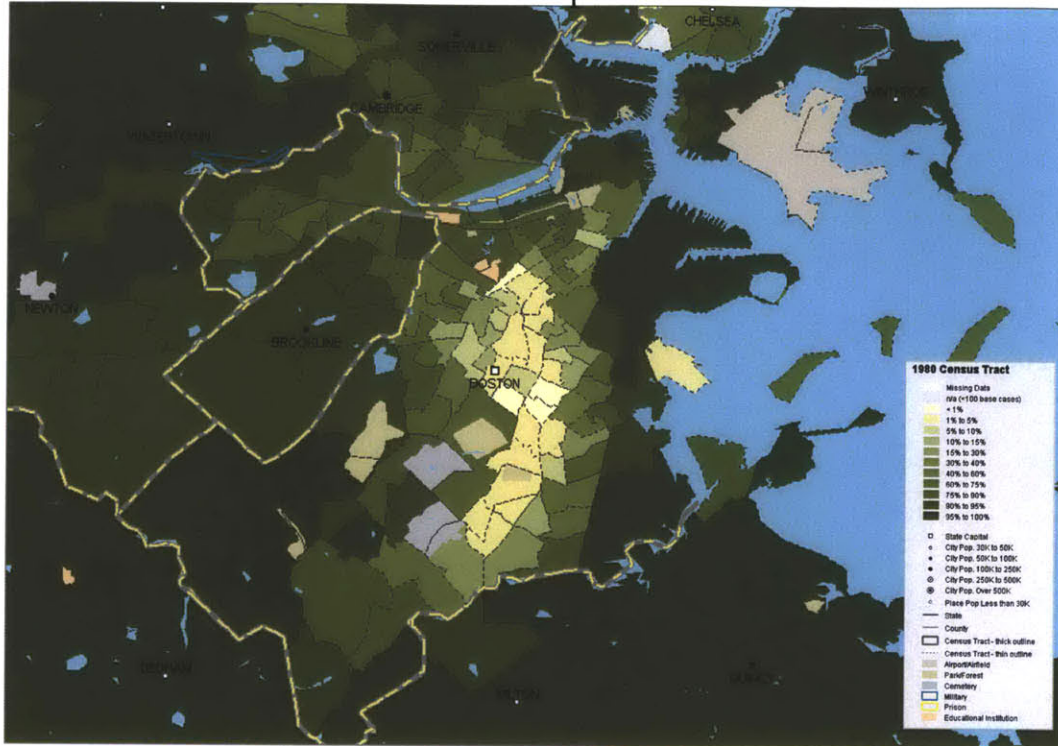
## 1960 Census Tracts: White Population



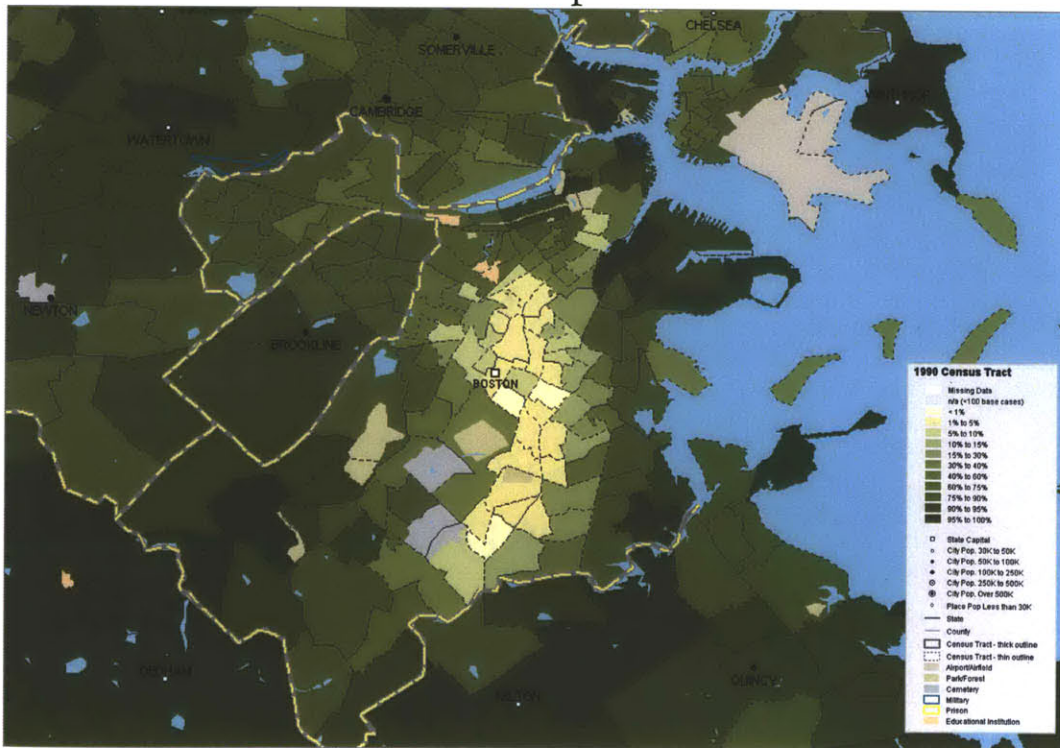
## 1970 Census Tracts: White Population



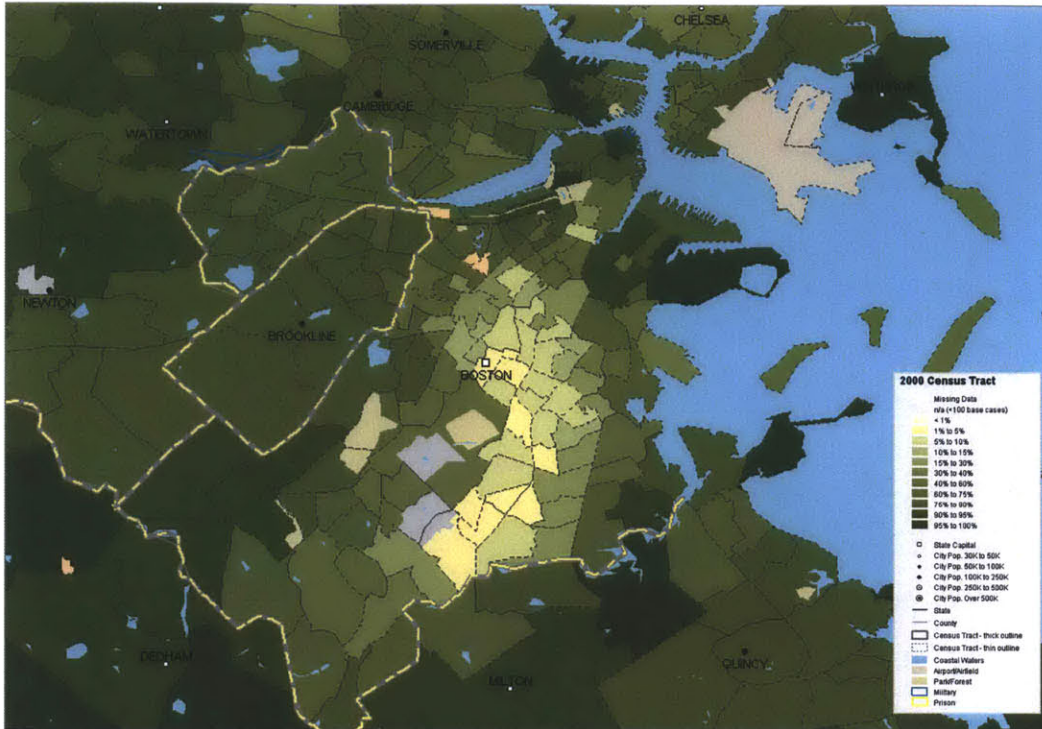
## 1980 Census Tracts: White Population



## 1990 Census Tracts: White Population



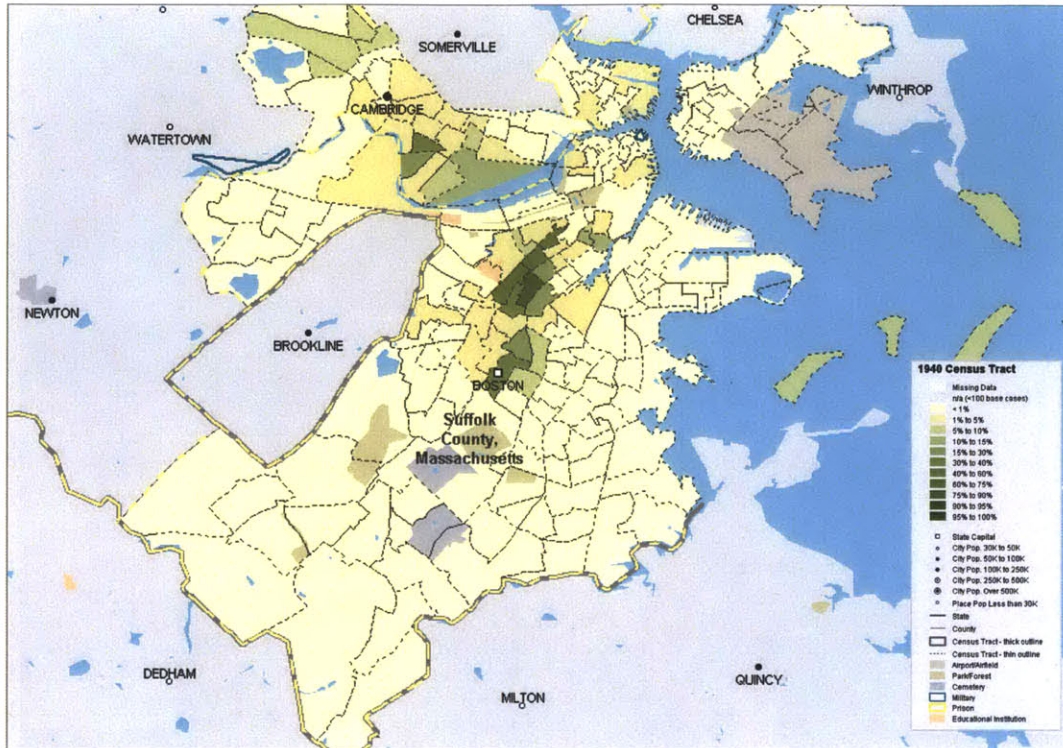
## 2000 Census Tracts: White Population



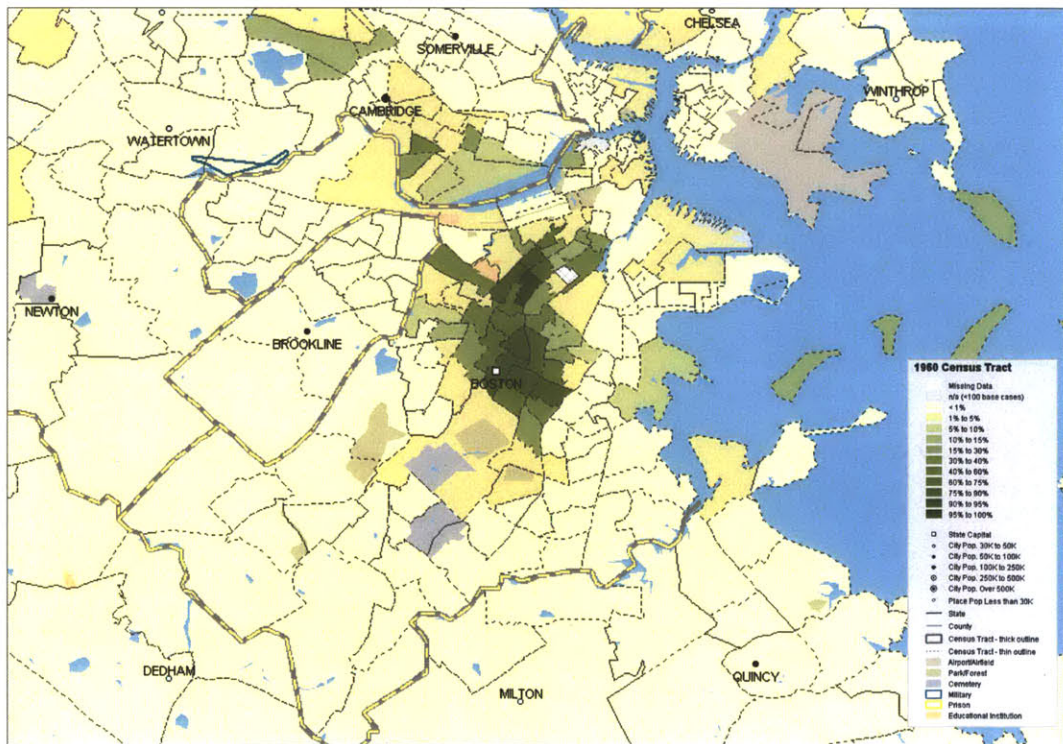
## 2010 Census Tracts: White Population



## 1940 Census Tracts: Black Population

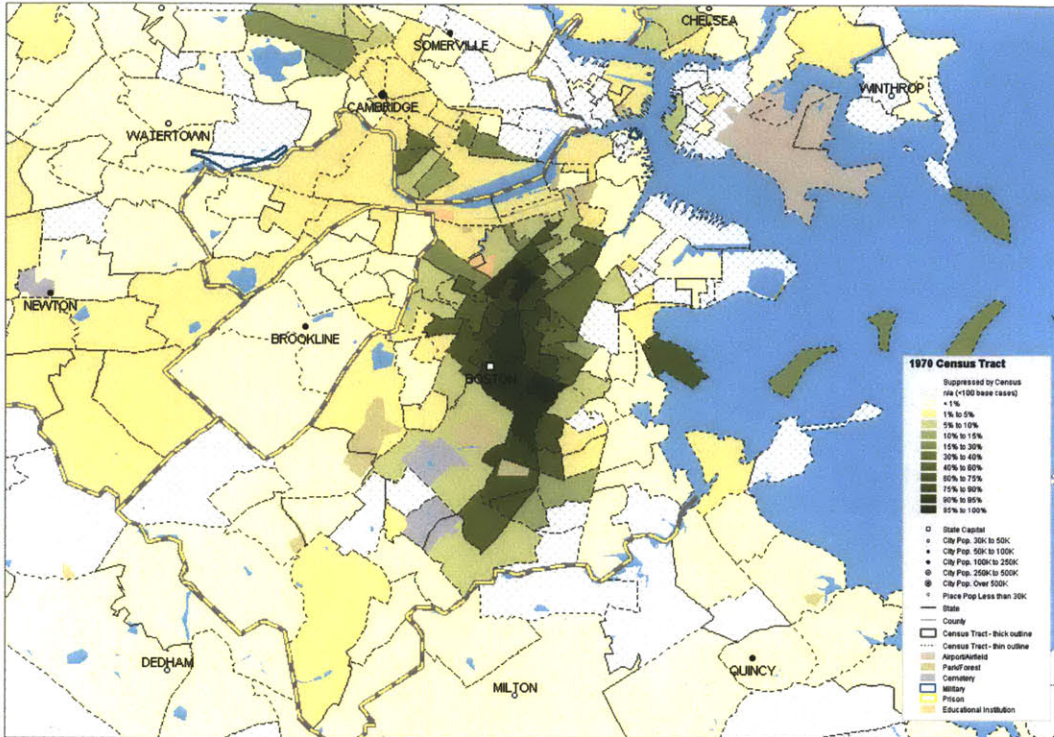


## 1960 Census Tracts: Black Population

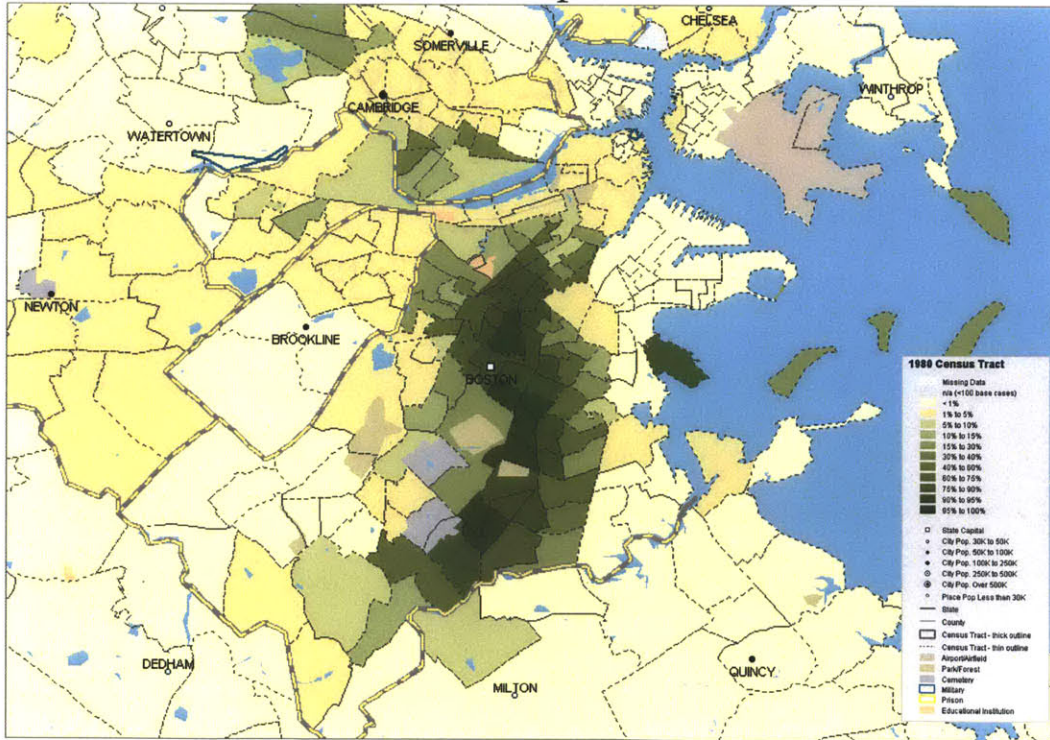




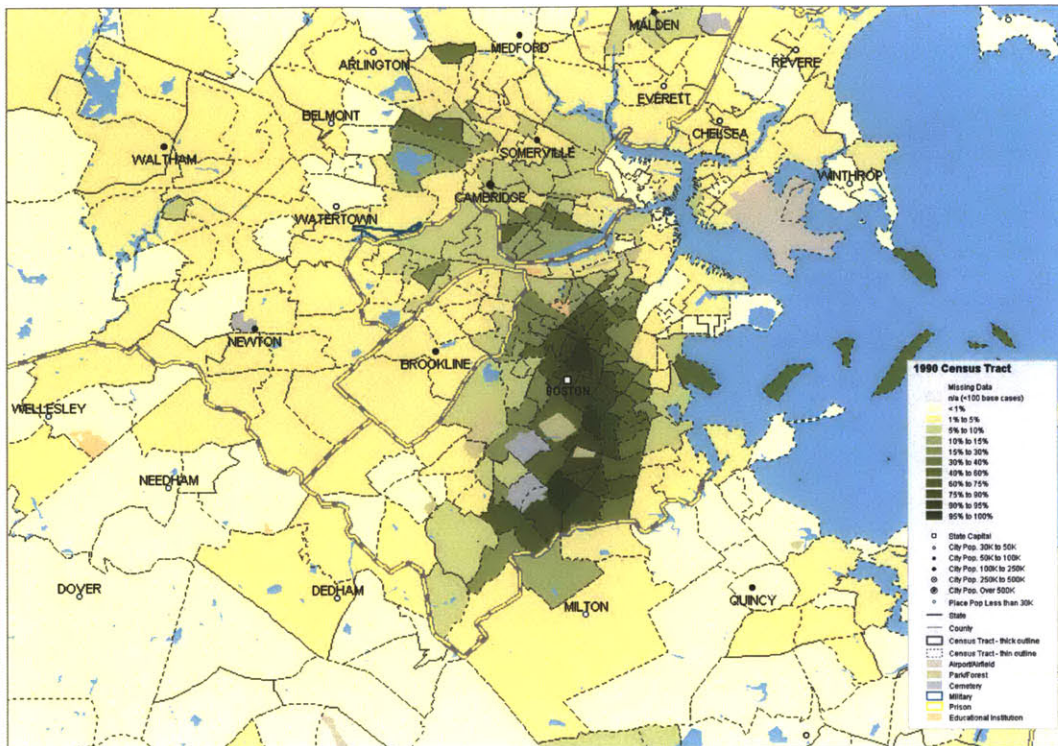
## 1970 Census Tracts: Black Population



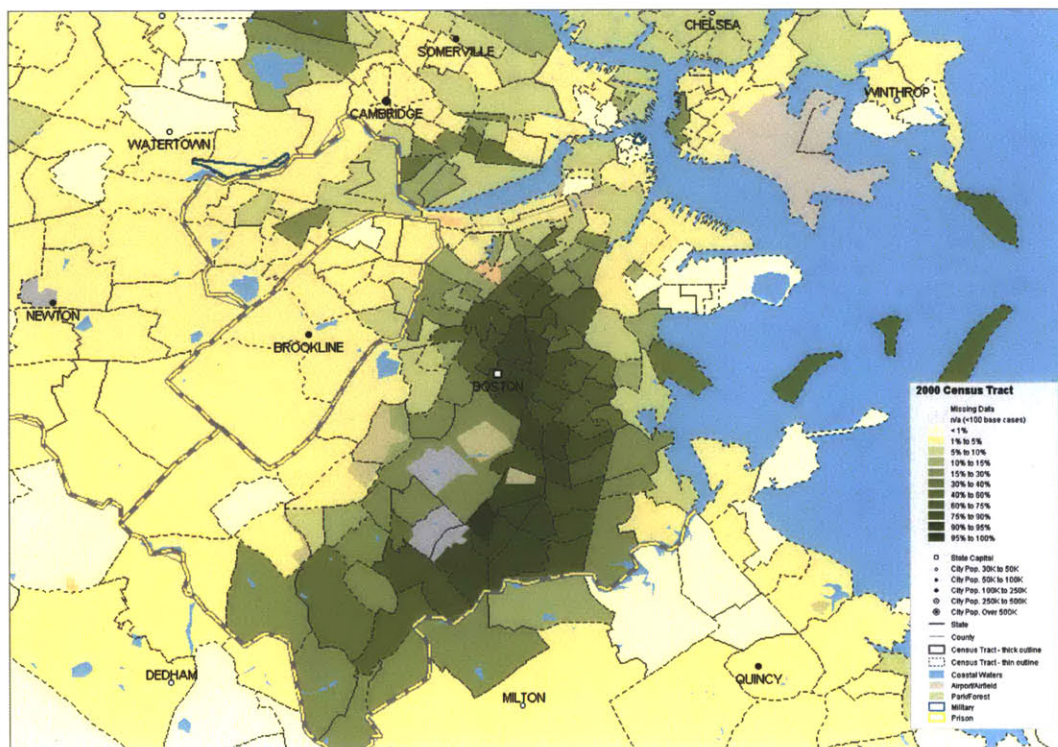
## 1980 Census Tracts: Black Population



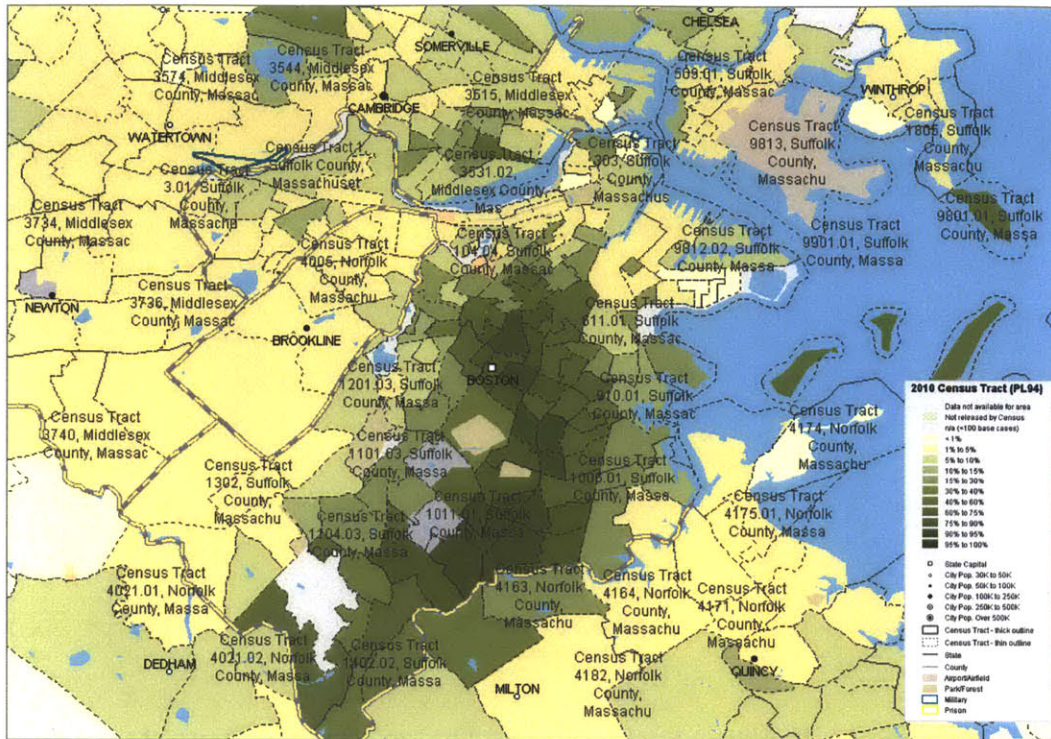
## 1990 Census Tracts: Black Population



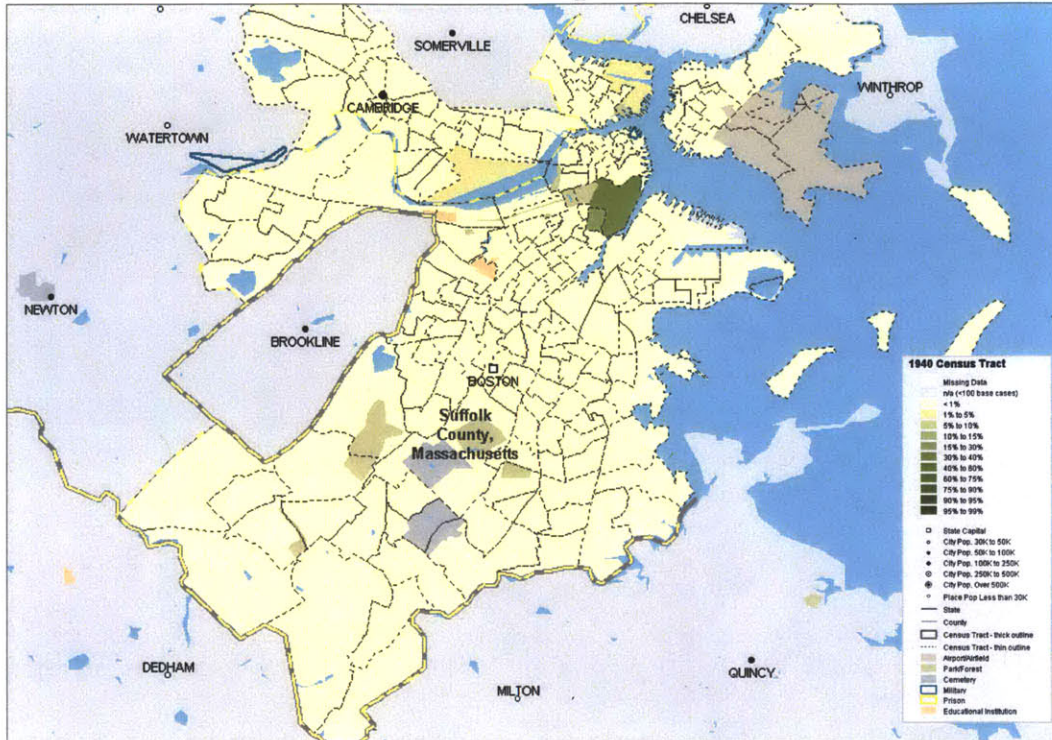
## 2000 Census Tracts: Black Population



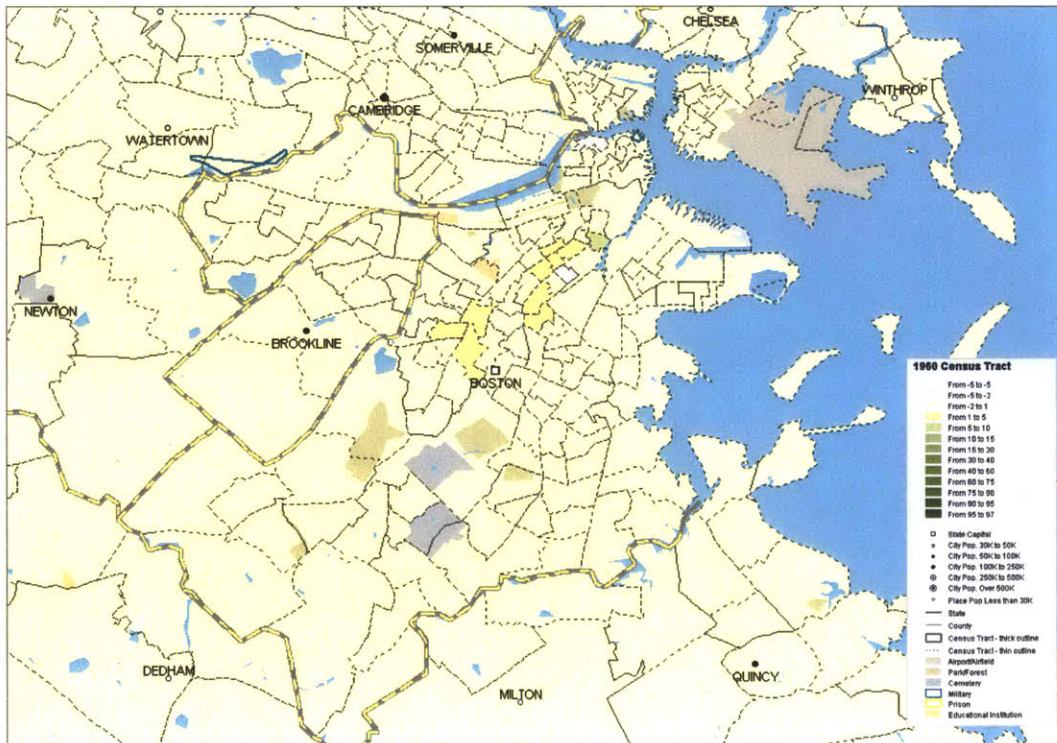
# 2010 Census Tracts: White Population



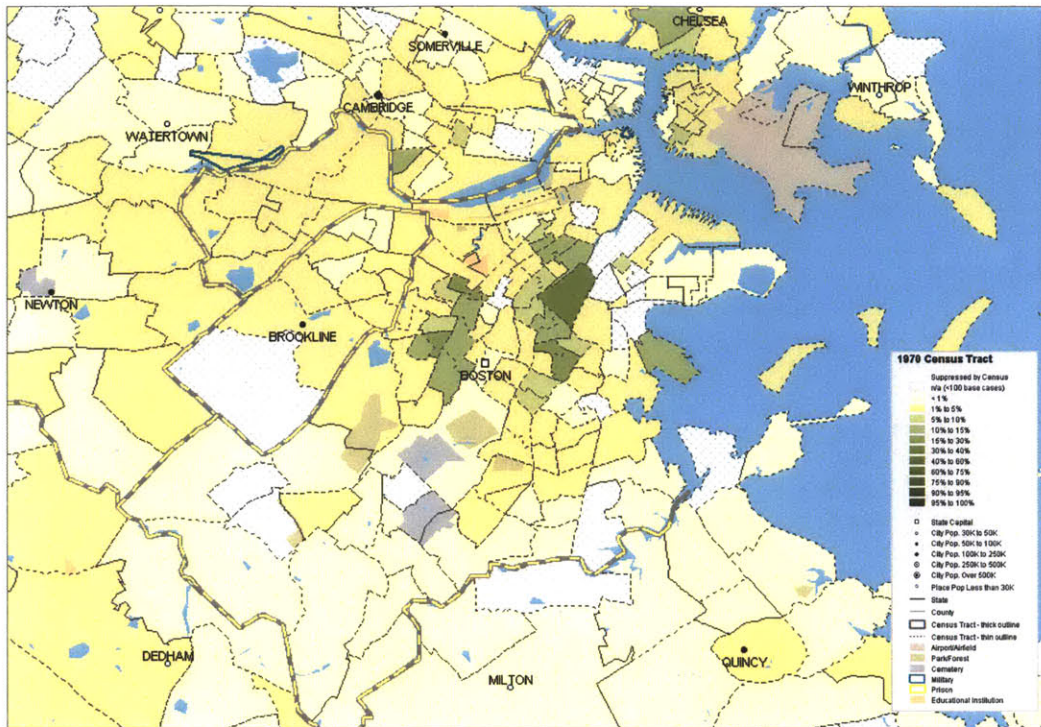
## 1940 Census Tracts: Other Population



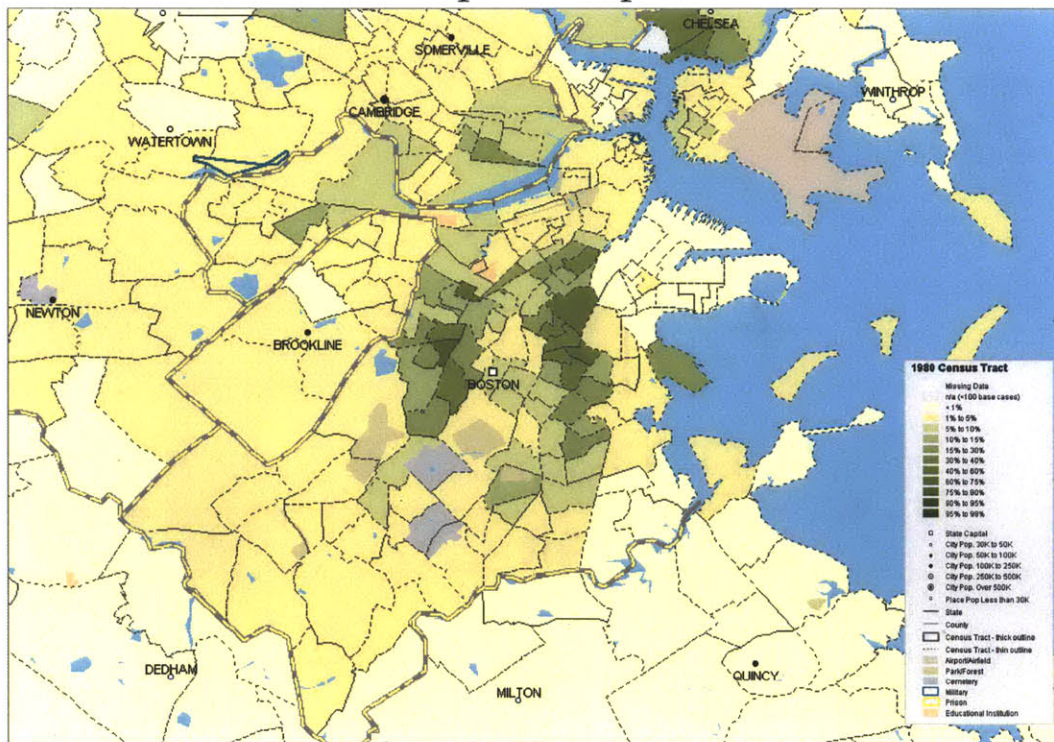
## 1960 Census Tracts: Spanish & Puert Rican Population



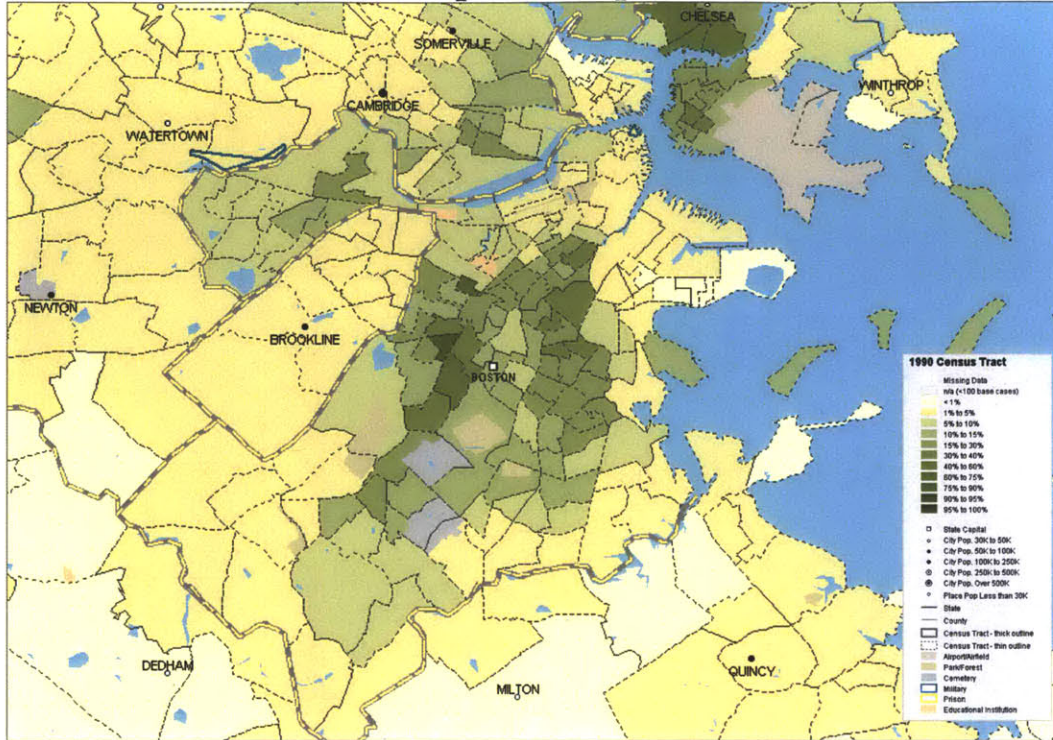
## 1970 Census Tracts: Spanish Origin



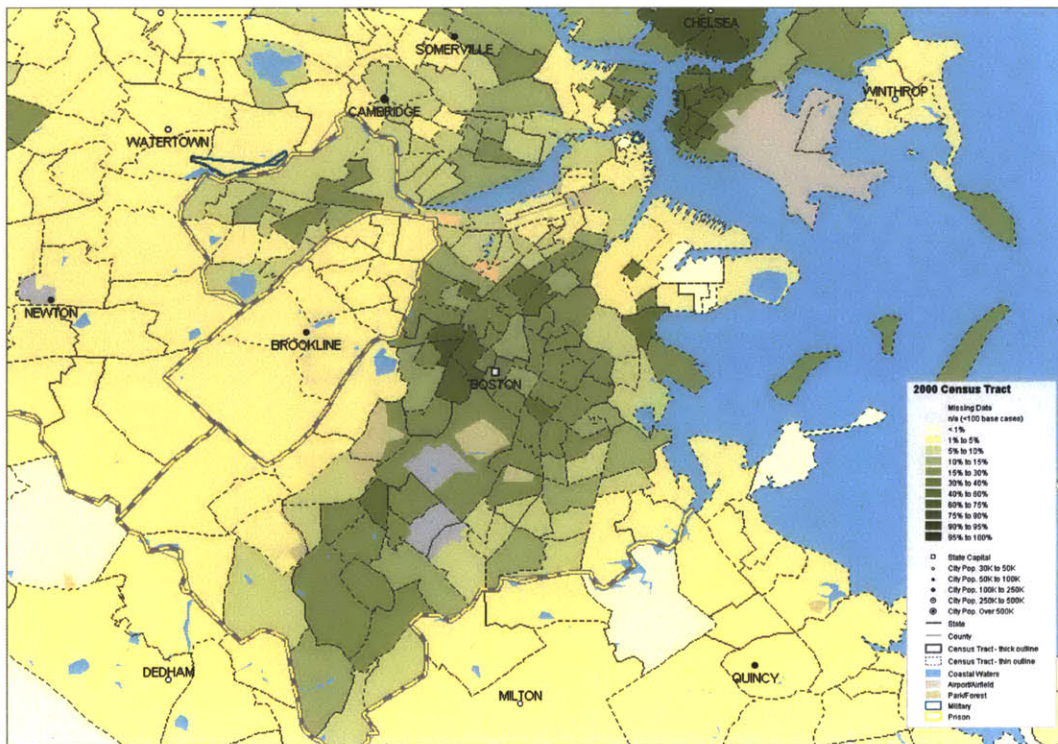
## 1980 Census Tracts: Hispanic Population



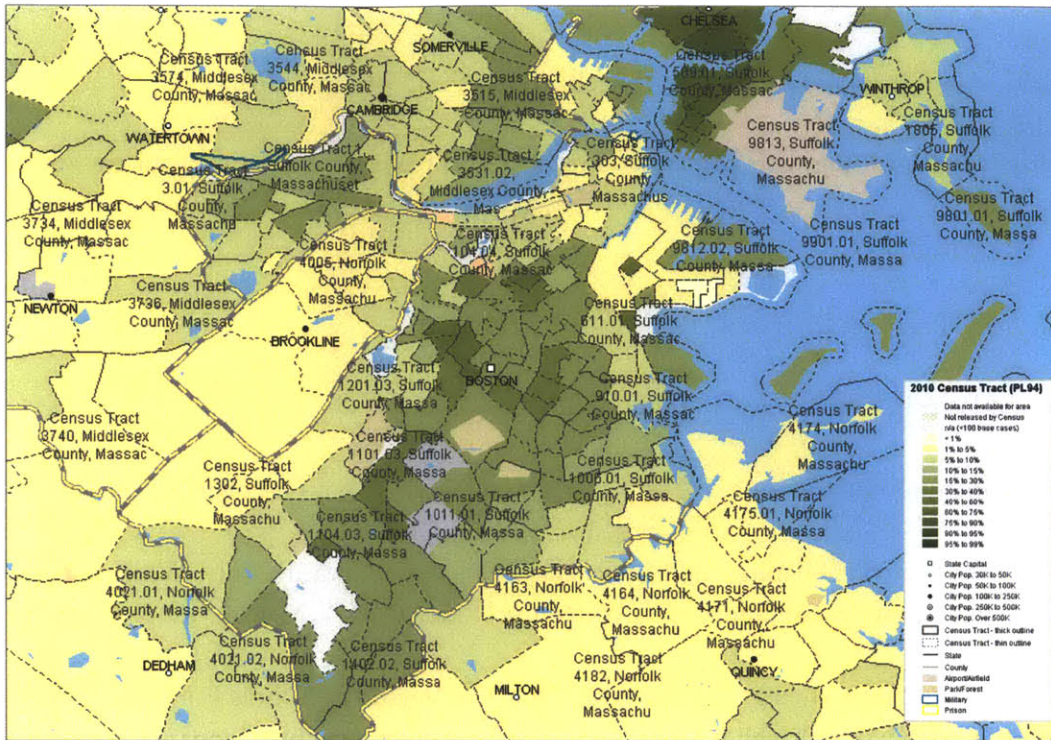
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## 2000 Census Tracts: Hispanic Population



# 2010 Census Tracts: Hispanic Population



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