

**COMMONWEALTH OF MASSACHUSETTS  
TRIAL COURT**

**SUFFOLK, ss.**

**SUPERIOR COURT DEPARTMENT  
CIVIL ACTION NO. 01-2034 C**

\_\_\_\_\_  
**MELISSA MENDONSA, et al.,** )  
Plaintiffs )  
 )  
v. )  
 )  
**LOWELL HOUSING AUTHORITY, et al.,** )  
Defendants )  
\_\_\_\_\_ )

**Declaration of Nancy McArdle**

**I. Introduction**

I, Nancy McArdle, declare and state:

1. I am an author and researcher with expertise in analyzing patterns of racial change and segregation, housing, and population trends. In 1987, I received a Masters degree in Public Policy from the John F. Kennedy School of Government at Harvard University. For the past two years I have been the research director for the Metro Boston Equity Initiative at the Civil Rights Project at Harvard University, authoring papers on racial change and segregation; the role of housing affordability on residential segregation; concentrated poverty neighborhoods; and racial opportunity in metro Boston job markets. From 1987 to 2001, I was a research analyst at the Joint Center for Housing Studies at Harvard University, investigating housing and population trends with particular emphasis on demography. Over the course of my career, I have reviewed most of the literature in the areas of my expertise. My *curriculum vitae* is attached as **Exhibit 1**.
2. The plaintiffs’ attorneys have asked me to gather and review data, and form an opinion to answer the following questions concerning the results of the Lowell Housing Authority’s (LHA) program to relocate Julian D. Steele (JDS) families:

What are the racial and ethnic characteristics of the neighborhoods to which JDS families were relocated?

Did the relocation have an adverse disparate impact on JDS families in terms of race and ethnicity?

Did the relocation of JDS families perpetuate segregated housing patterns in terms of race and ethnicity in the City of Lowell?

- 3) The plaintiffs’ attorneys have also asked me to answer the following questions concerning the City of Lowell’s planned “replication” of housing units as described in the Julian Steele Act.

What are the racial and ethnic characteristics of the neighborhoods in which the City of Lowell plans to locate the “replication” housing units for very low income families?

Will the replication units, as planned by the City, perpetuate segregated housing patterns in terms of race and ethnicity in the City of Lowell?

What are the racial and ethnic characteristics of persons likely to live in the replication units?

Will the siting of these replication units have a disparate impact on those potential tenants?

## **II. Summary of Findings and Opinions**

### **A. RELOCATION**

- 4) **General Finding - The relocation of JDS families within the City of Lowell perpetuated and aggravated residential segregation in the City and had a significant and adverse disparate impact on JDS families.**
- 5) JDS families are 82% racial and ethnic minorities. This represents a disproportionately high concentration of minorities compared to other relevant groups, including very low-income renter family households in Lowell.
- 6) Within the City of Lowell, 91% of JDS families relocated to “areas of minority concentration” as defined by the City. Further, 66% of JDS families moved to neighborhoods where minority concentration is higher than the neighborhood where JDS was located.
- 7) A higher share of minority than white JDS families relocated into “areas of minority concentration” and into neighborhoods where minority concentration is higher than the neighborhood where JDS was located.
- 8) In the majority of cases, within the City of Lowell, the relocation of tenants into specific census block groups served to push those block groups further toward segregation and away from integration. Thus, the relocation of JDS families to these neighborhoods of high minority concentration has perpetuated and aggravated residential segregation in the City of Lowell.

- 9) Within the City of Lowell, relocated minority JDS tenants were significantly more likely to reside in block groups and census tracts with high minority concentration than were non-JDS tenants with similar characteristics. Thus, the relocation had a significant disparate impact on these minority tenants.

## **B. REPLICATION**

- 10) **General Finding - The planned siting of the “replication” housing units within the City of Lowell will perpetuate and aggravate residential segregation in the City and will have a disparate impact on minority households, the most likely tenants of these units.**
- 11) The City intends to site 91% of these units in “areas of minority concentration” as defined by the City.
- 12) 83% of the proposed replication units are located in census block groups with minority share higher than the JDS block group.
- 13) Almost half of the replication units are planned to be in the **one** block group with the **highest minority concentration** in the City of Lowell.
- 14) Those replication units designated as “potential future” (those which have not yet been built or rehabilitated) are located in even higher minority concentration neighborhoods than those designated as “complete/in process/out to bid” and in much higher minority neighborhoods than those replication units that have been canceled.
- 15) 94% of the “potential/future” replication units are projected to be sited in the one block group with the highest minority concentration in the City of Lowell.
- 16) Racial and ethnic minorities make up a disproportionate share of likely potential tenants for the City’s planned JDS “replication” units, and therefore the siting of these units in high minority areas will have a disparate impact on those potential tenants.

## **III. Methodology**

### **A. Information consulted**

- 17) In forming my opinion, I analyzed the first address of the relocated tenants<sup>1</sup> and the most recent locations of the planned replication units<sup>2</sup> relative to the minority

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<sup>1</sup> Locations were provided by Lowell Housing Authority to plaintiffs’ attorneys.

<sup>2</sup> Locations provided by Lowell Assistant City Solicitor in Aug. 17, 2004 letter to plaintiffs’ attorneys.

share of the population in each block group in the City of Lowell as reported in the 2000 Census.<sup>3</sup> I present this analysis in both chart and map form.<sup>4</sup>

- 18) To form my opinion, I consulted the following documents provided by plaintiffs' attorneys, which they informed me were largely obtained from the defendants through the litigation, or through freedom of information act requests:
- A Preliminary Census Analysis for Relocated JDS Tenants Who Moved Within Lowell, Cross-tab Table (produced by Amy Copperman based on data received from the LHA)
  - Julian D. Steele Replication Plan: Poverty, Segregation and Income Levels in Lowell, April 2003 (produced by Marsha Dufort, University of Lowell student, based on data received from the LHA)
  - Annual Action Plan for the City of Lowell Consolidated Plan, 2002-2003 (obtained from City through litigation)
  - Draft 2000 Consolidated Plan Comments by Marc Potvin of Neighborhood Legal Services, May 12, 2000
  - City Response to NLS comments (above), July 28, 2000 (obtained from City through litigation)
  - Text of Chapter 193 of the Acts of 2000, as amended by Chapter 97 of the Acts of 2002, which authorized the demolition of JDS and creation of the new development
  - Equal Employment Opportunity Commission 29 C.F.R. 1607.4.
  - Housing Law Bulletin, Vol 31, April 2001, Fair Housing Litigation to Prevent the Loss of Federally Assisted Housing: The Duties of Public Housing Authorities and Project Owners
  - LHA Relocation Plan and comments (obtained from LHA through litigation)
  - ConPlan Amendment Areas of Minority Concentration (obtained from City through litigation)
  - Emails between Richard Therrien and Norma Hernandez concerning minority population, April 26, 2001 (obtained from City through litigation)

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<sup>3</sup> 2000 Census, Summary File 1 accessed through the American Factfinder application at [http://factfinder.census.gov/home/saff/main.html?\\_lang=en](http://factfinder.census.gov/home/saff/main.html?_lang=en).

<sup>4</sup> To do the address matching of the relocated tenants and replication units, I used 2000 Census TIGERLine street address files and ArcMap GIS software.

- S.D. 2167 Fact sheet on Why the Legislature Should Reject a Controversial Bill to Demolish State Public Housing (prepared by plaintiffs' attorneys)
  - Set of newspaper articles about JDS proposed demolition
  - Where are the Public Housing Families Going: An Update, Paul Fischer, Lake Forest College, January 22, 2003
  - Excerpt from Phil Tegeler article on HUD siting standards (no title)
  - 2 Excel files on relocation unit addresses (obtained from the LHA through litigation)
  - Waiting list and current tenant information (obtained from the LHA through litigation)
  - City of Lowell FY 02-03 CAPER (obtained from the City through litigation)
  - City Response to Interrogatories, October 1, 2004
  - City response to Request for Documents, August 17, 2004
  - LHA letter to DHCD, April 27, 2001 (obtained from the LHA through litigation)
- 19) I also consulted the following nationally available data:
- 1990 and 2000 Decennial Censuses, Summary File Tables
  - HUD 1990 and 2000 Comprehensive Housing Affordability Strategy (CHAS) datasets

## **B. Standards used**

- 20) To form my opinion, I calculated the share of replicated units or relocated tenants located in areas with minority concentration above three threshold levels, all of which are reasonable to assess the segregative effects of the tenant relocation and siting of the replication units:
- a) In its Annual Action Plans and reports for its Consolidated Plan, the City defines “Areas of Minority Concentration” as “block groups with a minority population greater than 37.4%, the 2000 City-wide average for Lowell.”<sup>5</sup>

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<sup>5</sup> See Lowell, MA, FY 2002-2003 Consolidated Annual Performance & Evaluation Report, p. 70.

b) In discussing the choices which should be allowed to relocating JDS tenants in order to avoid an impediment to fair housing, the City's Annual Action Plan states "In terms of housing options, any site located in a block group with a 10% lower relative minority concentration than the block group in which the JDS housing development is located, would be considered an adequate choice." This implies that block groups with minority shares "at least 10% less than the 54% minority population for Julian Steele block group" or less than 48.6% would be considered "adequate" and implies that block groups with minority population of over 48.6% would be "inadequate" for compliance with Fair Housing laws.

c) As of 2000, the block group that contained the JDS development (Tract 3122 Block Group 2) was 53.4% minority. Relocation of JDS tenants, who as a group are overwhelmingly minority, into block groups that are more minority than the JDS block group, would generally serve to perpetuate and even intensify segregation.

- 21) The thresholds described above were either cited by the City in their relocation goals or denote the racial composition of the JDS block group before JDS demolition. In the absence of other obvious standards, I use the same thresholds in my evaluation of the siting of replication units.
- 22) The bulk of my analysis will use each of the three thresholds described above. However, to be consistent, I will calculate the thresholds using 2000 Census data rounded to one decimal place. Thus, the thresholds will be:
  - a) Area of minority concentration—Block groups with minority share greater than 2000 City average (37.5%)
  - b) Areas with minority concentration higher than levels deemed to provide "adequate choice"—10 percent below JDS block group share (48.1%)
  - c) Areas with higher minority concentration than JDS block group share (53.4%)

In some cases these figures differ slightly from those cited in City documents (cited above), most likely due to rounding.

- 23) **Measure of disparate impact**-- The plaintiffs' attorneys have provided me with information about how some courts have determined what is a disparate impact on minorities. While I understand that courts have no single method to determine impact, plaintiffs have shown me cases where courts have used a standard developed by the Equal Employment Opportunity Commission (EEOC) in employment discrimination cases. The plaintiffs also showed me the EEOC regulation describing this standard.<sup>6</sup> Under this test, an impact is discriminatory if minority representation is equal to or below 80% of the minority percentage in the relevant comparison group.

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<sup>6</sup> 29 C.F.R. 1607.4.

However, because we are concerned about **over-representation** of relocated tenants or replication units in high minority areas (as opposed to an **under-representation** of minorities who are hired as in employment cases,) I adjusted the threshold to hold that an impact would be discriminatory if relocated tenants or replication units are located in high minority areas at a rate **more than 20% above the rate for the relevant comparison group** (as opposed to 20% below). I believe that this reformulation of the comparison preserves the intention of the EEOC standard.

### **C. Definitions of Terms**

- 24) “Minorities” are defined as all persons who classify themselves either as “Hispanic/Latino” **or** as any race other than “white alone.”
- 25) “**Area Median Income**” (AMI) limits are defined annually by the Department of Housing and Urban Development for each Metropolitan Statistical Area and county. The income limits used in the 2000 Comprehensive Housing Affordability Strategy (CHAS) database reflect what the Income Limits would have been in 1999 if Census 2000 data had been available to calculate those limits. Limits are further modified by household size. The Area Median Income for the Lowell Primary Metropolitan Statistical Area for a family of four in 1999 was \$67,241.
- “**Low-Income**” households are defined as those with incomes at or below 80% of AMI.
  - “**Very-Low-Income**” households are defined as those with incomes at or below 50% of AMI.
  - “**Extremely-Low-Income**” households are defined as those with incomes at or below 30% of AMI.
- 26) “**Census tracts**” are small, relatively permanent statistical subdivisions of a county delineated by a local committee of census data users for the purpose of presenting data. Census tract boundaries normally follow visible features, but may follow governmental unit boundaries and other non-visible features in some instances. Designed to be relatively homogeneous units with respect to population characteristics, economic status, and living conditions at the time of establishment, census tracts in Lowell averaged about 4,045 inhabitants.
- 27) “**Block groups**” are subdivisions of census tracts. Lowell block groups had an average population of 1,252 as of the 2000 Census. Block groups are the level of geography at which the City of Lowell chose to define “areas of minority concentration.”

### **IV. Description of City of Lowell**

- 28) The City of Lowell grew by 1.7% over the 1990s, reaching a population of 105,167 by 2000 (**Exhibit 2**). Minorities contributed all of Lowell’s population

## Exhibit 2

### Summary Characteristics: City of Lowell and Massachusetts 1990 and 2000

	City of Lowell			Massachusetts		
	<u>1990</u>	<u>2000</u>	<u>% Change</u>	<u>1990</u>	<u>2000</u>	<u>% Change</u>
<b>Total Population</b>	103,439	105,167	1.7	6,016,425	6,349,097	5.5
Minority Population	24,274	39,407	62.3	736,133	1,150,738	56.3
Non-Hisp. White Pop.	79,165	65,760	-16.9	5,280,292	5,198,359	-1.6
<b>Households</b>	37,019	37,887	2.3	2,247,110	2,443,580	8.7
Owner Households	15,508	16,309	5.2	1,331,493	1,508,052	13.3
Renter Households	21,511	21,578	0.3	915,617	935,528	2.2
Homeownership Rate	41.9%	43.0%	2.8	59.3%	61.7%	4.2
<b>People in Poverty</b>	17,900	17,066	-4.7	519,339	573,421	10.4
Poverty Rate	18.0%	16.8%	-6.8	8.9%	9.3%	5.0

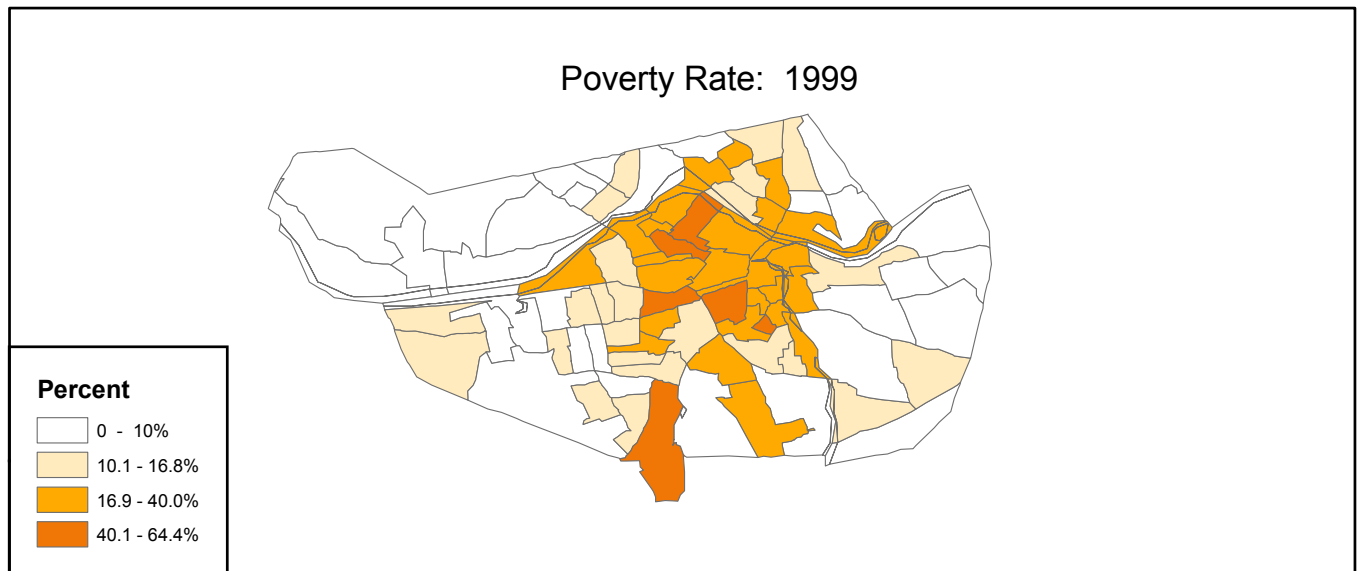
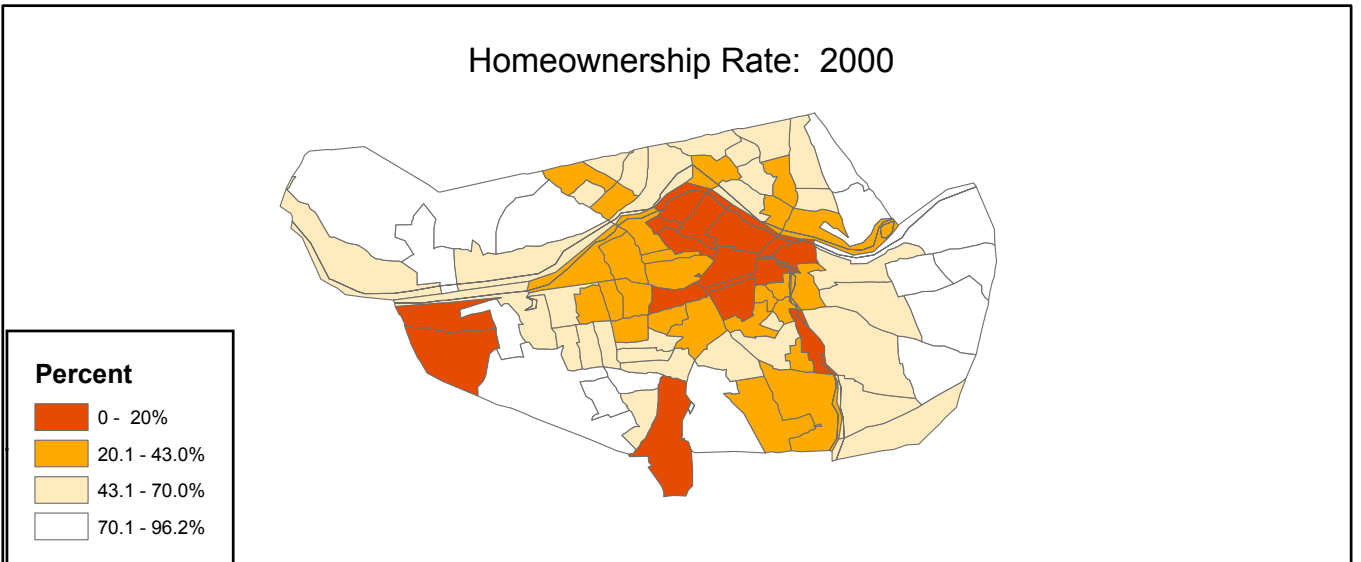
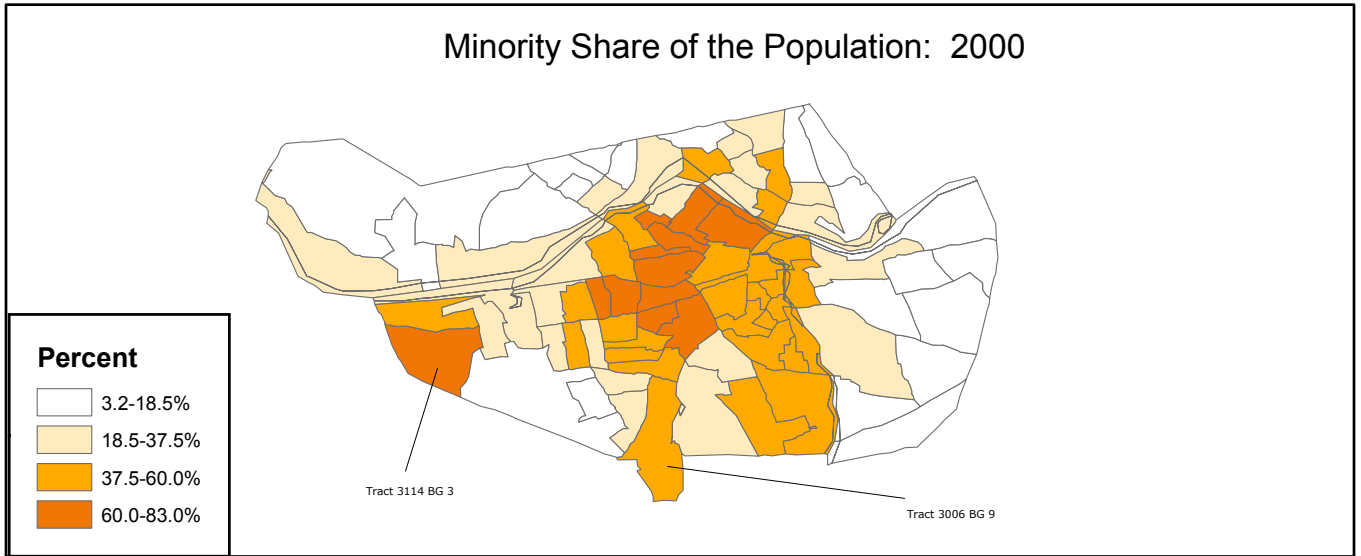
Sources: 1990 and 2000 Decennial Censuses, Summary Files 1 and 3.

- growth, as the City lost one sixth of its white population over the decade. In contrast, the minority population increased by 62.3%. The minority share of the population increased from 23.5% in 1990 to 37.5% in 2000.
- 29) Lowell is primarily a city of renters, although both the number of homeowners and the homeownership rate increased over the 1990s. The number of homeowners increased by 800 households, while the number of renter households was essentially unchanged, pushing the homeownership rate up from 41.9% to 43.0%.
  - 30) While Lowell has a substantially higher poverty rate than does the state of Massachusetts, both the number of people in poverty and the poverty rate in Lowell decreased over the 1990s, while both increased in the state overall. In 1999, the poverty rate in Lowell was 16.8%, down from 18.0% in 1989.
  - 31) Although these summary statistics describe the City as a whole, the maps in **Exhibit 3** illustrate substantial variation across the City's 84 block groups. In general, the central portion of the City, south of the Merrimack River, has the highest minority share of the population, the lowest homeownership rates, and the highest poverty rates. In contrast, the outer edges of the City tend to be substantially whiter and have higher homeownership rates and lower poverty rates. There are some exceptions to this pattern. For instance, Block Group #3 of Tract #3114 on the western border has relatively high minority share and a low homeownership rate. Similarly, Block Group #9 of Tract #3006 on the far southern border has a relatively high minority share and poverty rate, and a relatively low homeownership rate. The range in values across geography is dramatic. Minority share ranges from a low of 3.2% to a high of 83%. Homeownership rates range from a low of 0% to a high of 96.2%. Poverty rates range from a low of 0% to a high of 64.4%.

## **V. Segregative Effects of the Relocation of Julian Steele Tenants**

### **A. JDS tenants are disproportionately minority, even when compared to other renter, family households with very low and extremely low incomes (Exhibit 4.)**

# Exhibit 3 Demographic and Economic Characteristics City of Lowell by Block Group



**Exhibit 4**

**Minority Share of JDS Households Versus Lowell Households by Income, Tenure, and Family Status 2000**

	<u>Total Households</u>	<u>Minority Households</u>	<u>Minority Share (%)</u>
All Households	37,836	10,772	28.5
All Renter Households	21,538	8,309	38.6
Renter Households With Incomes <50% of AMI	10,956	4,661	42.5
Family, Renter Households With Incomes <50% of AMI	5,249	3,394	64.7
Family, Renter Households With Incomes <30% of AMI	3,130	2,086	66.6
<b>JDS Tenant Households</b>	<b>183</b>	<b>150</b>	<b>82.0</b>

Notes: AMI is "area median income." Income data as of 1999.

"Family Households" include those with 2 or more related individuals, but exclude 1 and 2

Person households in which at least 1 person is age 62 or older.

Source: 2000 CHAS Database, U.S. Dept. of Housing and

Urban Development and Lowell Housing Authority.

- 32) The relocation of JDS tenants had an impact on both the tenants themselves (by locating them in either more or less segregated neighborhoods) and on the neighborhoods of Lowell. I will do an analysis of each. Of the 183 JDS heads of household for which I received racial data, 150 or 82.0% were minority. Of the 159 JDS heads of households for which I both received racial data AND who relocated within the City of Lowell, 129 or 81.1% were minority. In contrast:
- 28.5% of **all** households in Lowell were minority
  - 38.6% of **all renter** households in Lowell were minority
  - 42.5% of Lowell **renter** households **under 50% of AMI** were minority
  - 64.7% of Lowell **renter, family households under 50%** of AMI were minority
  - 66.6% of Lowell **renter, family households under 30% of AMI** were minority

- 33) Relocated JDS tenants are significantly more minority than renter, family households with incomes under 30% of AMI. This statement can be made with a high degree of statistical certainty (at the 95% confidence level.)

**B. Perpetuation of Segregation: JDS tenants who moved in Lowell overwhelmingly relocated to Areas of Minority Concentration.**

- 34) 91.4% of JDS tenants moved to block groups with minority shares greater than the City average. Seven in ten of them (70.7%) moved to block groups with minority shares greater than 48.1%, the cutoff deemed as “adequate” when establishing plans for relocation and the choices that should be offered to tenants. Two-thirds of relocated tenants (66.1%) moved to block groups that were even more minority than was Julian Steele. **(Exhibit 5)**

**Exhibit 5**

<b>Location of Relocated JDS Tenants</b>		
<b>Minority Share of Block Group</b>	<b>Number of Families</b>	<b>Percent of Families</b>
Greater than City Avg. (37.5%)	159	91.4
"Inadequate" (Greater than 48.1%)	123	70.7
Greater Than JDS (53.4%)	115	66.1

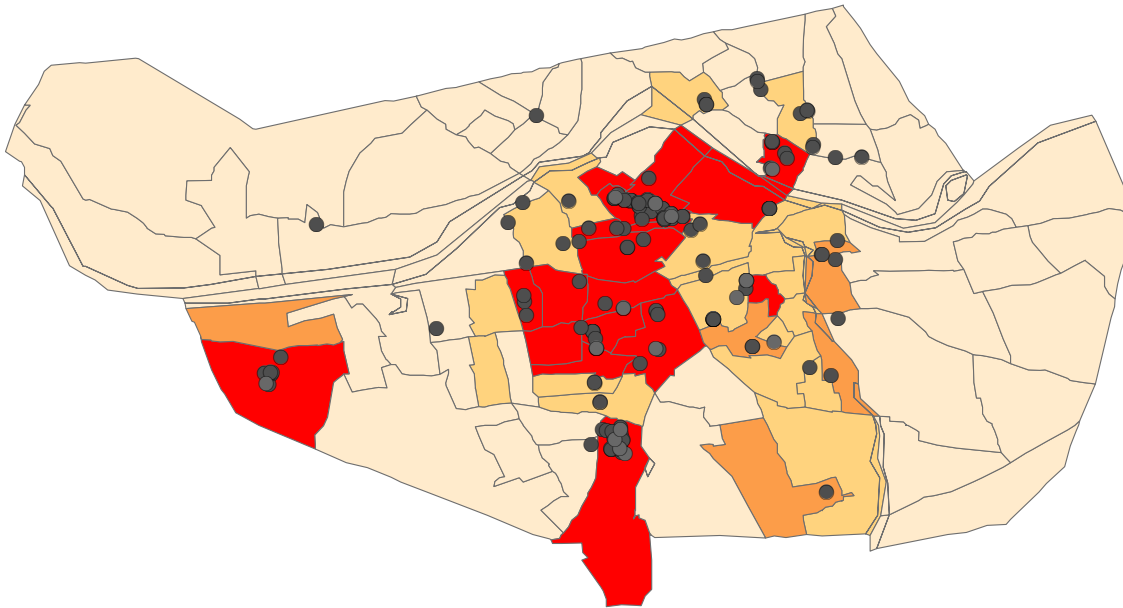
- 35) This over-concentration of relocated tenants in high minority areas can also be seen in **Exhibit 6** (map.)

**C. Perpetuation of Segregation: Higher shares of minority than white families relocated to areas of minority concentration in Lowell and to areas with minority share greater than the JDS block group.**

- 36) The analysis presented above illustrates that, as whole, large shares of JDS tenants relocated to areas of minority concentration, and that two-thirds relocated to areas with minority share higher than the JDS block group. Looking at just the 159 households who relocated within the City of Lowell and for whom racial identifiers were available allows for a more refined analysis. Relocation of **minority** households into high minority areas would serve to increase segregation, while relocation of **white** households into high minority areas would serve to decrease segregation. **Exhibit 7 and Exhibit 8** show that 91.5% of **minority** JDS tenants relocated to areas of minority concentration, versus 83.3% of whites. Further, 66.7% of **minority** JDS tenants relocated to block groups with minority share higher than the JDS block group, versus 56.7% of whites. Relocation tended to concentrate both minorities and whites more heavily in high minority areas (as compared to either the existing City average or their previous residence at JDS), but the effect was more pronounced for minority tenants.

## Exhibit 6

# Location of JDS Relocated Tenants and Minority Share of Population: 2000 City of Lowell



### Minority Share of Population

- 3.2% to 37.5% (City Average or Less)
- 37.6% to 48.1% (City Average to "Max Adequate")
- 48.2% to 53.4% ("Max. Adequate" to JDS Share)
- 53.5% to 83.0% (Above JDS Share)
- Relocated Tenant

### Addresses Not Mapped

Address	Minority Share
112 Hancock St.	19.6
282 W. 6th St.	29.3
414 Rosewood Ln.	60.1
407 Black Brook Dr.	60.1
10 Fenwick Terr.	72.2
12 Fenwick Terr.	72.2

Note: Excludes 6 households for which I did not have a high confidence address match.  
Source: 2000 Census Summary File 1 data and Lowell Housing Authority.

Further, because minorities made up such a large share of tenants who relocated within Lowell (81.1%), the impact of their relocation on particular neighborhoods is substantially larger than the relocation of whites.

**Exhibit 7**

<b>Location of Relocated Minority JDS Tenants</b>		
<b>Minority Share of Block Group</b>	<b>Number of Families</b>	<b>Percent of Families</b>
Greater than City Avg. (37.5%)	119	92.2
"Inadequate" (Greater than 48.1%)	92	71.3
Greater Than JDS (53.4%)	86	66.7

**Exhibit 8**

<b>Location of Relocated White JDS Tenants</b>		
<b>Minority Share of Block Group</b>	<b>Number of Families</b>	<b>Percent of Families</b>
Greater than City Avg. (37.5%)	25	83.3
"Inadequate" (Greater than 48.1%)	18	60.0
Greater Than JDS (53.4%)	17	56.7

**D. Perpetuation of Segregation: The in-migration of relocated JDS tenants had a segregative effect on two-thirds of the destination block groups in Lowell to which they moved.**

- 37) The relocation provided an opportunity to either decrease or increase residential segregation in the City of Lowell. The most commonly used measure of segregation, the Dissimilarity Index (D), measures the relative separation or integration of racial groups across all neighborhoods of a city. The index ranges between 0 (complete integration) and 100 (complete segregation.) The concept of complete integration is a useful benchmark in assessing relocation of JDS tenants. Complete integration is achieved when the minority share of the population in each block group exactly mirrors the City average. So, for example, complete integration would be attained if minorities made up 37.5% of each block group in Lowell, the same as the City average.
- 38) Relocating minority tenants into block groups with minority shares **less** than the City average and relocating white tenants into block groups with minority shares **greater** than the City average would both serve to **reduce** segregation (and increase integration) in the City. In contrast, relocating minority tenants into block groups with minority shares **greater** than the City average and relocating

white tenants into block groups with minority shares **less** than the City average would both serve to **increase** segregation in the City.

- 39) As of 2000, 44 of the City's 84 block groups (containing 35% of the city's occupied rental stock, or 7,611 units) had minority shares less than the City average. 40 block groups had minority shares greater than the City average.
- 40) **Exhibit 9** shows, for each block group that received relocated tenants and for which the race of those tenants was known:<sup>7</sup>
- a) the minority share of that block group as of 2000
  - b) the **number** of white and minority families relocated into that block group
  - c) the minority share of the relocated families (as a group) moving into each block group
  - d) whether the net effect of relocation on that block group was:
    - i) **Integrative**--the minority share of the relocated tenants (as a group) was closer to the City average (37.5%) than was the minority share of the block group as a whole—thereby pushing the block group **toward** integration or
    - ii) **Segregative**--the minority share of the relocated tenants was further from the City average than was the minority share of the block group as a whole—thereby pushing the block group **away** from integration and toward segregation
- 41) In 26 of the 39 (67%) block groups to which JDS tenants moved, the relocation had a net segregative effect, pushing the minority share of those block groups further away from the City average. If we include the effect on the JDS block group, then the relocation had a net segregative effect on 26 of the 40 block groups (65%) affected.
- 42) This analysis shows the **direction** of the impact that relocation had on integration in Lowell. In most cases, the number of families moving into each individual block group was very small, meaning that the **magnitude** of this impact on the block group would be small as well. It is instructive, however, to examine the block groups that received the largest number of relocated tenants (and for which the race of those tenants is known.)
- a) **Tract 3110 Block Group 1**
    - Received 38 relocated families (24% of all relocated families)
    - Had a minority share of 72% as of 2000
    - Relocated families were 89% minority (4 white, 34 minority)
  - b) **Tract 3116 Block Group 9**
    - Received 23 relocated families (14% of all relocated families)

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<sup>7</sup> Except for the JDS block group (tract 3122, block group 2) which is described separately below.

# Exhibit 9

## Segregative/Integrative Effects on Block Groups Receiving JDS Relocated Tenants

<u>Block Group</u>	<u>Min. Share of Block Group: 2000</u>	<u>Relocated Into Block Group</u>			<u>Segregative?</u>
		<u># White Families</u>	<u>#Minority Families</u>	<u>% Minority</u>	
3105-3	17%	0	1	100%	No
3102-5	19%	1	1	50%	No
3123-3	20%	0	2	100%	No
3102-4	23%	1	1	50%	No
3116-4	25%	1	0	0%	Yes
3125.01-3	26%	1	0	0%	Yes
3104-2	29%	0	1	100%	No
3103-3	30%	0	1	100%	No
3102-3	31%	0	1	100%	No
3106.02-5	31%	1	0	0%	Yes
3103-1	34%	0	1	100%	No
3113-3	35%	0	1	100%	Yes
<b>CITY Average 37.5%</b>					
3117-1	39%	1	1	50%	Yes
3101-1	40%	1	3	75%	Yes
3103-2	40%	1	2	67%	Yes
3117-2	40%	0	2	100%	Yes
3121-2	41%	0	1	100%	Yes
3119-3	42%	1	10	91%	Yes
3104-1	43%	1	2	67%	Yes
3101-2	45%	1	2	67%	Yes
3107-1	45%	0	1	100%	Yes
3107-2	47%	1	3	75%	Yes
3121-1	49%	0	1	100%	Yes
3124-2	51%	0	3	100%	Yes
3120-3	52%	1	1	50%	No
<b>3122-2</b>	<b>53%</b>	<b>JDS Block Group--Effect Described Separately in Tex</b>			
3117-3	54%	0	2	100%	Yes
3104-3	56%	1	5	83%	Yes
3116-9	57%	5	18	78%	Yes
3117-4	58%	1	0	0%	No
3113-1	60%	2	1	33%	No
3114-3	60%	0	9	100%	Yes
3118-4	65%	3	2	40%	No
3110-3	66%	0	1	100%	Yes
3112-3	66%	0	1	100%	Yes
3118-3	71%	0	6	100%	Yes
3110-1	72%	4	34	89%	Yes
3111-1	78%	0	4	100%	Yes
3112-1	79%	0	1	100%	Yes
3111-2	83%	1	2	67%	No
<b>Total</b>		<b>30</b>	<b>128</b>		<b>26 Yes/13 No</b>

- Had a minority share of 57% as of 2000
- Relocated families were 78% minority (5 white, 18 minority)

**c) Tract 3119 Block Group 3**

- Received 11 relocated families (7% of all relocated families)
- Had a minority share of 42% as of 2000
- Relocated families were 91% minority (1 white, 10 minority)

- 43) In each of these three block groups receiving the largest number of relocated tenants, the minority share of the relocated tenant group was further from the City average (37.5) and higher than the minority share of the block group as a whole. Thus, in each of these three cases, (and in the cases of two-thirds of all block groups receiving relocated tenants), relocation served to increase segregation.
- 44) The block group in which the JDS development was located is a special case and is here described separately. As of 2000, this block group was 53.4% minority. However, the tenants who moved from JDS but stayed in Lowell were 81.1% minority (though one minority tenant did relocate into the JDS block group.) Thus, by removing a group of tenants that were more minority than the block group as a whole, the relocation would have the effect of shifting the minority share of the JDS block group closer to the City average (37.5%,) and the net effect on the JDS block group itself would be integrative.

**E. Disparate Impact: Relocated minority JDS tenants were significantly more likely to reside in Lowell block groups and census tracts with high minority concentration than were non-JDS tenants with similar characteristics.**

- 45) Two thirds (66.7%) of JDS minority tenants relocated to block groups that had a minority concentration higher than the JDS block group (**Exhibit 10.**) In contrast, only 40 percent of all Lowell's minorities lived in such high minority block groups as of 2000, and 43.3% of all **minority** renters lived in such block groups. The share of relocated minorities in such high minority block groups (66.7%) exceeds the share of similarly-poor, minority renters in such areas (43.3%) by substantially more than the 20% needed to show disparate impact under the EEOC standard.

**Exhibit 10**

**Racial Composition of Block Groups Where Relocated JDS Tenants Reside and Where Lowell's Minority Renters Overall Reside: 2000**  
 (Share Residing in Block Groups with Specified Minority Share of Population)

<b>Minority Share of Block Group</b>	<b>Relocated Minority</b>		<b>Minority</b>
	<b>JDS Tenants</b>	<b>Minorities</b>	<b>Renters</b>
Less than or Equal To City Avg. (37.5%)	8.6	28.0	21.5
Between City Avg. and JDS (37.6-53.4)	24.7	32.0	35.2
Greater Than JDS (53.4%)	66.7	40.0	43.3
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

46) The comparison presented above compares the racial composition of **the block groups** where minority JDS tenants relocated with the racial composition of **block groups** where all minority renters in Lowell reside. A closer comparison is between the location of relocated JDS tenants and the location of **extremely low income (30% of AMI) minority renters**. However, this income information is only publicly available at the census tract level, not the block group level, through the 2000 Comprehensive Housing Affordability Strategy database (CHAS). As of 2000, the 26 Census tracts in Lowell had an average minority share of 40.5%. Unlike the block group analysis, in which the JDS block group had a minority share near the upper end of the distribution, the tract that contained JDS falls in the middle of the distribution (38.2% minority). Therefore it does not provide a suitable threshold for determining whether residents live in areas of relatively high minority concentration. (Note: if this threshold were used, 77.5% of relocated JDS tenants would have relocated into tracts with minority shares higher than the JDS tract.) Instead, I used a cutoff equal to one standard deviation above the mean of the minority share of all Lowell census tracts, or 59.3%. This type of threshold is widely used in social science research dealing with neighborhood characteristics. Using this cutoff, 39.5% of relocated JDS minority tenants moved to such high minority areas. In contrast, 28.7% of minority renters with extremely low incomes (less than 30% of AMI) lived in such high minority tracts. The share of relocated minorities in such high minority tracts (39.5%) exceeds the share of similarly-poor, minority renters in such areas (28.7%) by substantially more than the 20% needed to show disparate impact under the EEOC standard.

**F. The vast majority of Section 8 voucher holders in Lowell relocated into areas of minority concentration, and over 40% relocated into block groups with higher minority share than the JDS block group.**

47) In its Relocation Plan and in the letter from LHA to DHCD dated April 27, 2001 which I reviewed, the LHA claims that it will ensure that each JDS tenant with a Section 8 voucher is offered one unit in an area outside of minority concentration. The letter also states, "Tenants will be given housing search assistance,

encouraging them to consider a wide range of locations. Mobility programs which have utilized the assistance of housing search counselors have generally been successful in assisting tenants to locate units outside areas of minority concentration.” I therefore analyzed where the JDS households with Section 8 vouchers relocated in terms of that stated fair housing goal. I found that the vast majority (84.9%) of voucher holders relocated into areas of minority concentration and that almost half (47.2%) relocated into areas with minority share greater than that designated as “adequate” by the City in the relocation plan. Further, 41.5% of Section 8 holders relocated into areas with minority share greater than the JDS block group share.<sup>8</sup> (**Exhibit 11**)

**Exhibit 11**

<b>Location of Relocated JDS Tenants With Section 8 Vouchers</b>		
<b>Minority Share of Block Group</b>	<b>Number of Families</b>	<b>Percent of Families</b>
Greater than City Avg. (37.5%)	45	84.9
"Inadequate" (Greater than 48.1%)	25	47.2
Greater Than JDS (53.4%)	22	41.5

**VI. Segregative Effects of the Planned Siting of Replication Units**

**A. Summary of “Replication” Units**

48) According to the Julian Steele legislation, there must be 220 units created throughout the City of Lowell to compensate for the loss of JDS. Of the 220, 157 units must be rental units available to families with incomes under 50% of the area median income. According to documents provided to me by plaintiffs’ attorneys that they received from the City of Lowell, as of August, 2004, there are 114 units that the City has identified to count towards the 157 required units. These 114 units include those that are complete, in process, out to bid, or potential future units, according to the terminology used in the City’s charts.

**B. Minorities make up a large and disproportionate share of the potential tenants of these units.**

49) 157 of the JDS replication units are designated to be available to family households with incomes up to 50% of Lowell’s area median. As of 2000, minorities made up 64.7% of all **family, renter households in Lowell with**

<sup>8</sup> According to the LHA data, 16 JDS households relocated outside of the City of Lowell, of whom 14 are minorities. The data indicates that most, if not all, moved with Section 8 vouchers. For the 14 minority households who relocated outside the City of Lowell, 7 families, or 50%, moved into block groups with higher minority concentration than the JDS block group.

**incomes under 50% of Area Median Income (AMI) (Exhibit 12).** In contrast, minorities make up:

- 42.5% of **all renter households with income under 50% of AMI**
- 38.6% of **all renter households**
- 28.5% of **all households** in Lowell.<sup>9</sup>

**Exhibit 12**

	<u>Total Households</u>	<u>Minority Households</u>	<u>Minority Share (%)</u>
All Households	37,836	10,772	28.5
All Renter Households	21,538	8,309	38.6
Renter Households With Incomes <50% of AMI	10,956	4,661	42.5
Family, Renter Households With Incomes <50% of AMI	5,249	3,394	64.7
Family, Renter Households With Incomes <30% of AMI	3,130	2,086	66.6

Notes: AMI is "area median income." Income data as of 1999.  
 "Family Households" include those with 2 or more related individuals, but exclude 1 and 2 person households in which at least 1 person is age 62 or older.  
 Source: 2000 CHAS Database, U.S. Dept. of Housing and Urban Development and Lowell Housing Authority.

50) If the pool of most likely replication unit tenants draws disproportionately from Lowell’s minority population, as opposed to Lowell’s white population, then it can be argued that the siting of replication units in high minority areas has a disparate impact on Lowell’s minority population. A reasonable proxy for the most likely replication unit tenants are “family, renter households with incomes under 50% AMI.” 64.7% of those households are minorities.

<sup>9</sup> Calculations made from the 2000 Comprehensive Housing Affordability Strategy (CHAS) database of the U.S. Dept. of Housing Development and accessed through: <http://socds.huduser.org/scripts/odbic.exe/chas/index.htm?>

- 51) An alternate method of estimating the racial composition of the potential tenants for the replication units is to examine the racial composition of waiting lists for family developments operated by the Lowell Housing Authority. This method more accurately tracks one of the plaintiff classes in this litigation, which is defined as “all extremely low income families with children who are applicants for public and subsidized housing at the Lowell Housing Authority.” Minorities made up 70-74% of families on the waiting lists for these family developments and scattered site housing as of November 25, 2003. Further, minorities made up 62% of those applicants on the Section 8 waiting list. (**Exhibit 13**)

**Exhibit 13**

<b>Minority Share of Applicants on LHA Waiting Lists</b>	
	<u><b>Percent Minority</b></u>
North Common Village	73
George Flanagan	70
Harold Hartwell	74
Scattered Site	71
Section 8	62
Note: Waiting list data as of 11/25/03.	
Data for scattered site tenants include developments Labeled "MASS 1-12," MASS 1-14," and "705--State Scattered Family Sites"	

**C. Perpetuation of Segregation: The planned locations for the replication units are mostly in areas of high minority concentration**

- 52) **Exhibit 14** shows the location of the 114 planned replication units as of 2004 classified as “going out to bid,” “in process,” “complete” or “potential future” **and “Renter @ 50% AMI”**<sup>10</sup> relative to the three thresholds as well as the share slated to be sited in the one block group with the highest minority concentration in the City.
- 53) 91.2% of the planned replication units are in block groups with minority shares greater than the City average (areas of minority concentration.). 83.3% are in block groups outside the range that the City deemed as “adequate” when considering how to avoid a fair housing impediment in their relocation program. 83.3% are located in block groups that have even greater minority concentration than did the Julian Steele block group.

<sup>10</sup> Data from “Replication Progress Chart” and “Replication Summary Table” sent to plaintiffs’ attorneys from Lowell Asst. City Solicitor on Aug. 17, 2004 as part of discovery request. Note that the “Replication Progress Table” lists five (5) units at 86.1 Bernier St. while the “Replication Summary Table” lists eight (8). I assumed 8 units. I also included in my analysis the 24 new Boott Mills and 6 new Habitat units listed in the “Replication Summary Table” but not the “Replication Progress Chart.”

- 54) Though there were 84 block groups in Lowell as of 2000, the City proposes to locate half of the 114 planned replication units (49.1%) in **JUST ONE** block group (TRACT 3111, BG 2) which is the **HIGHEST MINORITY** block group in the City (83% minority).

**Exhibit 14**

<b>Location of Planned Replication Units</b>		
<b>Minority Share of Block Group</b>	<b>Number of Units</b>	<b>Percent of Units</b>
Greater than City Avg. (37.5%)	104	91.2
"Inadequate" (Greater than 48.1%)	95	83.3
Greater Than JDS (53.4%)	95	83.3
In Highest Min. Blk Grp (83%)	56	49.1

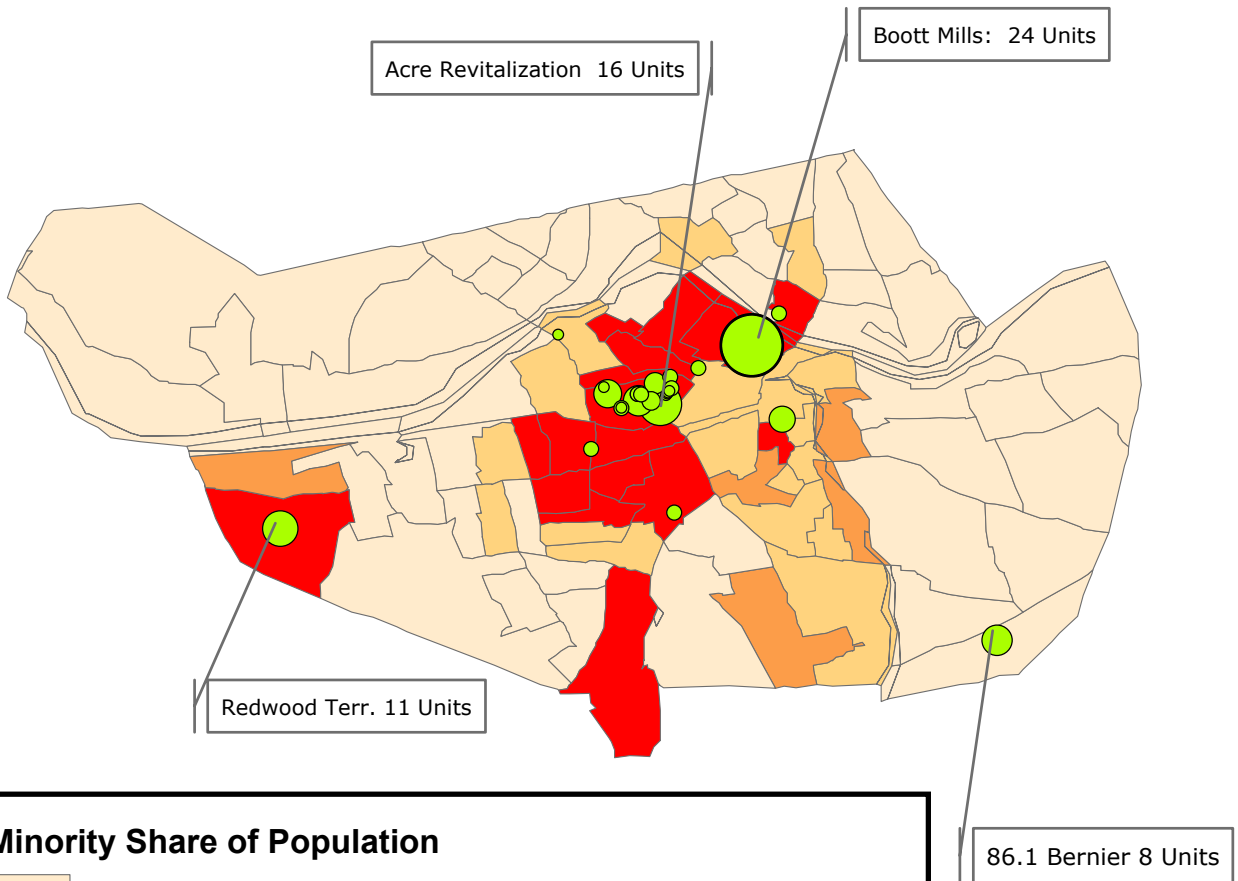
- 55) This over-concentration of replication units in high minority areas can also be seen in **Exhibit 15** (map).

**D. Perpetuation of Segregation: Comparing Cancelled Units and Future Units**

- 56) The City provided information as of July 1, 2004 on the status of replication units. Of the units originally identified as replication units, 20 units were cancelled. In general, units that have been cancelled were significantly more likely to be located in lower minority block groups than other planned units and were less likely to be in block groups with high minority shares. 35% of cancelled units were in block groups with minority share **less** than the City average, compared to 12.5% of the “out to bid/in process/completed” units and 0% (zero) of the “potential future” units. Only 30% of the cancelled units were in block groups with minority share **greater** than Julian Steele block group, compared to 78.8% of the “out to bid/in process/completed” units and 94.1% of the “potential future” units. (**Exhibit 16**)
- 57) In contrast, the 34 planned replication units (100%) specified as “potential future” are located in Areas of Minority Concentration. All but 2 of these 34 units are located in the same block group, which has the highest minority share in the City (83%)--almost 30 percentage points higher than the Julian Steele block group.
- 58) The replication units, as currently planned, will be located in block groups with an average minority share of 68.1%, significantly higher (14.7 percentage points or 27.5%) than the JDS block group.

# Exhibit 15

## Location of Replication Units and Minority Share of Population: 2000 City of Lowell



### Minority Share of Population

- 3.2% to 37.5% (City Average or Less)
- 37.6% to 48.1% (City Average to "Max. Adequate")
- 48.2% to 53.4% ("Max Adequate" to JDS Share)
- 53.5% to 83.0% (Above JDS Share)

### Number of Units at Location (Proportional representation)

- 1
- 5
- 10

Note: Includes units that are going out to bid, in process, complete, or potential future.

## Exhibit 16

### Location of Replication Units by Status

Minority Share of Block Group	All Statuses		Complete/In Process/ Out to Bid		Cancelled		Potential Future	
	Number of Units	Percent of Units	Number of Units	Percent of Units	Number of Units	Percent of Units	Number of Units	Percent of Units
Less than City Avg. (37.5%)	17	12.7	10	12.5	7	35.0	0	0.0
Greater than City Avg. (37.5%)	117	87.3	70	87.5	13	65.0	34	100.0
"Inadequate" (Greater than 48.1%)	106	79.1	63	78.8	11	55.0	32	94.1
Greater Than JDS (53.4%)	101	75.4	63	78.8	6	30.0	32	94.1

**E. Disparate Impact: Mostly minority families will be moving into these units sited in high minority areas.**

- 59) To understand the impact on the likely tenants of the replication units, I looked at the total minority and white population within the City of Lowell and the percentages of those populations that would likely be candidates for the replication units. I determined that 31.5% of all **minority** households in Lowell are “family, renter households with incomes at or under 50% AMI.” In contrast, just 6.9% of all **white** households in Lowell are family, renter households with incomes at or under 50% AMI. Under the EEOC standard, a minority share of more than 20% above the white share would constitute a disparate impact. The minority share of the most likely replication unit tenants (31.5%) is far above this cutoff (8.3%).

**IV. Disclosures**

- 60) Beginning in October 2003, I am being reimbursed at the rate of fifty dollars (\$50.00) an hour to compensate me for my study and testimony.
- 61) In the past 4 years I have testified as an expert at trial in the following cases.
- A) For the defendants in *Comfort vs. Lynn School Committee* before the U.S. District Court, District of Massachusetts in 2002.
- B) For the plaintiffs in *Hancock v. Driscoll* before the Massachusetts Supreme Judicial Court in 2004.

Signed under pains and penalties of perjury this \_\_\_\_\_ day of January, 2005.

\_\_\_\_\_  
Nancy McArdle

# Exhibit 1

## Nancy Anne McArdle

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### Professional Experience

#### Consultant: 2001-present

##### Research and Research Management

- *The Civil Rights Project at Harvard University*  
Research Director of the Metro Boston Equity Initiative, a major program producing and disseminating research on racial equity in housing, education and employment in Metro Boston.
  - *Oversaw the commissioning, writing, and publicity of nine studies, including three self-authored*
  - *Recruited and interacted with academic and community advisory boards*
  - *Oversaw planning and execution of three major research conferences*

Authored breakthrough studies detailing patterns of racial change and segregation in the Chicago, Boston, and San Diego metropolitan areas

- *Neighborhood Housing Services of Rochester, NY*  
Produced market analysis outlining major demographic, economic, and housing patterns in Rochester as well as implications for organization's strategic plan
- *Neighborhood Reinvestment Corporation*  
Co-authored white paper recommending strategy for five year homeownership campaign

##### Training

- *Neighborhood Reinvestment Corporation*  
Developed and taught top-rated course helping community development professionals to analyze and understand their communities and to adapt their organizational priorities and strategies accordingly

- *Harvard Graduate School of Education*  
Guest lecturer in several graduate level courses and for Harvard's Civil Rights Summer Program
- *Southern New Hampshire University*  
Adjunct Lecturer
- Frequent speaker and author of dynamic presentations on demographics, homeownership, revitalization strategies, and segregation

### **Expert Legal Witness**

- *Comfort v. Lynn School Committee*  
Expert for the defendants, providing testimony on racial segregation of neighborhoods in Federal District Court school desegregation case with significant national implications. Worked closely with Assistant Attorney General in developing and presenting written and oral testimony
- *Hancock v. Driscoll*  
Expert for the plaintiffs, providing testimony at deposition and trial before MA Supreme Judicial Court on issues of private schooling, income variation within school districts and statistical validity of defendant's experts' testimony

### **Joint Center for Housing Studies, Harvard University: 1987-2001**

- Served as project manager, principal researcher, and co-author of Center's widely cited, signature study: *The State of the Nation's Housing*.
- Adept in the statistical analysis of large databases including the American Housing Survey, Decennial Census, the Home Mortgage Disclosure Act data, and the Current Population Survey
- Proficient in translating complex data findings into understandable graphics and language
- Produced numerous research reports on topics such as the homeownership attainment of foreign-born households, the decentralization of population and employment growth, settlement patterns of immigrants, and triggers of housing renovation and repair expenditures
- Skilled in public speaking and presenting research findings to audiences of all sizes. Widely quoted in the national media
- Manager of junior researchers, experience in oversight and training

## **Education**

### **Harvard University, John F. Kennedy School of Government**

Master of Public Policy, 1987

### **Carnegie-Mellon University**

Bachelor of Science, Public Policy and Management  
*summa cum laude*, 1985.

## Publications

*Racial Equity and Opportunity in Metro Boston Job Markets.* Harvard Civil Rights Project. December, 2004.

*More than Money: The Spatial Mismatch Between Where Homebuyers of Color Can Afford to Live and Where They Actually Reside.* With David J. Harris. Harvard Civil Rights Project. January, 2004.

*A Racial Equity and Opportunity Agenda for Metro Boston.* In *Poverty & Race.* Poverty Race Research Action Council. 2004.

*Beyond Poverty: Race and Concentrated Poverty Neighborhoods in Metro Boston,* Harvard Civil Rights Project. December 2003.

*The Changing Face of the Nation: Population, Housing, and Spatial Trends,* "Bright Ideas Magazine," Neighborhood Reinvestment Corporation, Fall 2002.

*Racial Trends and Segregation in the San Diego Metropolitan Area: 1990-2000,* Harvard Civil Rights Project, June, 2002.

*Racial Trends and Segregation in the Boston Metropolitan Area: 1990-2000,* Harvard Civil Rights Project, June, 2002.

*Racial Trends and Segregation in the Chicago Metropolitan Area: 1990-2000,* Harvard Civil Rights Project, June, 2002.

*The Living Arrangements of Foreign-Born Households,* Joint Center for Housing Studies Research note, 2001.

The State of the Nation's Housing: 2000 (also 1998, 1999) Joint Center for Housing Studies.

*Outward Bound: The Decentralization of Population and Employment.* Joint Center for Housing Studies Working Paper W99-5. July 1999.

*A Critical Look at Rising Homeownership Rates in the United States Since 1994.* With George Masnick and Eric Belsky. Joint Center for Housing Studies Working Paper W99-2.

*Homeownership Attainment of New Jersey Immigrants in Keys to Successful Immigration: Implications of the New Jersey Experience.* Thomas J. Espenshade, editor. Urban Institute Press. Washington, D.C. 1997.

*The "Move-In" Effect on Home Improvement Activity: Longitudinal Analysis Utilizing the 1991 and 1993 American Housing Surveys.* Joint Center for Housing Studies Working Paper RF96-3. October, 1996.

*Foreign Immigration and Homeownership: A Summary.* Joint Center for Housing Studies Working Paper W95-2.

*U.S. Household Trends: The 1990s and Beyond.* With George S. Masnick and William C. Apgar. Joint Center for Housing Studies Working Paper W96-2.

*Settlement and Mobility Patterns of Recent Immigrants.* Joint Center for Housing Studies Working Paper W94-5.

*State Household Projections Based Upon Census Bureau P25-1111 Population Projections.* With George S. Masnick. Joint Center for Housing Studies Working Paper W94-4.

*The New Immigrants: Demographic and Housing Characteristics.* With Kelly Mikelson. Joint Center for Housing Studies Working Paper W94-1.

*Revised U.S. Household Projections: New Methods and New Assumptions.* With George S. Masnick. Joint Center for Housing Studies Working Paper W93-3.

Housing in America: 1970-2000. With George S. Masnick and William C. Apgar. Joint Center for Housing Studies. 1991.