Research Brief

Public Health and Spatial Inequality in Boston - Children

Review of Select Findings in the
National Health Interview Survey (2009)

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Preface

In November 2009 Dudley Street Neighborhood Initiative (DSNI) asked Dr. James Jennings, Professor of Urban & Environmental Policy and Planning at Tufts University, to document and summarize some of the public health challenges facing communities of color in Boston. Dr. Gia Barboza, Director of Research and Evaluation at DSNI, worked with Dr. Jennings in compiling a profile of health conditions in Boston. They decided to utilize recently released surveys sponsored by the Center for Disease Control and Prevention in Atlanta, Georgia to begin documenting a range of issues associated with the quality of public health in some communities.

This Research Brief will be utilized to solicit input and insights from a range of community-based stakeholders, including residents, nonprofit representatives, educators, and business representatives, to help determine community development strategies appropriate for improving the health of residents and generally living conditions for residents. While the focus of this first research brief is on children, a follow-up report based on the same surveys will describe health conditions pertaining to adults in Boston.

The information in this report is important to DSNI as we seek to launch a new Community-Based Participatory Research initiative. Building on 25 years of successful place-based community change, DSNI is positioned to strengthen our role as neighborhood planners and advocates by establishing a Data Institute that invites government, philanthropy and the academy to join community in addressing the issues of spatial inequality. The mission and work of DSNI have reflected the planning and design of community revitalization strategies that are comprehensive, holistic, and long-lasting. In our 2008-09 strategic planning process, DSNI reaffirmed our early commitments to address the physical, environmental and economic conditions that lead to poor health outcomes. Public health is a fundamental strategy in ensuring that low-income and working-class communities realize opportunities to improve living and economic conditions for everyone. The quality of public health impacts schools, businesses, workforce competitiveness and productivity, and possibly the effectiveness of the entire nonprofit sector.

We hope that this study contributes to the renewed national dialogue emphasizing place as a focus of change efforts. Public policy discussions and analysis need to return attention to the patterns and causes of racial and economic disparities throughout the country. We invite you to join us in using this data to improve our communities.

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Introduction

The purpose of this report is to collect and present data and information reported by the Center for Disease Control and Prevention through its *National Health Interview Survey* and the *National Vital Statistics System*. The authors examined how findings from these national surveys in 2009 are reflected at the level of census tracts and neighborhoods in Boston. The report is primarily a descriptive one, of the geographic distribution of children by health situations. The maps illustrate a snapshot of the *numbers* of children in Boston's census tracts and neighborhoods by various characteristics. The presentation of maps about health characteristics and experiences of children (17 years and under) will be followed by a report on the health experiences of adults.

As noted in *Appendix A: Methodology* the data presented in this report are limited in several ways. The data describes the numbers of children and adults whose households *self-report* a range of health conditions. Further, the information for Boston census tracts involves a derived database based on a national survey. The National Center for Health Statistics which sponsors these surveys, suggest caution in analysis of data below the regional level. Nevertheless, the data can be considered indicative of certain kinds of spatially-based health disparities in Boston.

The next section includes a series of GIS-generated maps based on the findings reported in the surveys above. The section begins with maps showing the concentration of Blacks, Latinos, and Asian-descent people in relation to the number of children reporting asthma incidents. This series of maps is followed with more detailed information about the geographic distribution of health characteristics for children. The maps are organized by census tracts and neighborhoods in Boston. The conclusion raises a few preliminary questions emerging from observations about the maps.

Spatial Distribution of Select Child Health Characteristics in Boston, Massachusetts

This section presents a series of GIS-generated maps illustrating the spatial dimensions of a range of health characteristics. The data-generated maps present data by census tracts and neighborhoods. In the first section below, Map I shows the number of Asthma incidents in Boston as reported in 2009.

In order to show how this information might be related to race and ethnicity, Maps II, III, and IV illustrate the concentrations of the Black, Latino, and Asian populations in Boston by census tracts and based on 2006 estimates. The dots do not represent the location of individuals but rather a pattern of spatial relations indicating density.

Map I: *Distribution of Children (0 -17 years) by Census Tracts and Neighborhoods, Estimates for 2009*

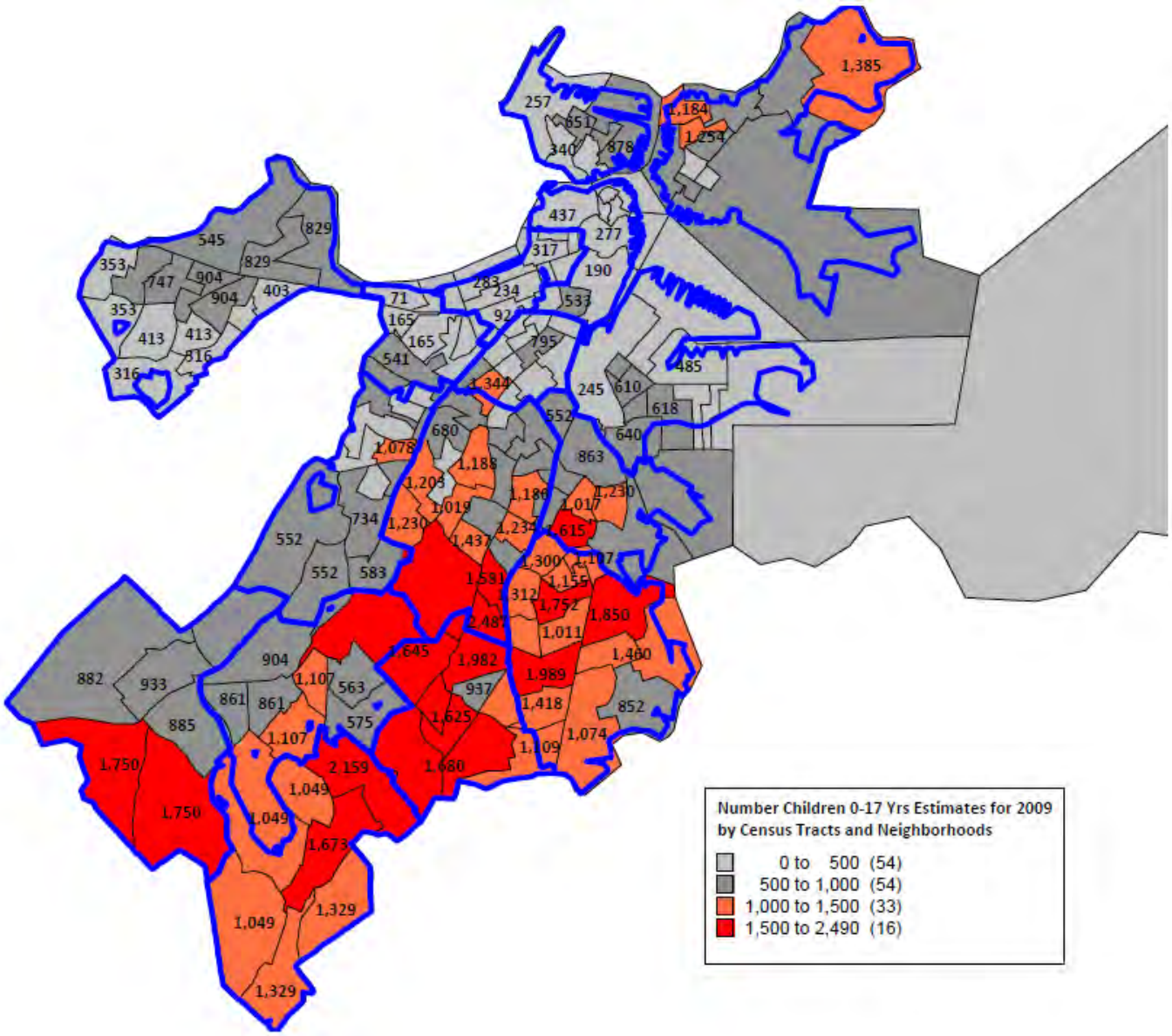
Map II: *Asthma Incidents (2009)*

Map III: *Black Population Concentration and Asthma Incidents*

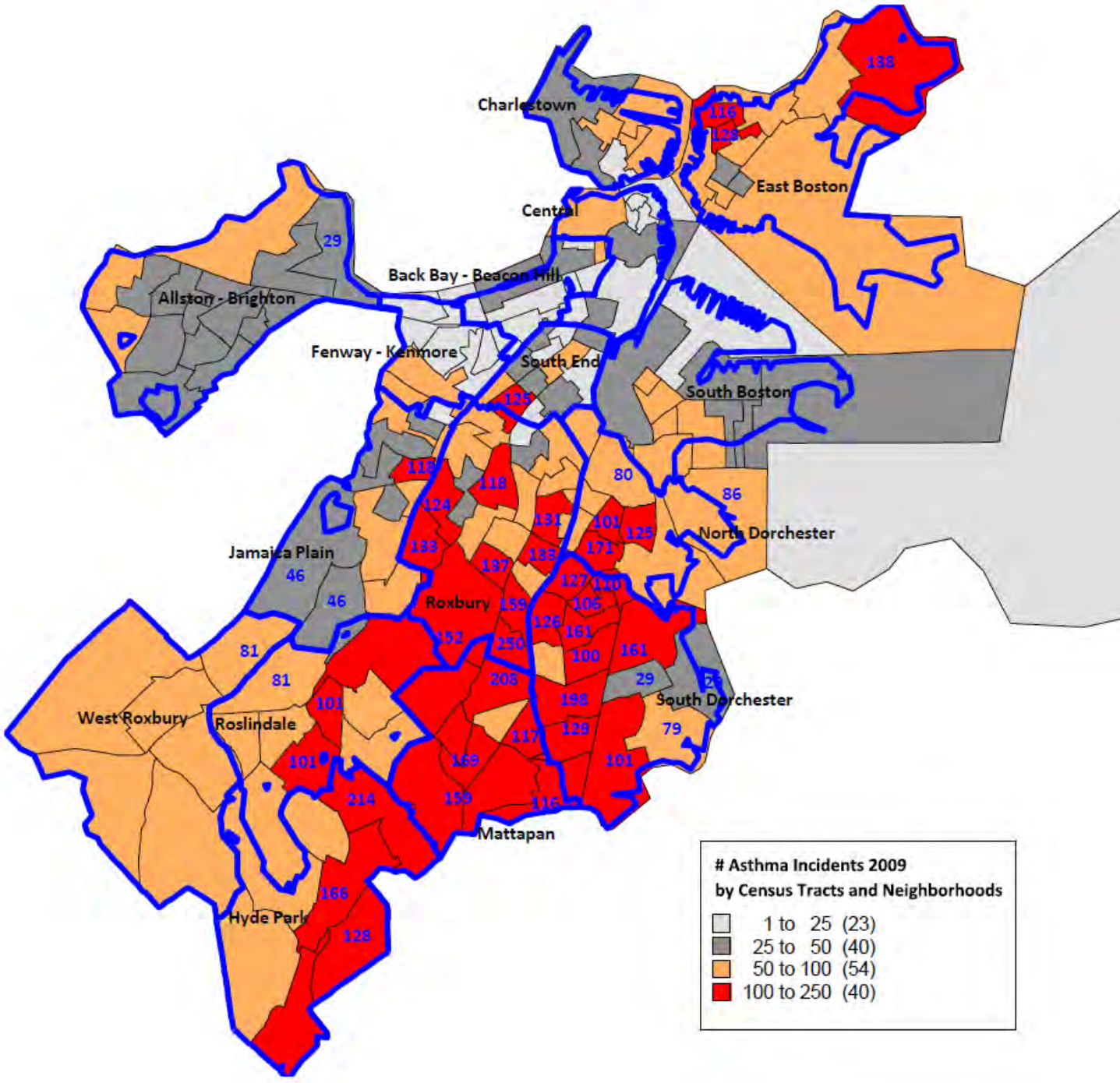
Map IV: *Latino Population Concentration and Asthma Incidents*

Map V: *Asian Population Concentration and Asthma Incidents*

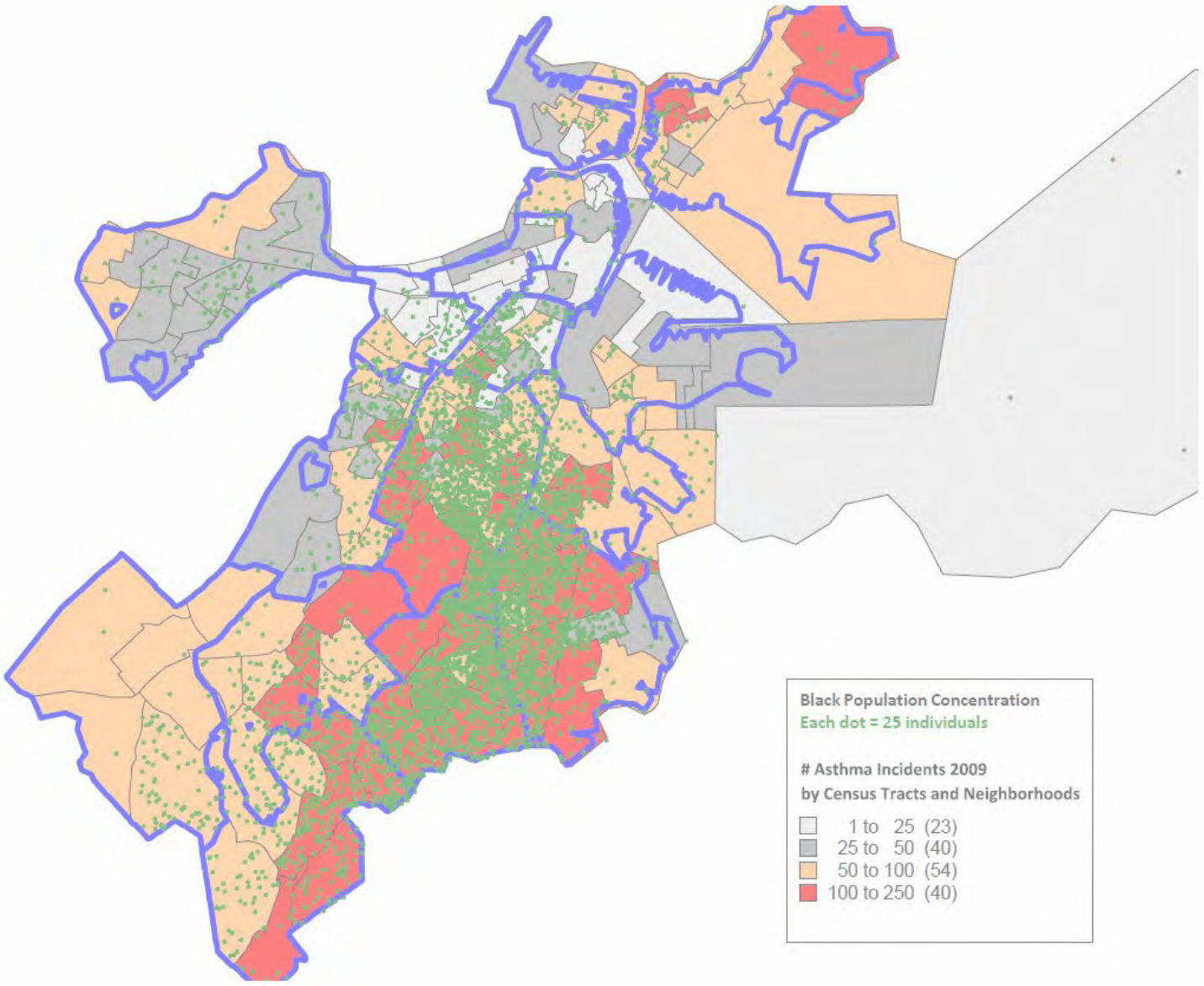
Map I: Distribution of Children (0 -17 years) by Census Tracts and Neighborhoods, Estimates for 2009



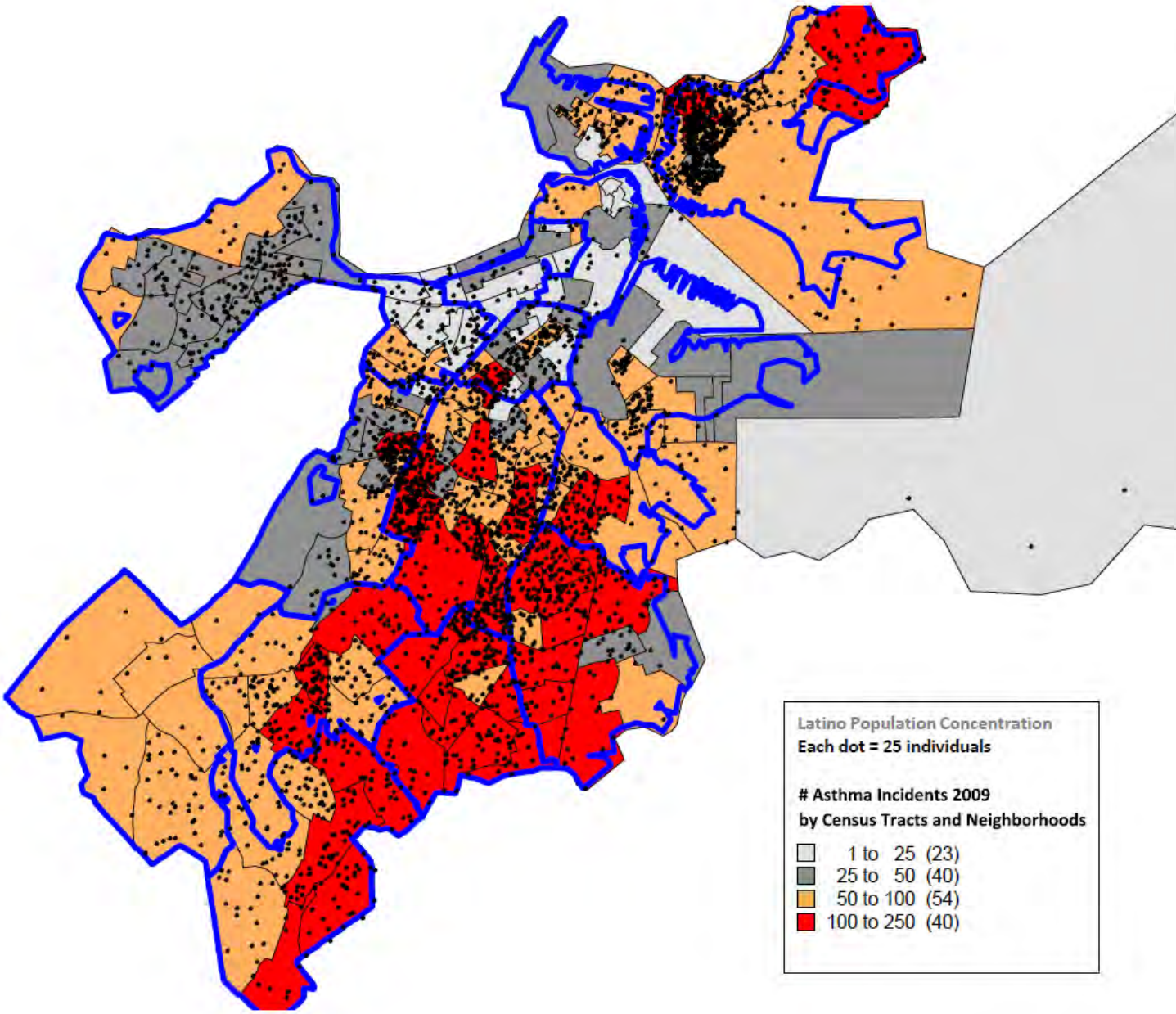
Map II: Asthma Incidents (2009)



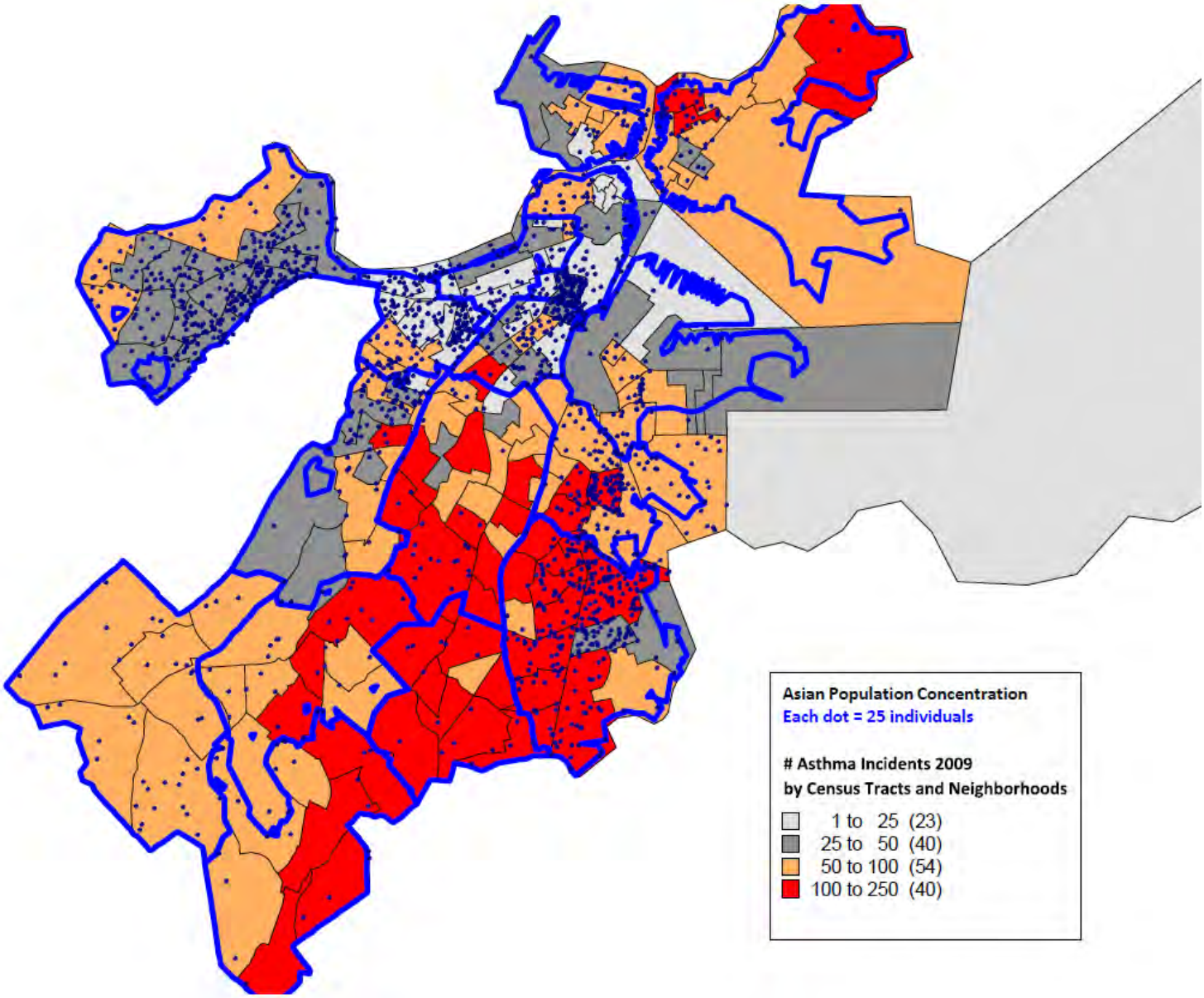
Map III: Black Population Concentration and Asthma Incidents



Map IV: Latino Population Concentration and Asthma Incidents



Map V: Asian Population Concentration and Asthma Incidents



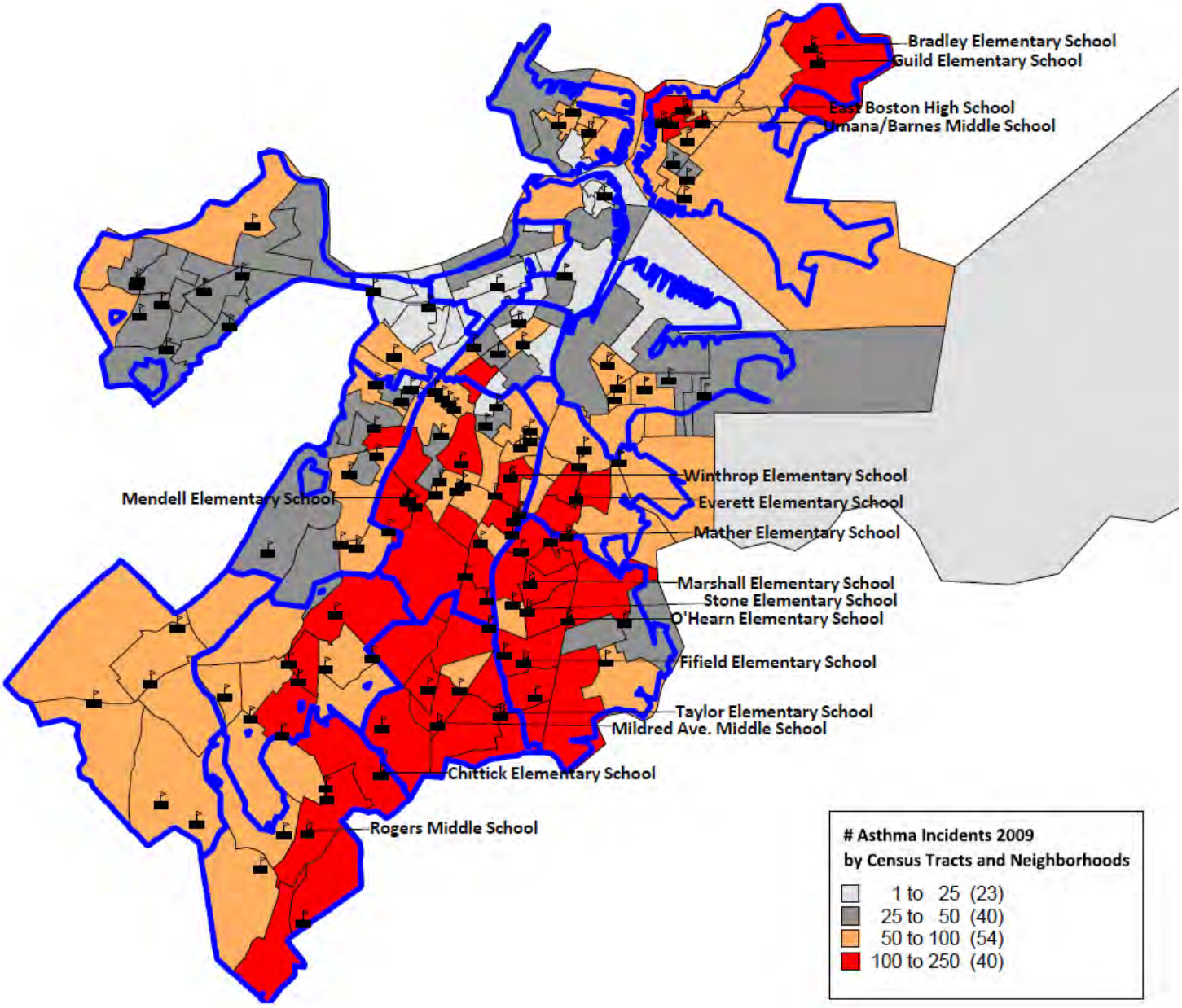
The next section Maps VI to VIII show the location of public schools, public housing (both Boston Housing Authority and Demonstration Disposition sites), and community health centers in relation to the spatial distribution of asthma incidents. Select individual organizations are identified only for purposes of clarifying locations for the reader. The purpose of this section is only to indicate the types of organizations which are affected by child health characteristics. Many of these organizations are already working to improve living and health conditions for this population through a range of strategies.

Map VI: *Location of Public Schools and Asthma Incidents*

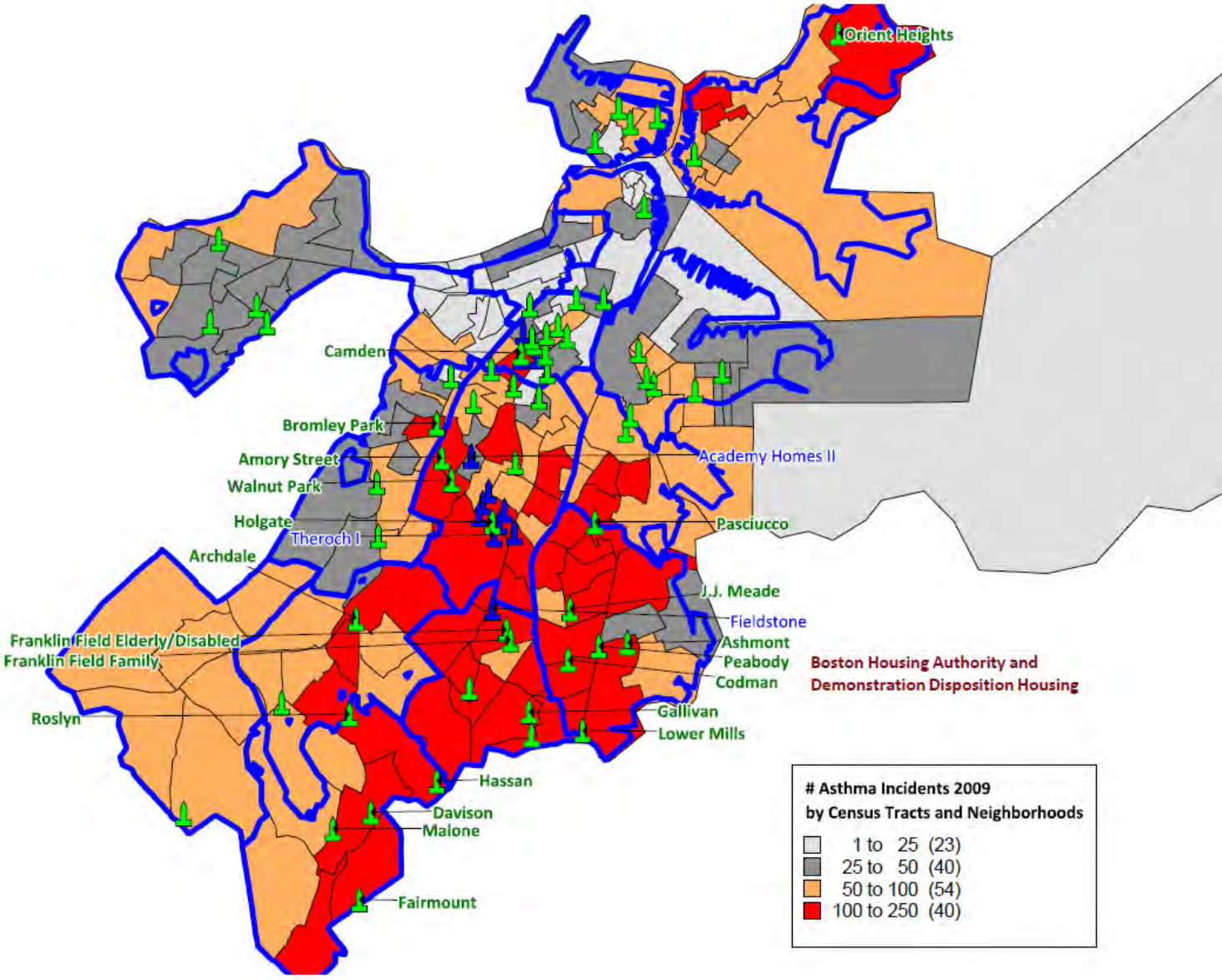
Map VII: *Location of BHA & Demonstration Disposition Housing Sites and Asthma Incidents*

Map VIII: *Location of Community Health Centers and Asthma Incidents*

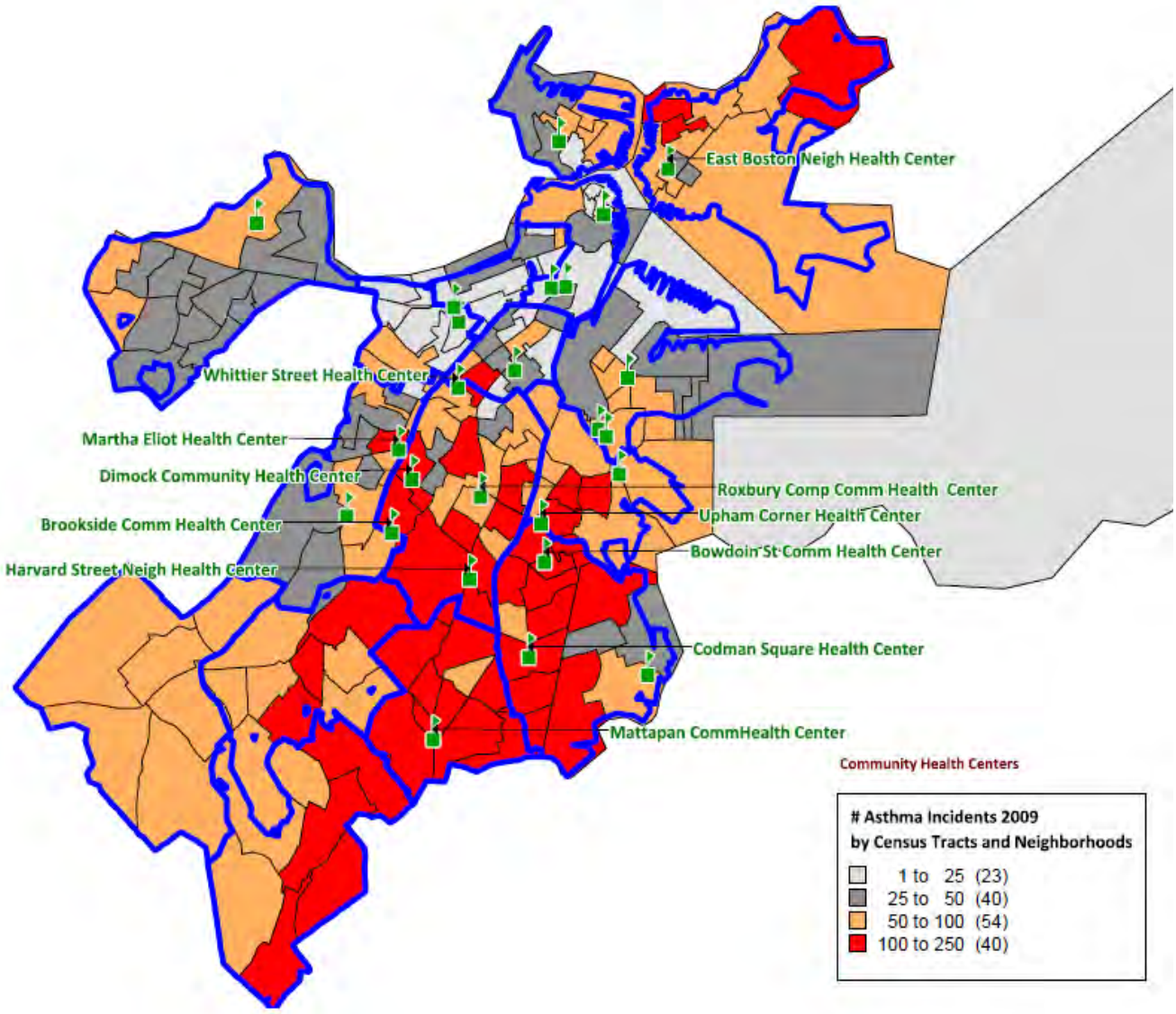
Map VI: Location of Public Schools and Asthma Incidents



Map VII: Location of BHA & DemoDispo Housing and Asthma Incidents



Map VIII: Location of Community Health Centers and Asthma Incidents



The following section Maps IX to XV show the spatial distribution of several variables reported in the two surveys above. These include children with learning disabilities and attention deficit and hyperactivity; the number of children who have not visited a dentist in the last five years, or have not visited a healthcare facility in the last year; the number of children who gave delayed medical or dental care due to cost factors facing the household; and the number of children who needed to visit an emergency room twice in the last year.

There may be overlap in terms of the health experiences and situations described here; in other words, households self-reporting children with learning disabilities may cover the same children with unmet dental needs due to cost. Nevertheless, the maps serve to illustrate that the numbers of children in any of these categories tend to be higher in certain parts of the city.

Map IX: Children 3 to 17 years with Learning Disabilities

Map X: Children 3 to 17 years with Attention Deficit and Hyperactivity

Map XI: Children 2 to 17 years NOT Visited Dentist in Last 5 years

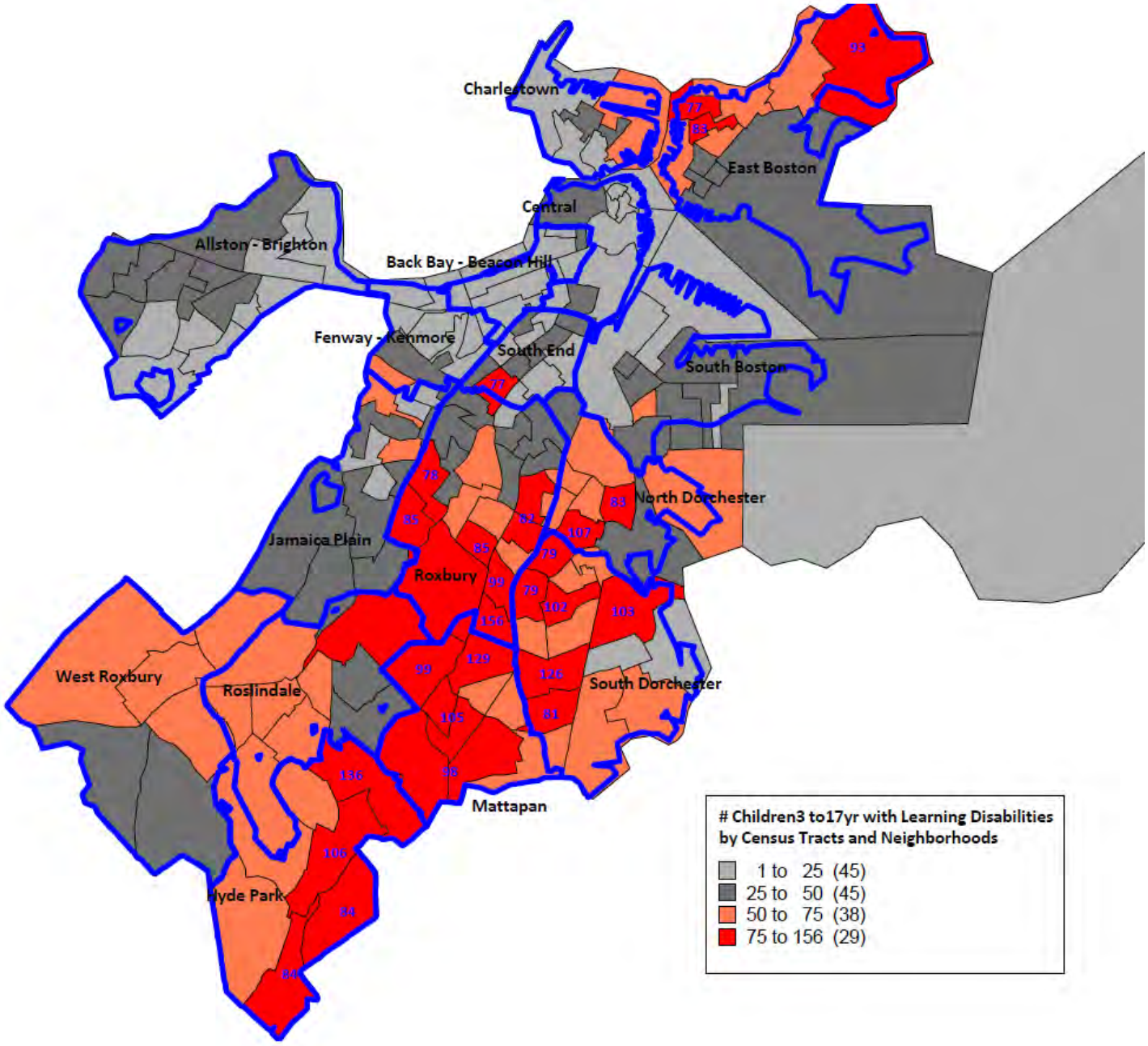
Map XII: Children 2 to 17 years with UNMET Dental Need due to Cost

Map XIII: Children with Last Healthcare Visit More than 1 Year, Less than 2 Years

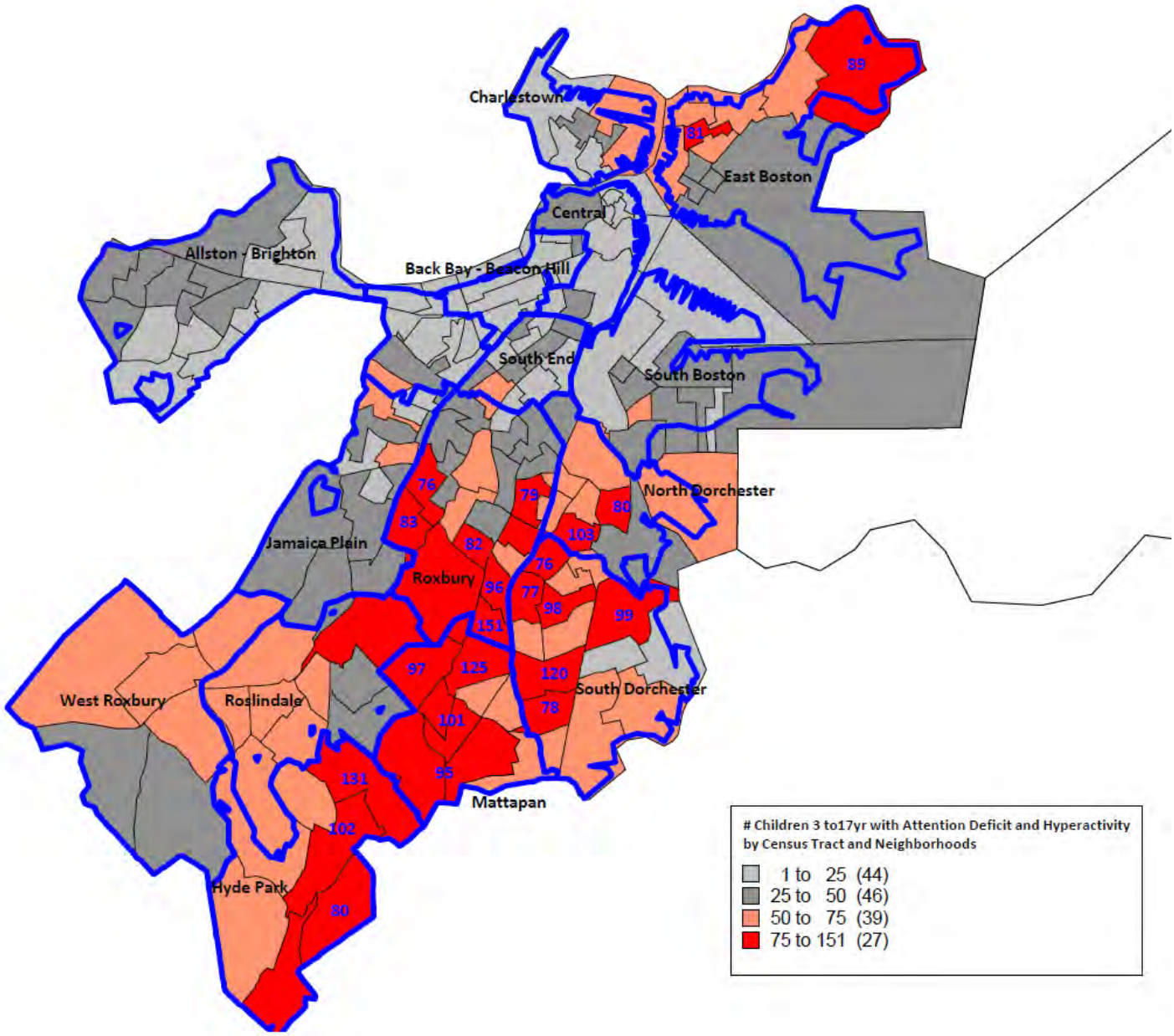
Map XIV: Children with Delayed Medical Care due to Cost

Map XV: Children with 2 or More Emergency Room Visits Last year

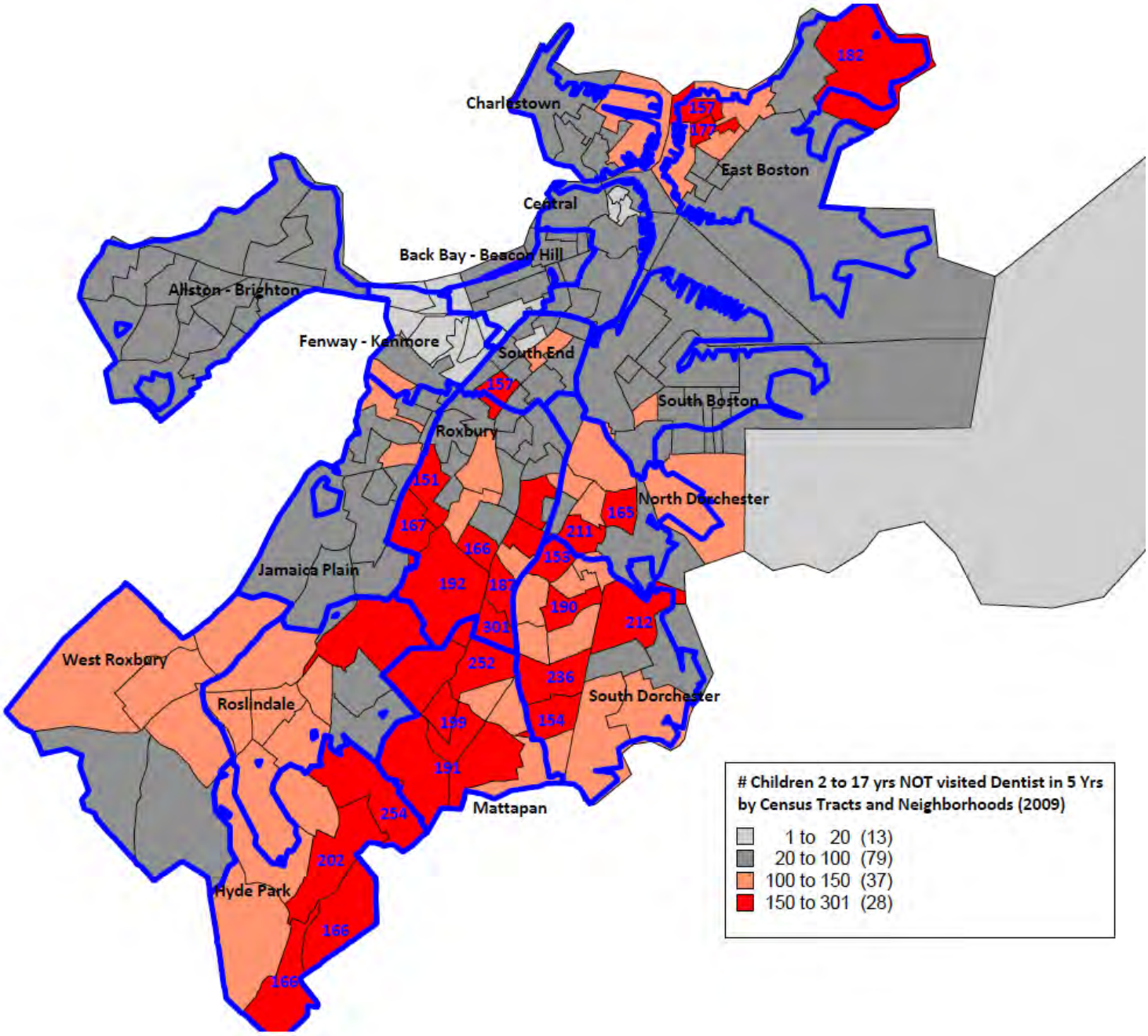
Map IX: Children 3 to 17 years with Learning Disabilities



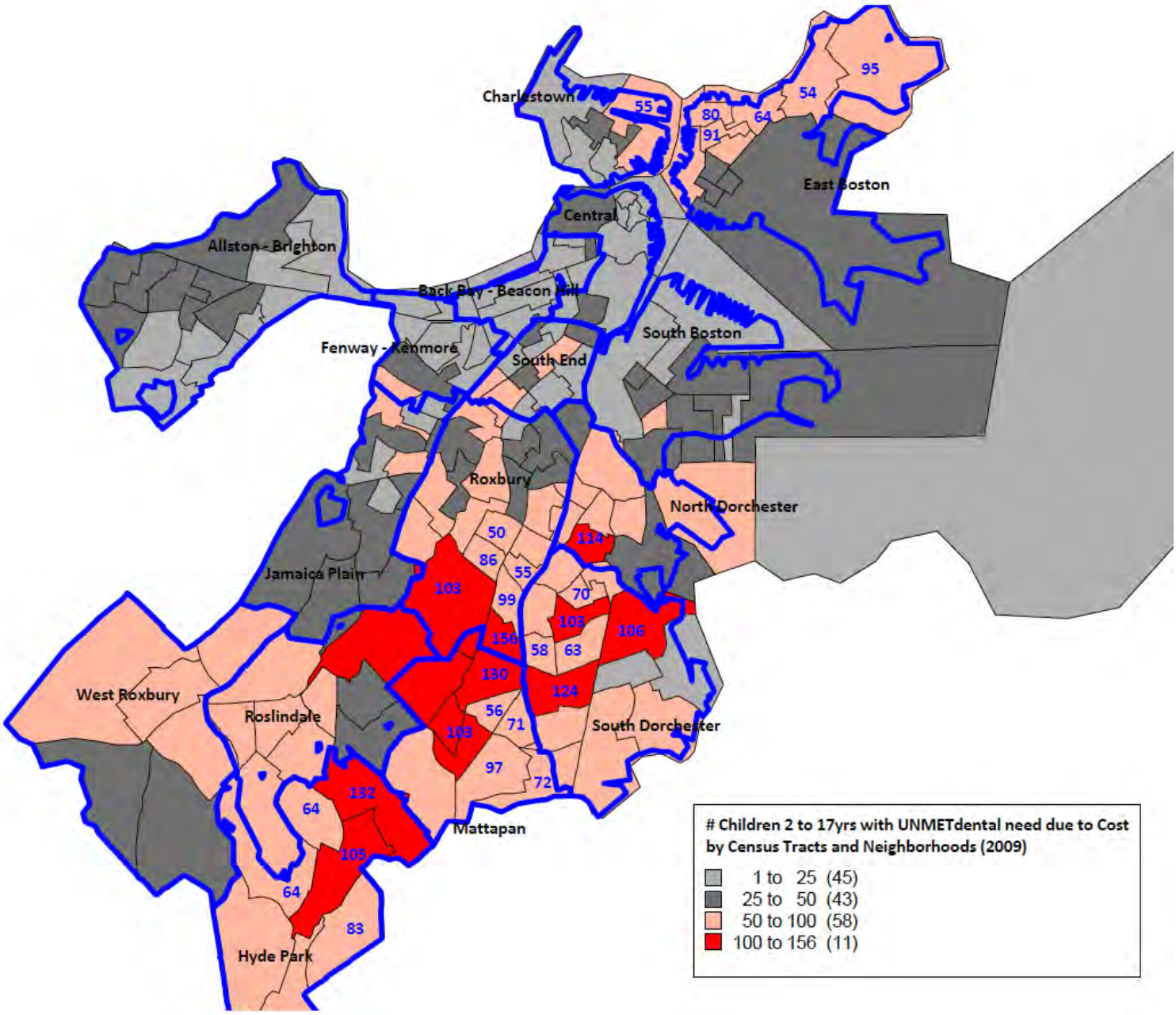
Map X: Children 3 to 17 years with Attention Deficit and Hyperactivity



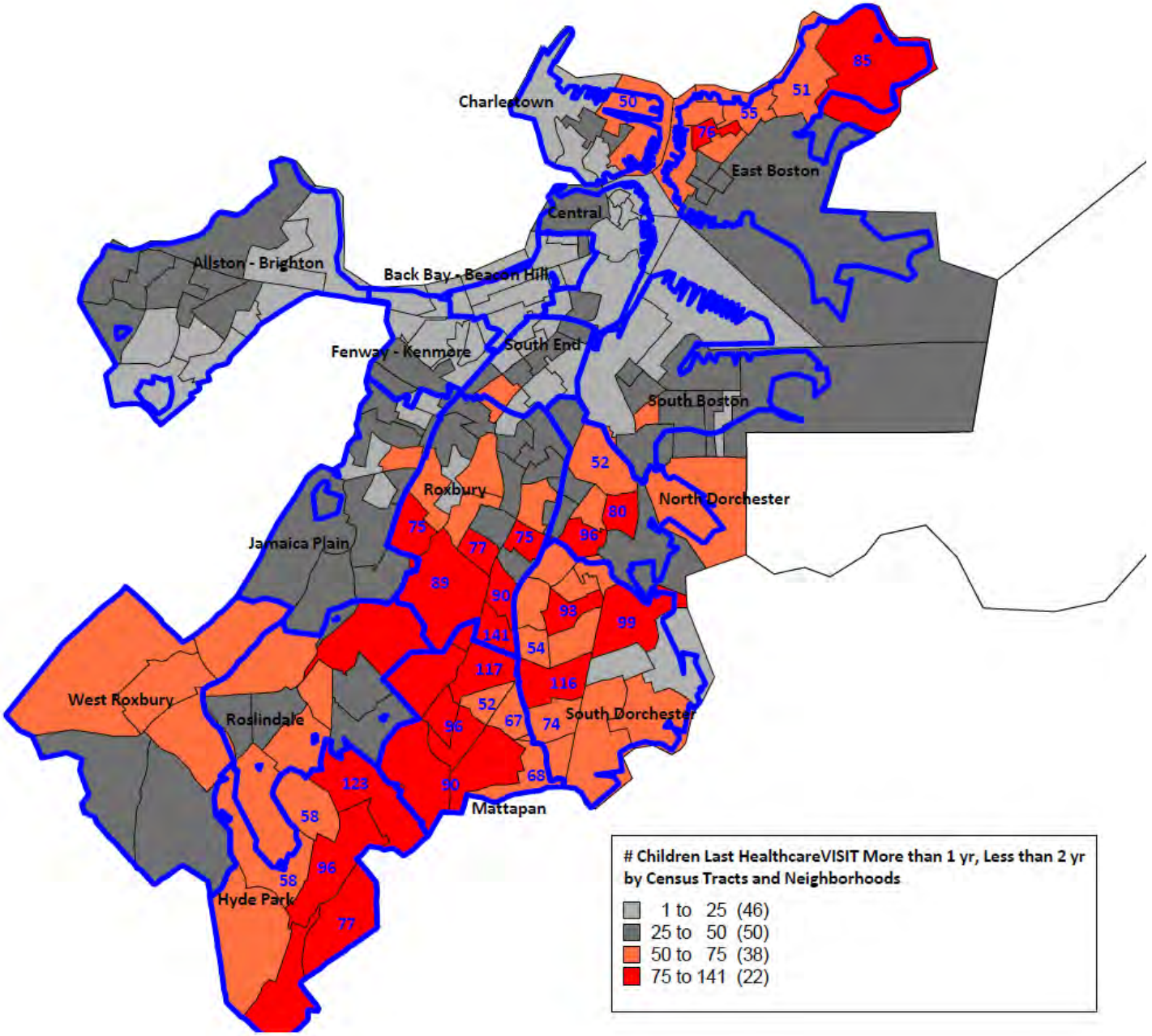
Map XI: Children 2 to 17 years NOT Visited Dentist in Last 5 years



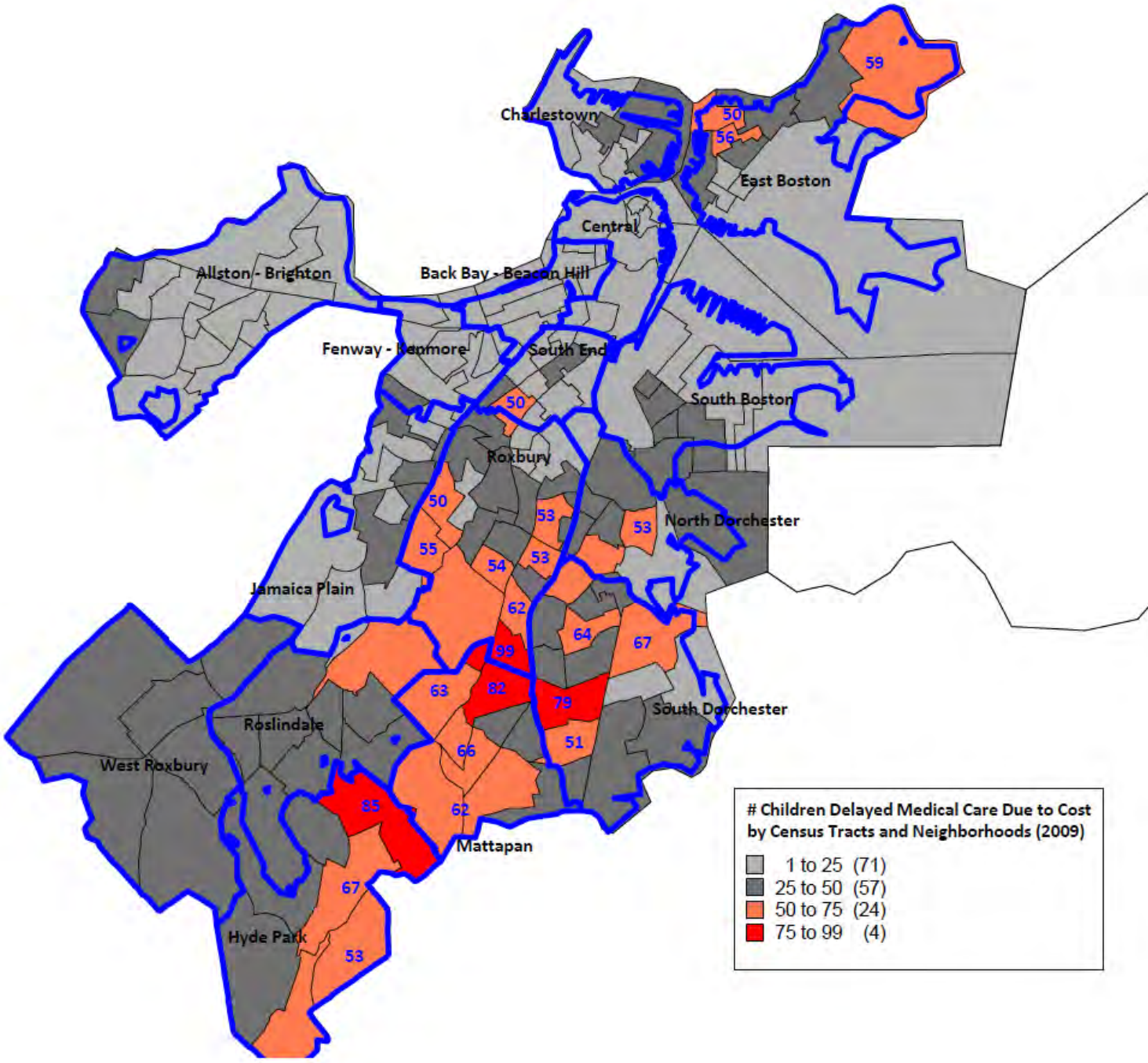
Map XII: Children 2 to 17 years with UNMET Dental Need due to Cost



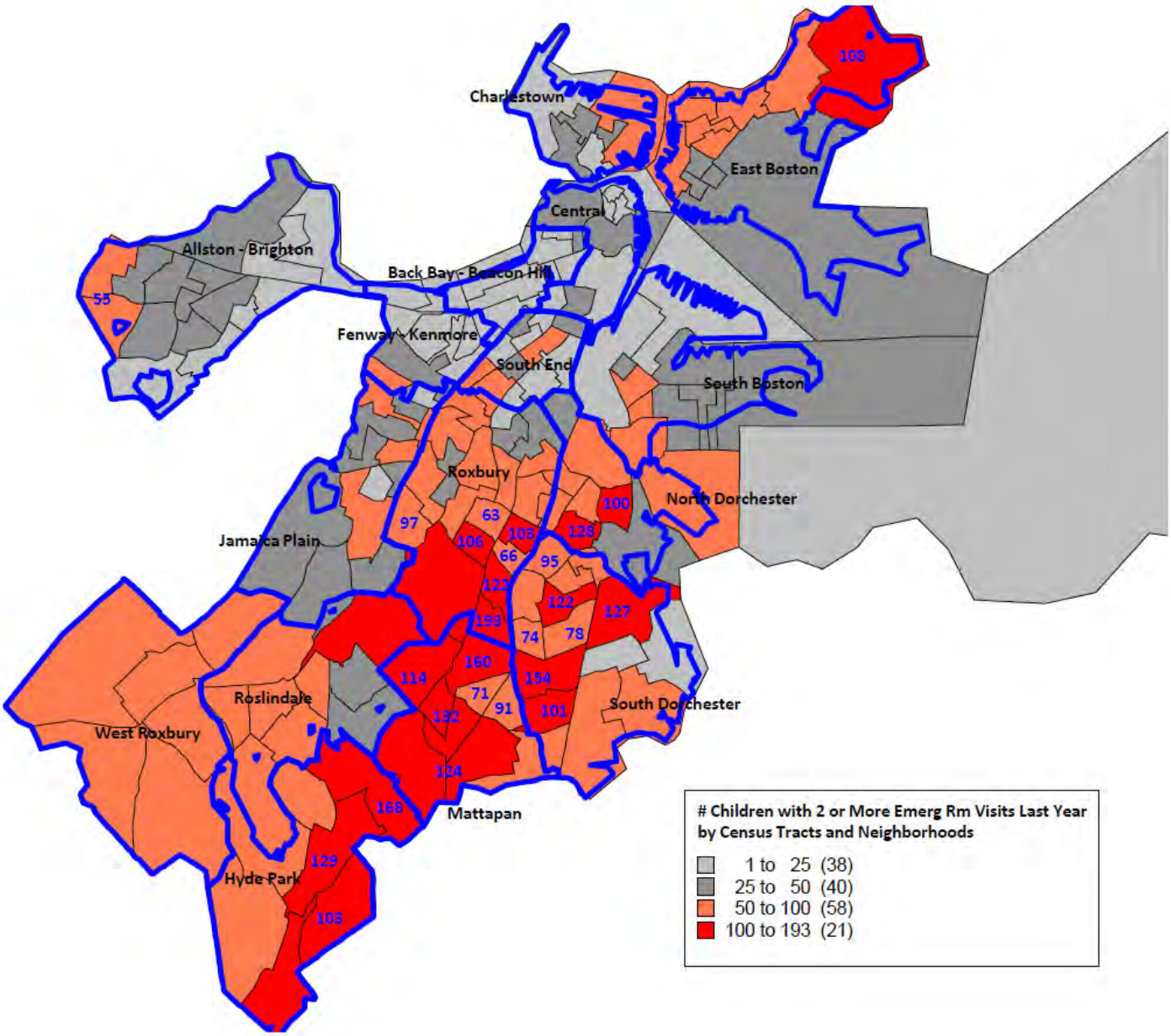
Map XIII: Children with Last Healthcare Visit More than 1 Year, Less than 2 Years



Map XIV: Children with Delayed Medical Care due to Cost



Map XV: Children with 2 or More Emergency Room Visits in 2008



Conclusion

Hopefully this sobering research report will encourage civic, education, health and business stakeholders to raise questions about implications of glaring spatial health disparities in our city. For example, one question that arises is what might be implications for public schools, religious organizations, public housing, and businesses in parts of the city where the quality of health seems more highly impaired than other areas? Another possible question is, how should community development corporations and other nonprofits strategize and collaborate to further confirm and document –and respond to-- some of the health problems identified in this report?

In those areas of the city where the number of asthma incidents are highest, what are the implications for after school programs, as well as youth and community centers? What is the role of foundations and government in working with these sectors to ensure that children –and their families - are receiving basic services so that they can perform on an equal footing with other children? An important policy question: is current health care reform in Massachusetts adequate for ensuring that all children have full access to preventive health services?

The spatial disparities illustrated above seem to be strongly associated with race and ethnicity in Boston. In fact, the areas where the number of children reporting adverse health experiences are highest also represent the same neighborhood areas where the greatest concentrations of Black and Latino/a, and to a certain extent, Asian persons, happen to reside. Does this have implications for policy, or programs? Or how a range of services are delivered? These are only some of the questions which can be raised about what might be a significant and spatial disparity in the health experiences of Boston's children.

Appendix A: Methodology

The information and maps in this report are based on data reported in two national surveys: *National Health Interview Survey* and the *National Vital Statistics System.* The *National Health Interview Survey* (NHIS) is a national household survey comprised of approximately 35,000 households and 90,000 adults. Since 1957 the US Census Bureau has served as the data collection agent. It is designed and administered by the U.S. Department of Health and Human Services (DHHS), the Centers for Disease Control and Prevention (CDC), and the National Center for Health Statistics (NCHS). The self-report annual survey is conducted through in-person and voluntary home interviews and includes information about household composition, demographic characteristics, and basic indicators of health status including activity limitations, injuries, health insurance coverage and access/utilization of health care services. Information about cancer, diabetes, mental health and alternative medicines is also collected. While this survey is a useful database for determining the health status of various demographic groups, there are some potential disadvantages with it. As noted above, self-reporting is prone to error and systematic bias because people do not know, cannot remember, or may be less than accurate. Further, analysis below the regional level is prone to error due to sample size.

The *National Vital Statistics System* (NVSS) is sponsored by the National Center for Health Statistics (NCHS) which collects and publishes data on births and deaths in the United States. Administrative data about is collected from 50 states, New York City, and the District of Columbia. Data is based on reports and certificates filed by funeral directors, physicians, medical examiners, and coroners which are filed with state vital statistics offices. The information includes year of death, place of decedent's residence, place death occurred, age at death, day of week and month of death, Hispanic origin, race, marital status, place of birth, gender, underlying and multiple causes of death for all States, injury at work, hospital and patient status, and educational attainment selected states. Causes of death are tracked using uniform classifications established by the World Health Organization's "International Statistical Classification of Diseases and Related Health Problems."

Additional information about the surveys can be accessed at http://www.cdc.gov/nchs/nhis.htm; also see, *Vital and Health Statistics Series 10, Number 243; Summary Health Statistics for the U.S. Population: National Health Interview Survey, 2008* (Provisional Report), published by U.S. Department of Health and Human Services and Centers for Disease Control and Prevention.

Projections based on the above surveys were modeled by EASY Analytic Software, Inc. based in New York. The projections are based on age, sex, and race probabilities, and census current year and five year forecasts. The data sources utilized by EASY Analytic Software, Inc. for this report includes: *Vital and Health Statistics; Centers for Disease Control and Prevention; Summary Health Statistics for US Adults: National Health Interview Survey– Series 10, #235*; *Summary Health Statistics for US Children; National Health Interview Survey– Series 10, #234*; and the *National Vital Statistics Reports United States Life Tables; Centers for Disease Control and Prevention Vol 56, #9*.