UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK
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SHAUNA NOEL and EMMANUELLA SENAT,

Plaintiffs,

-against- 15-CV-5236 (LTS) (KHP)

CITY OF NEW YORK,

Defendant.
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Declaration of Professor Andrew A. Beveridge in Further Support of Plaintiffs' Motion for Partial Summary Judgment and in Opposition to Defendant's Cross-Motion

October 29, 2020

Table of Contents

Table of Contents (continued)

List of Tables

List of Tables (continued)

List of Charts

List of Exhibits

List of Exhibits (continued)

Exhibit No.	Description
35	Map of HUD Subsidized Projects Showing CD Typologies (Manhattan and environs)
36	Map of HUD Subsidized Projects Showing CD Typologies (Staten Island and environs)
37	Map of HUD Subsidized Projects Showing CD Typologies (Brooklyn and environs)
38	Map of HUD Subsidized Projects Showing CD Typologies (Queens and environs)
39	Location and Concentration of City-Assisted Housing

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ANDREW A. BEVERIDGE, declares, pursuant to 28 U.S.C. § 1746, that the following is true and correct:

1. On March 6, 2020, I submitted a declaration in support of plaintiffs' motion for partial summary judgment, ECF 883 ("BD").[1] I submit this declaration in further support of plaintiffs' motion and in opposition to defendant's motion. It turns out that there are no material factual disputes: defendant's community preference policy ("the policy") causes significant disparate impacts by race in community-district ("CD") typologies and perpetuates segregation by race whether looking at Dr. Siskin's methods or mine.

2. Dr. Siskin's consideration data show that insider consideration rates are much higher than those for outsiders. This benefits the dominant racial group and harms all non-dominant racial groups in all CD typologies except for plurality-Hispanic.

3. When examining simulated awards at the level of CD typology, even Dr. Siskin's comparison of his "with preference" simulations and his "without preference" simulations (a

[1] Submitted along with BD was a Sources and Methodology Appendix, ECF 884.

procedure that dilutes and thus understates relevant disparities) *still* shows significant racial disparities in simulated awards in all majority-race typologies and in the plurality-Black typology.

4. When examining actual awards at the level of CD typology, Dr. Siskin's "adjusted selection rate" method shows significant racial disparities in actual awards in all majority-race typologies and in the plurality-White and plurality-Black typologies as well.

5. As for perpetuation of segregation, even if one were to include in a comparison of racial group A with racial group B the moves of racial groups C and D (something that one versed in the dissimilarity index would never do but Dr. Siskin insists on), the net-integrative moves of outsiders vastly outweigh the net-integrative moves of insiders in relative terms.

A. Citywide analysis of disparate impacts presupposes a conclusion and avoids considering the existence or meaning of patterns at work in CDs with differing demographics.

6. We know that the policy is implemented at the CD level. We know that the racial demographics of CDs differ substantially.[2] The only way to determine whether there are any patterns to what, if anything, the policy is doing in terms of causing disparate racial impacts is to create a reasonable classification system (majority-race CD typologies and plurality-race CD typologies)[3] and *look.*

[2] As noted in BD, I use the term racial to encompass "race and Hispanic status."

[3] By definition, the maximum gap in share of CD population between the dominant racial group in a majority-race CD typology and any other racial group in that typology is larger than the maximum gap between the dominant group in a plurality-race CD typology and any other racial group in that typology.

7. With a citywide analysis, by contrast, what happens in one CD-typology is "offset," as Dr. Siskin puts it,[4] by what happens in other CD-typologies. In other words, the disparities that the policy creates in different CD typologies are obscured.

8. Confronted with, for example, the incontrovertible fact that Whites are advantaged and Blacks are disadvantaged in the majority-White CD typology, and with the equally incontrovertible fact that Whites are disadvantaged and Blacks are advantaged in the majority-Black CD typology, Dr. Siskin is like the police officer at the scene of an investigation saying, "Nothing happening here; everyone go home."

9. But two things (among other racial disparities) *have* happened: the policy's imposition of disadvantage to Blacks in the majority-White CD typology and the policy's imposition of disadvantage to Whites in the majority-Black CD typology. A CD-typology level analysis is therefore essential.

B. Disparate impacts are immediately imposed on entrants and apparently eligible entrants.

10. To cut to the chase, the policy provides immediate benefits to insiders in a CD typology, as it is intended to do. Insiders are allowed to compete for a full set of approximately 50 percent of units; outsiders are not.[5] Insiders have distinctly better odds of securing an apartment than do outsiders. There are follow-on benefits to insiders that flow from the policy (like a higher

[4] *See* excerpt of transcript of Nov. 15, 2019 deposition of Dr. Siskin ("Siskin II"), annexed hereto as Exhibit 22, at 13:6-22 (Dr. Siskin states that a local disparity only generates disparate impact if it is not "offset" by another local disparity elsewhere). (Exhibit numbers begin where they left off in my March 2020 declaration so that there is a single, consecutively numbered set of "Beveridge series" exhibits.)

[5] It is agreed that, "[i]n most of the lotteries studied, all the CP units were awarded to insiders (that is, the CP requirement was not waived to any extent)." *See* defendant's responses and objections to plaintiffs' FRCP 56.1 Statement (P56.1DR), at ¶ 21. It is also agreed that, "[i]n the minority of cases where there were not sufficient qualified insiders to fill the CP units, it was generally the case that insiders filled a substantial majority of those units." *See id.* at ¶ 22.

consideration rate and fewer close-outs), but those first benefits – better odds and a green light to compete exclusively for all of the preference units – occur even *before* HPD transmits the list of applicants to a developer. Correspondingly, the initial detriments of outsider status accrue immediately, too.

11. To the extent that defendant suggests that what happens to those entrants who are *not* apparently eligible is of no consequence, this is not true. It is simply a matter of fact that they, too, are denied a level playing field.

12. To the extent that defendant suggests that not every insider is ultimately awarded a preference unit, defendant continues to misunderstand what a level playing field is. The policy gives *all* insider applicants better odds and allows *all* insider applicants to compete for all units. Therefore, because of the policy, *all* insiders are competing from a privileged position in relation to *all* outsider applicants.[6] The policy has assigned *all* of those outsiders worse odds and has prohibited *all* of them from competing for the approximately 50 percent of units that are held for insiders until no insiders are left to take them.[7]

C. There is no dispute about causation or as to which racial groups, depending on CD typology, are denied a level playing field.

13. I will discuss causation as it pertains to awards later.[8] Here, I quickly discuss the initial denial of a level playing field. It is not as though applicants voluntarily divide themselves into "insiders" and "outsiders." That is a classification system that defendant imposes through the

[6] A separate preference for households with a member who has a disability is not at issue in this case.

[7] *See* P56.1DR, at ¶ 20 (leaving aside applicants with disabilities, there is no dispute that "no matter how many qualified outsiders there are, and no matter by what degree they outnumber qualified insiders, the outsiders cannot get a CP unit if there is a qualified insider to take it").

[8] *See* discussion, below, at 14, ¶ 47-50.

policy, the action that defendant takes. The question is which racial groups, depending on CD typology, are disproportionately recipients of the benefits of being designated as an insider by defendant, and which racial groups, depending on CD typology, are disproportionately burdened by the detriments of being designated an outsider by defendant.

14. Dr. Siskin pretends that "correlation" is somehow either in tension with or does not show "causation." This is highly misleading. Defendant unquestionably caused the divvying of a unified applicant pool into insider and outsider sub-pools. Nothing else has happened.

15. The question of which racial groups are helped or hurt *by what defendant did* is not "mere" correlation; it *is* the impact of defendant's having created the insider and outsider classifications.

16. As noted, the denials of an equal playing field to outsiders that have been discussed thus far exist independent of any findings as to awards.

D. Cherry-picking, "static and defined" racial groups, and "outcomes of interest."

17. Among defendant's complaints are that I engaged in cherry-picking my results, did not use the proper racial group population, and did not look at "selection rates."[9] All of these complaints are without merit.

18. As is obvious, I identified each CD typology in the same way, assessed each CD typology in the same ways, and reported my results for each CD typology in the same ways, and included comparisons with other typologies for context.

19. This consistent approach and transparency are good practice, not cherry-picking.

20. As a research matter, it was particularly interesting to do so in the context of a

[9] *See* Dr. Siskin's Aug. 14, 2020 declaration, ECF 897 ("SD"), at 4-5, 11-15, 18-20, 22-23, ¶¶ 8-10, 23-30, 36-39, 45-47; *see* defendant's Aug. 14, 2020 memorandum of law, ECF 902 ("DOX Brief"), at 16-22, 26.

natural experiment. The point was to allow the data to tell an *unfiltered* story of what defendant's policy did, where it did it, and to whom it did it. That is how I proceeded.

21. The data do show significant disparate impact in all seven CD typologies for entrants, and for six of seven CD typologies (all but plurality-Hispanic) for apparently eligible applicants (the six CD typologies contained 89 percent of all applications from apparently eligible applicants).[10]

22. The complaint about needing a "static and defined" protected group[11] is emblematic of Dr. Siskin's attempt to squeeze this case into a model that ignores the reality of the policy.

23. Defendant determined that the policy would work at the CD level. (As explained in my earlier declaration, I aggregated individual lotteries to the CD-typology level to enable lotteries of different sizes to be weighted appropriately and to create more robust results.)[12]

24. The population relevant to a particular study of a CD typology varied (for example, entrants or awardees). In each case, I included all applicable members of each racial group.

25. It was important to study all racial groups, because one could not assume that only one group was being helped or hurt (or that only one group was "protected"). Again, I used all the data, and then let the data tell the story.

26. Perhaps because essentially all of Dr. Siskin's experience is in the employment sphere, he is fixated on "selection rates" as the only potential "outcome of interest." But that fixation ignores the issues that this policy raises. The "outcome of interest" is a determination of whether the policy is helping or hurting a racial group disproportionately. How the policy allocates

[10] *See* BD, Ex. 10, Section 3a.

[11] *See* DOX Brief, at 17.

[12] *See* BD at 8-9, ¶ 21.

benefits and imposes burdens requires first an examination of change or shift *within* a racial group. That is, seeing what share of all outsiders a racial group comprises, and then comparing the share of all insiders that racial group comprises. Then the policy's impact can be compared between and among racial groups. That is exactly what my outsider-to-insider method does. (Highest-insider-share also looks at which racial group is benefitting most from the policy.)

27. This is a good point at which to mention that the data available in this case are much more extensive and well-defined than data available in most disparate impact in housing (or perpetuation-of-segregation in housing) cases.[13] The availability of fixed universes of actual entrants, actual apparently eligible applicants, and actual awardees is combined with the fact that the policy allows two competing scenarios to play out (in approximate terms, the insider-preference half versus the outsider-no-preference half). As such, evaluation of differences, including differences in a racial group's share of the relevant population or sub-population (like insiders or outsiders) is possible in a way that is not true in housing cases where there is disagreement over the population who *might* apply or *might* be eligible, and/or where the challenged policy's *opposite* (the units not subject to preference) has not been field-tested.

E. Consideration rate for insiders is dramatically higher than it is for outsiders, as believed.

28. Dr. Siskin and I have agreed that insiders are considered at a much higher rate than outsiders.[14] This is purely a function of the policy's unit allocation requirement: a developer must

[13] Defendant agrees. *See* DOX, at 3 (referencing "the uniquely comprehensive data analyzed in this lawsuit").

[14] *See* BD, at 52, ¶ 179 ("[I]it is typically and predictably the case that a materially greater percentage of CP-beneficiary entrants will be reached and evaluated for eligibility by a developer than the percentage of non-beneficiaries. The same is true for apparently eligible applicants: just as outsiders are the overwhelming percentage of all applicants, apparently eligible outsider applicants are the overwhelming percentage of all apparently eligible applicants"). *See also* excerpts of transcript of Aug. 26, 2019 deposition of Dr. Siskin ("Siskin I"), annexed hereto as Exhibit 23, at 52:24-53:7 ("Q: …You know that there's a significantly higher percentage of apparently eligible community

go relatively deeper into the small insider sub-pool to obtain ultimately qualified applicants for half of the units than the developer has to go into the much larger outsider sub-pool.

29. I am informed, however, that defendant is asserting that it has not been established that the insider consideration rate is *materially* higher than the outsider consideration rate.

30. Dr. Siskin needed only to examine the consideration data he produced for his (now-abandoned) "regression" analysis, data which I, in turn, long-ago provided to him disaggregated by CD-typology and race.

31. As shown in Exhibit 24,[15] in all 28 cases (seven typologies, four racial groups per typologies), the consideration rate for insiders is higher than the consideration rate for outsiders. In 26 cases (all but Blacks and Hispanics in the plurality-Black CD typology), the consideration for outsiders was in relative terms less than 80 percent of the consideration rate for insiders. Indeed, in 23 cases, the consideration for outsiders was in relative terms less than 55 percent of the consideration rate for insiders. In the majority-White CD typology, the outsider consideration rate for all racial groups was less than 20 percent that of the consideration rate for insiders.

32. To restate the obvious, consideration rate represents another circumstance where it is distinctly better to be an insider and distinctly worse to be an outsider. Beyond the denial of a level playing field that has already occurred, one cannot be awarded a unit if one is not considered. So, the same questions arise: which racial groups disproportionately have access to the preferred

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preference applicants who are considered than the percentage of apparently eligible non-community preference applicants, right? A: That's correct").

[15] Exhibit 24 has four pages. The first page shows insider and outsider consideration rates by race and CD-typology (number of "considered," as Dr. Siskin has characterized considered, divided by number of apparently eligible). The second page shows considered rate of outsiders as a percentage of the consideration rate of insiders. The third page shows each racial group's share of all outsider and each racial group's share of all insiders, by CD typology. The fourth page provides the number of insiders and outsiders considered and the number of *all* apparently eligible applicants.

insider status, and which are disproportionately burdened with the disfavored outsider status? These questions are actually already answered (both for entrants and for apparently eligible applicants) in my initial declaration: the important benefits of insider status flow disproportionately to the dominant racial group to the detriment of other racial groups.[16]

33. Nevertheless, I went back to the raw data on considered applicants (per Dr. Siskin's definition). I then proceeded to apply my outsider-versus-insider-change method,[17] the results of which are shown in Table 17,[18] below.

Table 17

Comparing relative percentage change for each group from share of non-beneficiary considered applicants to share of CP beneficiary considered applicants, by CD typology [Outsider-to-insider-change method. Note: "considered" per Dr. Siskin definition]

CD typology	White	Black	Hispanic	Asian
Majority White	177.95%	-63.28%	5.09%	-5.81%
Majority Black	-55.08%	42.09%	-33.35%	-69.32%
Majority Hispanic	-76.82%	-11.12%	29.65%	-65.84%
Majority Asian	-50.17%	-88.54%	-62.91%	406.20%
Plurality White	28.67%	2.65%	-29.37%	-4.35%
Plurality Black	-31.59%	35.91%	-23.42%	-75.53%
Plurality Hispanic	33.08%	-30.42%	7.82%	70.74%

34. The most-benefitted group is highlighted in yellow in each typology. In all of the typologies except for plurality-Hispanic, the dominant racial group is most benefitted to the

[16] As to entrants, *see* recapitulation in BD, at 27-28, ¶¶ 87-90. As to apparently eligible applicants, *see* recapitulation in BD, at 34-35, ¶¶ 111-114.

[17] The method is described in BD, at 21-22, ¶¶ 64-68.

[18] As with exhibits, I pick up the numbering of tables from where I left off in my earlier declaration.

detriment of all non-dominant racial groups. These results are meaningful per the 80 percent test.[19]

35. It is worth noting that Dr. Siskin attempts to focus the Court's attention on a consideration rate between and among races on a citywide basis (instead of on a CD-typology basis) and without distinguishing between insiders and outsiders,[20] as occurs throughout his declaration. That is an attempt to shift attention *away* from what the policy actually does; namely, effectively pick which racial group, in which typology, will have a disproportionately high share of those benefitting from the unfailingly higher insider selection rates and pick which racial group will have disproportionately high shares of those burdened with the unfailingly lower outsider selection rates.

36. Note that, for all the racial disparities that emerge from Dr. Siskin's model of consideration when viewed at the CD typology level, the model actually *understates* the disadvantage to outsiders (who are disproportionately members of non-dominant racial groups in each CD typology). For example, an applicant who is apparently eligible for more than one unit-type might find, because of the sequencing order of applicants, that *some* of the unit-types for which that applicant was apparently eligible are no longer available by the time that applicant is

[19] The most advantaged demographic group in a CD typology is highlighted is grey. Where a disparity is significant pursuant to the 80 percent test, it is highlighted in green. Where the most-advantaged group is not the largest demographic group in the CD-typology, all of the other racial groups are shown in red regardless of whether a significant disparity between the most-advantaged group and another racial group was present.

CD typology	White	Black	Hispanic	Asian
Majority White	100.00%	-35.56%	2.86%	-3.26%
Majority Black	-130.86%	100.00%	-79.23%	-164.70%
Majority Hispanic	-259.07%	-37.50%	100.00%	-222.04%
Majority Asian	-12.35%	-21.80%	-15.49%	100.00%
Plurality White	100.00%	9.23%	-102.45%	-15.19%
Plurality Black	-87.97%	100.00%	-65.21%	-210.34%
Plurality Hispanic	46.76%	-42.99%	11.06%	100.00%

[20] *See* SD, at 52, Table 3.

reached and considered. This is referred to as an applicant that has been "partially closed-out."[21] It is not disputed that this phenomenon occurs more frequently to outsiders than to insiders.[22] This is so because the policy requires that insider units be filled before outsider units.[23] Dr. Siskin's model of consideration treats this applicant (who has only been able to compete in respect to a subset of the unit types for which he or she was apparently eligible) as having been "considered" in exactly the same way as an applicant who has been able to compete in respect to *all* of the unit-types for which he or she was apparently eligible.[24]

F. Defendant's unfounded critiques of outsider-to-insider-change and highest-insider-share.

37. I selected the methods I used specifically because each illuminates the question that needed to be answered once it became apparent that the policy causes a variety of benefits to flow to insiders and a corresponding variety of detriments to be imposed on outsiders. That question is: "Are the benefits and detriments being distributed in racially disparate ways?"

38. Th highest-insider-share method tells us which demographic group has the greatest share of its members receiving the benefits of insider status (whether higher odds, the ability to compete for all preference units and all non-preference units, a higher consideration rate, etc.).

39. Outsider-to-insider-change has the advantage of showing change from a racial group's share of all outsiders to a racial group's share of all insiders (*i.e.,* from the share of those

[21] *See* P56.1DR, ¶29.

[22] *See* P56.1DR, ¶52.

[23] *See* BD, at 52-53, ¶¶ 181-88 (discussing why outsiders are predictably hurt more than insiders by being either partially closed-out or fully closed-out).

[24] Dr. Siskin trivializes the problem of partial close-out by saying that, "If at least one unit is still available, that applicant will pass the Consideration Stage and be able to compete." *See* SD, at 81-82, ¶ 153. He fundamentally does not understand the fact that competing for only one of the unit types for which one is apparently eligible is not *equal* competition with the applicant who is able to compete for *all* the unit types for which one is apparently eligible.

suffering the policy's detriments to the share of those enjoying the policy's benefits). In other words, the method examines the change in share caused by the policy on each racial group in each CD typology; one then looks across racial groups to see which, if any, have been disproportionately benefitted and which have been disproportionately hurt by the policy.

40. As I have previously noted, the racial composition of outsiders is a very good proxy for the racial composition of all applicants.[25]

41. The Court will see that, as to the policy's denial of a level playing field at the outset (entrants and apparently eligible applicants), Dr. Siskin does not offer alternative calculations.

G. Defendant's other methodological critiques are also without merit.

42. The point of statistical analysis is to illuminate, not to distract, confuse, or obscure. Dr. Siskin proceeds as though there is a mystical connection between the 80-percent-test and selection rates. It is true that the 80-percent-test was first developed and applied in the context of selection rates. But there is nothing either mystical or necessary about that connection. 80 percent was simply a way of suggesting that, in the normal course, a disparity was material ("enough" relative difference, so to speak). There is no reason why it cannot be used for the same purpose – a shorthand method of gauging material relative difference – in other applications.[26]

[25] *See* BD, at 22, ¶ 68, n.34 (highlighting that a demographic group's share of the outsider sub-pool of applicants in a CD typology is very similar to that demographic group's share of the total applicants for that CD typology. *See* [BD] Table 9 (comparing Section 2b and Section 3b). In 19 cases, the difference is less than 0.5 percent; in five cases, the difference is less than 1.5 percent; in one case less than 2.0 percent; and in three cases less than 6.0 percent. In all cases, the variance between the share of *insiders* and the group's share of total applicants (comparing Section 1b and Section 3b) was larger").

[26] In many housing cases, "selection rate," as Dr. Siskin imagines it, does not come into play. Instead, the disparity being measured (sometimes by the 80-percent-test) is which group is more in need of housing that is not getting built because of a challenged policy, with need sometimes measured by comparing the percentage of each group that is apparently eligible for the housing. Housing cases simply provide different variations than do employment cases, and methods need to be attuned to measuring what the challenged policy is actually doing.

43. Statistical significance, of course, is calculated across a wide range of data, not just selection rates. The fact that statistical significance is relatively easily found with the large number of applicants here only emphasizes what is already plain. The variations in share by racial group are not due to chance; the differences observed are indeed meaningful, as reported.

44. Contrary to Dr. Siskin's contentions, I did compare racial groups *to one another*. Those comparisons are shown throughout my previous declaration. The observed differences, based on the underlying data, were substantial. Those differences reflect the *distributions* of the four racial groups: distributions within a group between insider and outsider, and differences among groups in terms of shares of the all insiders and shares of all outsiders.

45. My test of statistical significance looked at the likelihood of the distributions occurring by chance. This test examined the exact same underlying data that were the basis of comparing racial groups to one another. Here, however, the test examined each racial group in comparison to *all others*. This is exactly the how the procedure is intended to work.

46. This was all transparent. I identified and described the RISKDIFF option of the TABLES Statement from the SAS PROC FREQ in my previous declaration.[27] Likewise, I presented each of the results of this computation as units of standard deviation in my previous declaration.[28] It should be noted that the RISKDIFF option, which tests exactly the differences of proportions in tables, either comparing rows or comparing columns one to another, is based not on the normal distribution, which is the most common distribution used for standard deviation, but on the binomial distribution, which is the appropriate distribution to use for testing of two-by two-tables. All of this is in the documentation referenced in my previous declaration.

[27] *See* BD, at 27, ¶ 84, n.38 and at 51, ¶ 174.

[28] *See* BD Exhibit 13 (for disparate impact) and BD, at 51, ¶ 175, n.62 and ¶ 176, n.63 (for perpetuation of segregation).

H. The policy causes disparate impacts in terms of awards.

47. However much Dr. Siskin and defendant wish to use the idea that applicants *go through a process* to mean that *confounding factors have been introduced*, this simply is not true.

48. As stated in my previous declaration, all of the characteristics of an applicant – whether those characteristics are financial or more subjective (in the nature of "follow-through" or deciding ultimately that an offered apartment meets one's needs) come with the applicant.[29] They exist whether the policy is in place or not.[30] It is the same people; the same characteristics.

49. Individuals can differ in their qualifications; indeed, racial groups could, on average, differ in their qualifications or follow-through. But the only thing that actually *happens in the lottery process* is the natural experiment defendant performs on individuals who come with their pre-existing qualifications: treating insiders better than outsiders, to the detriment of non-dominant groups in a CD.[31]

50. One of the advantages of my outsider-to-insider-change method is that it is applicable *regardless* of whether the "qualifications" or "follow-through" of a racial group are better or worse or the same as the qualifications or follow-through of another racial group. The method is able to test how the preference path (the choice made by defendant for 50 percent of the units) differs from the equal-access path (applicable to the other units) for each racial group.

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[29] *See* BD, at 35-36, ¶¶ 115-16.

[30] *See* P56.1DR, ¶ 72 (agreeing the "basic characteristics of an applicant in relation to the lottery – household income, household size, actual eligibility as compared with apparent eligibility, race, and where the applicant lives – do not change whether or not there is a community preference policy or there is not").

[31] What is notable here is that there are actually many fewer moving parts than would normally be the case in a disparate-impact action; what is additive from the usual is that there have been more observations made in respect to multiple impacts on multiple racial groups in multiple CD typologies.

I. Dr. Siskin's "selection rate" as applied to simulated awards understates racially disparate impacts but still confirms that they are meaningful.

51. I begin this section with my usual caution: none of what Dr. Siskin says as to selection rate has anything to do with either the observed racial disparities in odds for entrants and for apparently eligible applicants caused by the policy, or the observed follow-on detriments to outsiders (such as a lower consideration rate and a higher incidence of partial close-out).

52. Here, I address where Dr. Siskin compares the results of his "with preference" simulations and his "without preference" simulations, looking at the "difference in the selection rate of each race."[32] What may be a little confusing is that, unlike his analysis of actual awards, here he defines selection rate as "the percent of the [total] awards selected for each race."[33]

53. According to him, by relying on his simulation "we eliminate any confounding impact of the Confirmation Process on the lottery awards by race."[34] According to Dr. Siskin, the "difference in the results with and without the CP policy [are] *completely attributable to the CP policy*, and are a *very good estimate of the expected impact of the CP policy* on the lottery results."[35]

54. There are two principal problems with Dr. Siskin's analysis of simulated awards. The first is that comparing the entire "with preference" simulation to the entire "without preference" simulation misleadingly yields a diluted version of the policy's impact. The second is that Dr. Siskin utilizes the citywide, separate-but-equal approach.

55. As to the first, we begin with the fact that half of the units are allocated by the preference policy and half are allowed to proceed in the normal manner of a lottery. My approach

[32] *See* SD, at 55, ¶ 106.

[33] *See id.*

[34] *See id.* at 53, ¶ 104.

[35] *See id.,* at ¶ 104, n.77 (emphases added).

of looking at the simulations with the preference policy in effect allows me to examine specifically the demographics of preference awardees and compare those demographics to the profile of non-beneficiary awardees (capture the difference between the demographic composition of the two).

56. Dr. Siskin's comparison of all of the "with preference" results versus all of the "without preference" results, by contrast, obscures that difference. It includes in both sides of the comparison the 50 percent of units as to which there is no reason to expect differences (they are the outsider units in the "with preference" scenario as to which there is no preference, and an equivalent number of units (roughly half) in the "without preference" scenario). Even though *all* of the difference to be observed arises from the half of the units that are preference units *versus* an equivalent number of non-preference units, Dr. Siskin includes non-preference units that could not add to the difference but that *do* double the base as to which the difference is calculated. This artificially reduces the magnitude of the difference.[36]

57. As noted, Dr. Siskin compounds the problem by misleadingly using, as he does elsewhere, a citywide comparison.[37]

58. Notwithstanding all of the above, if one remains aware of the dilution effect while disaggregating the citywide results, "with" versus "without" tells an interesting story.

59. Set out on the next page is a reformatted but substantively identical version of Dr. Siskin's Table 4, which he asserts shows "no meaningful difference in those who are considered by race with and without the CP policy in effect."[38]

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[36] Put another way, the "with preference" simulation involve the following mixture: (½ NP) + (½ P). The "without preference" simulations involve a different mixture (½ NP) + (½ NP), described this way to be able to have an equivalent to the (½ NP) in the "with preference" simulations. Even though the difference is due to (½ NP) versus (½ P), Dr. Siskin dilutes that difference by comparing two samples ("with preference" and "without preference") that each incorporate a (½ NP) that represents units not subject to preference.

[37] *See* SD, at 53-55, ¶¶ 105-06 and Table 4.

[38] *See id.* at 54, ¶ 105.

Table 18 (Dr. Siskin's Table 4)

Dr. Siskin's citywide comparison of results of simulations of awards ("with preference" simulations compared to "without preference" simulations")

Race of awardee	Awards with policy in effect	Awards with policy not in effect	Difference (with minus without)	Percent increase with policy in effect
White	1,099	955	144	15.1%
Black	3,506	3,647	-141	-3.9%
Hispanic	3,642	3,650	-8	-0.2%
Asian	629	646	-17	-2.6%
Other	655	659	-3	-0.5%
Refuse	713	688	25	3.7%
Total	10,245	10,245		

60. Dr. Siskin is only able to achieve this result by offsetting disparities that exist in one CD-typology with disparities that exist in other CD-typologies (the separate-but-equal approach). I have taken those same simulation data and disaggregated the results by CD typology. The increase or decrease in awards for a racial group under the "with preference" simulations as compared to the those under the "without preference" simulations is shown on the next page, in Table 19. The underlying data are found in Exhibit 25.

Table 19

Comparison of results of simulation of awards at CD-typology level: "with preference" simulations as compared to "without preference" simulations)

(Increase or decrease in awards to racial group measured as percentage of the group's awards "without preference")

CD Typology	White	Black	Hispanic	Asian
Majority White	65.77%	-30.17%	1.89%	-2.75%
Majority Black	-30.72%	17.47%	-14.48%	-29.28%
Majority Hispanic	-34.23%	-3.58%	10.27%	-33.02%
Majority Asian	-18.88%	-38.56%	-26.21%	87.28%
Plurality White	9.28%	1.84%	-11.03%	-5.14%
Plurality Black	-10.61%	17.20%	-14.39%	-35.45%
Plurality Hispanic	8.21%	-16.75%	2.49%	22.14%

61. As is immediately apparent from the extent to the which most-advantaged racial group is helped by the policy (highlighted in yellow), the disparities that Dr. Siskin concealed with aggregated citywide results emerge strongly at the CD-typology level (although, again, the disparities are diluted by including on both sides of the equation the 50 percent of units not subject to preference).[39]

62. Dr. Siskin would have had the Court believe, for example, that White advantage under the policy was +15.1 percent and Black disadvantage -3.9 percent. But those citywide aggregations conceal the fact that in the majority-White typology, advantage and disadvantage is much more stark: White advantage of +65.77 percent in relation to Black disadvantage of -30.17 percent.

[39] *See* BD, at 39, Table 9 (outsider-to-insider change method as applied to outsiders and insiders in the "with preference" simulations).

63. More broadly, there are significant disparities present in all majority-race typologies, as well as in the plurality-Black typology.

64. This is true when it comes to the raw count of units awarded, too. Dr. Siskin would have the Court only look at the fact that, *citywide*, Whites gained 144 units from the policy and Blacks lost 141 units from the policy. But, as now discussed *ad nauseum*, the policy does not work citywide. For example, *just in the majority-White typology*, Whites gained 173 units from the policy and Blacks lost 199 units from the policy. And rather than these deviations relating to a total of 10,245 awards, they relate to the much smaller total of 2,031 simulated awards in the majority-White typology.[40]

65. For each CD typology, I mirrored the way that Dr. Siskin calculated the selection rate and the way he applied an 80-percent test (when he had looked at the data in the misleading citywide fashion).[41] The results confirm that disparities at the level of CD typology are meaningful, and are shown in Table 20, on the following page.

[40] The full set of comparisons are shown in Exhibit 27, Section C.

[41] He first derives a selection rate (as noted, defined by him here as "the percent of the [total] awards selected for each race") both for the "with preference" simulations and for the "without preference" simulations. (My calculation of those shares is presented in Exhibit 25.) Then he applies the 80-percent-test to the "difference in the selection rate of each race . . . with the CP policy in effect relative to the expected selection rate of each race if the CP policy were not in effect," dividing each race's difference by the most favored group's difference. *See* SD, at 55, ¶ 106 and ¶ 106 n.79.

Table 20

Dr. Siskin's 80-percent test, as applied to simulated awards at the CD-typology level

(Racial group with greatest relative change from "without preference" to "with preference" shown in grey; meaningful disparity shown in green)

CD Typology	White	Black	Hispanic	Asian
Majority White	100.00%	42.12%	61.46%	58.66%
Majority Black	58.98%	100.00%	72.80%	60.20%
Majority Hispanic	59.65%	87.45%	100.00%	60.75%
Majority Asian	43.32%	32.81%	39.40%	100.00%
Plurality White	100.00%	93.19%	81.41%	86.81%
Plurality Black	76.28%	100.00%	73.05%	55.08%
Plurality Hispanic	88.59%	68.16%	83.91%	100.00%

66. The 80-percent-test as *between* "with preference" and "without preference" simulations confirms significant, multiple disparities in simulated awards for all majority-race typologies, as well as in the plurality-Black typology (although it again dilutes the results obtained by comparing insider and outsider awards *within* the "with preference" simulations).[42]

[42] Copying how Dr. Siskin performed the 80-percent test as between "with preference" and "without preference" simulated awards, I applied the test comparing insider and outsider awards *within* the "with preference" simulations:

CD Typology	White	Black	Hispanic	Asian
Majority White	100.00%	15.76%	43.09%	35.67%
Majority Black	24.68%	100.00%	46.06%	21.80%
Majority Hispanic	22.09%	74.58%	100.00%	22.18%
Majority Asian	9.39%	2.69%	9.02%	100.00%
Plurality White	80.95%	100.00%	68.04%	65.19%
Plurality Black	53.70%	100.00%	47.51%	16.55%
Plurality Hispanic	72.75%	45.26%	72.61%	100.00%

The same typologies show meaningful disparities (all majority-race typologies, plus plurality-Black), but the disparities are greater. Note, for example, that in the insider versus outsider comparison directly above, Blacks are only 15.76 percent of Whites in the majority-White typology. In the "with preference" versus "without preference" 80-percent test in the same typology, Table 20, above, Blacks are 42.12 percent of Whites. The latter is still a dramatic difference, but a diluted difference.

67. Thus, while I stand by the more telling (non-diluted) method of depicting the policy's impact via the outsider-to-insider change method as applied to Dr. Siskin's simulations with preference,[43] his own approach to simulated awards is confirmatory: the policy will continue to cause significant racial disparities at the awards level as long as the policy remains in place.

J. Dr. Siskin's "selection rate" as applied to actual awards confirms significant racial disparities at the CD-typology level.

68. The second way that Dr. Siskin approaches selection rates is in relation to *actual* awards (where Dr. Siskin makes a number of adjustments to yield "adjusted selection rates"). The approach that Dr. Siskin is presenting to the Court, when applied to the CD-typology level, does *not* create a factual dispute about racially disparate impacts in actual awards, but confirms their existence.

69. When Dr. Siskin discusses bottom-line selection rates for actual awards, he is still looking citywide, and, in so doing, he automatically conceals racial disparities at the level of CD-typology. For each CD typology, I mirrored the way that Dr. Siskin calculated the selection rate and the way he applied an 80-percent test (when he had looked at the data in the misleading citywide fashion). To be clear, these are the same underlying data that Dr. Siskin used, and the same adjustments that Dr. Siskin makes. The results of the 80-percent test as Dr. Siskin performs it are reported in Table 21 on the following page.

[43] *See* BD, at 39, Table 9.

Table 21

Dr. Siskin's 80-percent test, as applied to actual awards at the CD-typology level

(Racial group with highest overall selection rate shown in grey; meaningful disparity shown in green)

CD Typology	White	Black	Hispanic	Asian
Majority White	100.00%	42.53%	67.12%	52.38%
Majority Black	64.22%	100.00%	70.74%	60.75%
Majority Hispanic	65.87%	84.87%	100.00%	65.91%
Majority Asian	41.50%	33.75%	39.80%	100.00%
Plurality White	100.00%	92.48%	76.45%	84.06%
Plurality Black	75.34%	100.00%	81.70%	61.61%
Plurality Hispanic	100.00%	82.73%	96.64%	98.32%

70. As is evident, there are meaningful racial disparities in all of the majority-race typologies as well as in the plurality-Black typology. His results, in other words, do not contravene my results; they are confirmatory.

71. I have to take a moment to address again the idea of "cherry-picking" that Dr. Siskin and defendant have propounded. I (and plaintiffs) did the opposite: we took a conservative approach that, in relation to awards (as opposed to the level playing field that the policy denies entrants and apparently eligible applicants), asks the Court to find disparate impact "only" for majority-race typologies, even though my analysis of Dr. Siskin's "with preference" simulations showed predictive meaningful impact in the plurality-Black typology as well.

72. Taking just those majority-race typologies, they account for 71.4 percent of all the awards made; adding awards in the plurality-Black typology (where Dr. Siskin's methods show impact both for actual and simulated awards) brings the total to 74.1 percent of all awards.[44] That

[44] *See* BD, at Ex. 11, Section 3a.

is a system that is rife with disparate impacts.

73. Notwithstanding the confirmatory results, I am obliged to report to the Court that I am skeptical of the adjustments that Dr. Siskin makes. For example, he deducts from what he describes as the overall "shortfall" or "surplus" (compared to "expected" results) any "within status" variation in "selection rate" between and among racial groups. By this he refers to any differences in selection rate as between insiders who are Black as compared with insiders who are White, etc. But those variations exist to the extent that they exist. To say that they should be extinguished as "non-policy" phenomena ignores the fact that: (a) they are present; and (b) the policy's allocation element favors insiders and disfavors outsiders, *regardless* of what the demographic distribution of either sub-pool may be.

74. I, on the other hand, take the results as they are, focusing on the choice defendant has made to favor insiders.

75. This means that I appreciate the fact that, in the absence of the policy, more outsiders would be considered and selected,[45] outsiders who have every reason to be demographically equivalent to the outsiders who are selected under the policy now. That is why it is so important to focus on the policy-caused shift from a racial group's share of the disfavored outsider sub-pool to that racial group's share of the favored insider sub-pool, something that can be captured by the outsider-to-insider-change method without "adjustment" from what is.

76. In any event, while I urge my procedure on the Court, Dr. Siskin's procedure, when

[45] At his deposition, Dr. Siskin was questioned about the same hypothetical that he now presents to the Court in App. B as Hypothetical 1. His point in that hypothetical (same number of insiders and outsiders; same rate of selection) was that the policy did not have an effect: 10 insiders were selected, and 10 outsiders were selected. But he was shown at his deposition a variation on the hypothetical where apparently eligible outsiders outnumbered apparently eligible insiders 24-to-1 (in keeping with the ratio that obtains in the majority-White typology). In that scenario, he agreed, 10 awards would still go to insiders with the policy in effect (and 10 to outsiders). But with the policy not in effect (the equal-access scenario), he also agreed, only one award would go to an insider; the other 19 would go to outsiders. *See* Siskin I, at 33:3-38:6; *see also* spreadsheet showing plaintiffs' reworking of Siskin's hypothetical, discussed in cited portion of Siskin I, marked as Electronic Ex. 326 at Siskin I, and annexed hereto as Exhibit 26.

disaggregated to the CD-typology level, still makes the same point: the policy causes meaningful racial disparities in all of the majority-race typologies as well as in the plurality-Black typology.

K. The racial disparities in awards have practical significance.

77. Before discussing awards, it is worth pointing out that the disparities observed in terms of the policy's initial denial of a level playing field to entrants and to apparently eligible applicants occur with respect to millions of applicants.[46] This is, by definition, practical impact over enormously sized pools.

78. Awardees are fewer in number, but there is still practical significance to the disparities observed. The numbers are large enough that significant *relative* differences in majority-race typologies in the racial groups' share of the outsider versus the insider sub-pool *constitute* practical difference. These differences are captured by the 80-percent-test and by statistical significance (note that the overwhelming preponderance of cases show statistical significance far in excess of the 2.0 minimum standard deviation, even at the awards level).[47]

79. In addition, the fact that the policy is not a "one-shot" – that it is an ongoing policy – promises *more* practical difference to come. The discriminatory effects on New Yorkers will only grow over time as more lotteries are conducted with the policy.

80. Indeed, Dr. Siskin's simulation of running the lottery 1,000 times with the policy in effect shows that the disparities in awards are predictable and, thus, in raw numbers, will grow over time.

81. I have already provided the example (using Dr. Siskin's comparison of "with

[46] *See* BD, at Ex. 9, Section 2a (entrant outsiders) and 10, Section 2a (apparently eligible outsiders).

[47] *See* BD, at 38, ¶ 124 n.53 (outsider-to-insider change 80 percent test); at 41, ¶ 131 n.56 (highest-insider share 80 percent test); and at Ex. 13 (statistical significance).

preference" versus "without preference" simulations, to point to the fact that, on average, 199 fewer Blacks were awarded units in the majority-White typology with the preference in effect than were awarded units without the preference in effect).

82. But it is not just an issue of White and Black. In the majority-Hispanic CD typology, for example, 33 more Asian households were awarded units on average in the "without preference" simulations as compared to the number awarded in the "with preference" simulations. This difference is practically significant, too: it occurs over a very small base of only 99 units. In that same typology, Hispanics had, on average, a deficit of 128 units in the "without preference" simulations as compared the "with preference" simulations.

83. To reiterate the point about increasing practical impact over time: the more lotteries that occur, the more the raw differences will grow.

L. Inapplicable and unrealistic analogies and axioms.

84. I fully concur with the criticism of Dr. Siskin's same-job-two-different-locations analogy set out in plaintiffs' brief.[48] That includes the fact that the policy is unlike a test.

85. Defendant's "bonus points" analogy fails, too. Dr. Siskin repeatedly asserts that the policy is like a test where bonus points are applied to some candidates so that those candidates can pass the test instead of failing it.[49] For example, he says that the bonus points "impact" which apparently eligible applicants will "pass" the "Consideration Stage" and thereby move on to "compete for the unit by verifying actual eligibility and interest."[50]

[48] *See* plaintiffs' memorandum of law in reply to opposition to motion and in opposition to defendant's cross-motion ("PRO Brief"), at 21-23.

[49] *See* SD, at 9, ¶ 20; at 24-26, ¶¶ 51, 53; at 31, ¶ 72; at 33, ¶ 65; and at 34-35, ¶ 67

[50] *Id.* at 33, ¶ 65.

86. Application of the policy is nothing like the award of "bonus points." The policy's allocation prong *stops outsiders cold* from taking the "test" for half of the "jobs" (units) that are available. It also results in outsiders having worse odds in competing for jobs (units) overall.

87. The sequencing prong of the policy means that outsiders do not compete with insiders equally but rather are pushed to the back of the line. By the time they get to submit their "test," some or all of the jobs (units) that they sought may no longer be available because insider candidates (including those with worse lottery numbers) have already secured the jobs (units) before the outsiders can have their tests "scored."

88. And, of course, the analogy falsely suggests that the policy takes subpar qualifications (a test result that would be failing) and transforms it into a grade that is sufficient to "pass." But, here, the *very definition of apparently eligible* is that *anyone and everyone* who is reached by a developer would "pass" in the sense of moving on to "compete for the unit by verifying actual eligibility and interest."

89. The analogy also gives the false impression that qualifications do not exist prior to the lottery process; put differently, that applicants *perform* during the process. On the contrary, the qualifications of each applicant are what they are and do pre-exist the process. That those qualifications are *documented* later has nothing to do with "bonus points" being allocated. The analogy, thus, is altogether inapt and must be disregarded.

90. Just as strange is the "mathematical axiom" that Dr. Siskin claims to be applicable here: "if a methodology is valid, it should be valid with any facts."[51] First, the supposed axiom he cites does not relate to empirical work, but rather to prove mathematical theorems. The subject of this case is a real-life, empirical, natural experiment.

[51] *See* SD, at *28, ¶ 57.* His source is "mathigon.org."

91. Second, Dr. Siskin admits that his hypothetical is unrealistic (or, in his words, "the facts of the hypothetical are simplified and thus not representative of the lottery").[52]

92. Why is this of critical importance? The obvious first answer is that positing a hypothetical with the same number of insiders and outsiders does not tell you very much about a lottery system where, depending on CD typology, the number of outsiders can exceed the number of insiders by 20-fold or more.

93. But the even more significant answer is that my methods *would not be applied* in the hypothetical circumstance that Dr. Siskin describes. It is *immediately evident* that the hypothetical practice is *not* conferring an advantage due to insider status. There is no advantage to be observed or analyzed.

94. The axiom, like Dr. Siskin's hypotheticals are distractions. When looked at from the lens of CD typologies, and beyond the denial of a level playing field to entrants and apparently eligible applicants, the policy causes multiple, meaningful impacts in all majority-race CD typologies – both using Dr. Siskin's approach and mine.

[Section M, ¶¶ 95-97, intentionally omitted. Content continues on next page.]

[52] *See* SD, Appendix C, at 3.

[Section M, ¶¶ 95-97, intentionally omitted. Content continues below.]

N. Defendant provides a misleading account of lottery stages.

98. Defendant leaves out the fact that the policy pre-exists the specific lottery.[53]

99. Defendant leaves out the fact that the policy is immediately applicable to applications that are submitted to a particular lottery, a fact reflected by defendant designating applications as preference-eligible or not at the time a log of applications is made available to a developer.

100. Dr. Siskin's version of "considered" is something that he has acknowledged is an analytical construct, and "not intended to replicate the actual lottery process,[54] although defendant now seems to be suggesting that entrants are not part of the consideration process.

101. Whatever informal assessment of applications that a developer may make, an entrant is not actually considered until that entrant is "reached" by the developer; that is, until that entrant's turn – as modified by the policy – arrives. Just as a fully-closed-out entrant is supposed

[53] *See* P56.1DR, ¶ 18 (acknowledging plaintiffs' "cited sources make clear" that "developers are advised of CP prior to the beginning of marketing and the public is notified of CP through lottery advertisements prior to any applications being received").

[54] This statement appears in Dr. Siskin's Dec. 13, 2019 amended sur-reply report, at 14-15.

to be informed of that determination (no apartments fitting your qualifications are available) at the time the entrant is reached, so, too, an entrant is supposed to be informed of any other determination (like "you are not qualified") at the time the entrant is reached. In both cases, the actual process of being reached in turn (as modified by the policy), considered by the developer, and informed of a determination occurs, even though neither is included in Dr. Siskin's analytical construct.

102. So, in actual terms, entrants who are not apparently eligible are "reached and considered," just like everyone else.[55]

O. Perpetuation of segregation – introduction.

103. Here, both sides agree that a citywide analysis is correct. Both sides agree that the "integrating" and "segregating" moves are accurately coded, consistent with the way dissimilarity is understood. The results showed substantially greater net-integrative moves.

104. Indeed, the comparative results (insider versus outsider actual moves, insider versus outsider moves sought, insider versus outsider simulated moves) are facially so disparate in terms of net-integrative effect (outsider moves and moves being sought much more integrative than insider moves and moves sought) that there was not and is not any question about significance in every sense of that word.

[55] *See* Aug. 14, 2020 declaration of Margaret Brown, ECF 900, at 5, ¶ 17 (emphasis added), confirming that "only those applicants with log numbers that the developer *reaches for consideration* will receive notification that they are apparently ineligible").

105. The 80-percent-test and the same test for statistical significance that I ran for disparate impact findings confirm significant perpetuation of segregation in every comparison undertaken for the following pairings:

a. White versus Black

b. White versus Hispanic

c. White versus Asian

d. Black versus Hispanic

e. Black versus Asian

106. The sixth pairing, Hispanic versus Asian, had significance in two of three comparisons.

107. Dr. Siskin's answer to these overwhelming findings is to try to change the subject.

P. Perpetuation is not measured by change in the dissimilarity index.

108. Over the decades, I have been involved with many cases involving perpetuation of segregation and am familiar with many others. I state with conviction that one never looks to an actual or prospective change in the dissimilarity index to see whether perpetuation is occurring. Housing segregation experts instead look to whether a policy predictably reduces integrative moves that would otherwise occur.

109. The reason for this is very basic. The dissimilarity index is generally produced on the scale of an entire jurisdiction, whether that is a state, a metropolitan area, a city, a town, or a village. It is used to answer the question: "How segregated is the entire jurisdiction?"

110. The scale of a housing development, or even a group of developments is much smaller. (New York City is an extreme case with well over three million housing units, but the

point is true for smaller jurisdictions, too.) The concept of perpetuation as it relates to whether a policy stymies integration is a question framed in respect to the *particular* project at issue. In the exclusionary zoning context, for example, the question pertains to the housing units that are precluded from being built. The question is *not* whether racial balance between two groups *throughout the jurisdiction* changes as measured by the dissimilarity index; it is whether a policy predictably reduces integrative moves that would otherwise occur *in respect to the project or policy at hand.*

111. If it were otherwise, then it is hard to imagine – certainly in any medium or large city, let alone New York City – what policy could exist on a scale large enough to *on its own* move the dissimilarity index very much. One could have a series of separate policies in a jurisdiction, or a serial application of a policy, and the policy or policies in each case would be given a pass because the case presented a lack of substantial measurable movement in the jurisdiction's dissimilarity index. In other words, challenges to each policy would be rejected, even where each policy in question unquestionably stymies integration. It would be a formula that immunizes each integration-stymieing policy forever.

112. The irony here is that, unlike the circumstances where perpetuation has to be forecast based on eligible population that could be interested in affordable housing, here we have a track record of actual awards, a huge body of concrete applications for specific housing in specific locations, and simulated awards as well. This makes continuing perpetuation as close to a certainty as there can be. Just in terms of actual apparently eligible applications stating moves for which they want to be considered, for example, there are 358,187 net-integrative moves sought from outsiders in the pairing looking at segregation between Whites and Blacks, and only 5,609 net-integrative moves sought by insiders in that pairing. There are 358,681 net-integrative moves

sought from outsiders in the pairing looking at segregation between Blacks and Hispanics, and only 2,033 net-integrative moves sought by insiders in that pairing.[56]

113. Defendant's policy is clearly to prefer the insider group that has far less integration potential.

Q. Stymieing of integration is perpetuation of segregation, and the policy stymies integration.

114. This has been said, but it is worth repeating. If you start with a segregated state of affairs (and there is no dispute but that we do), it is certainly the case that *one way* of perpetuating segregation is to *intensify* that segregation (make it worse). But that is not the only thing that perpetuation of segregation is understood to mean. In the field studying housing segregation, perpetuation of segregation in relation to a policy is understood to be a comparison of the trajectory of the results (and/or predicted results) of a policy compared with the trajectory of the results (and/or predicted results) of the absence of the policy.

115. By definition, any policy that prevents integrative moves is one that keeps segregation in place *more than would be the case without the policy.* "Keeping segregation in place more than would be the case otherwise" is the same as "perpetuating segregation more than would be the case otherwise."

116. Causation is not in question. Without the policy, there would be more outsider moves. The outsider moves, on net, are consistently more integrative than insider moves.[57] It is the policy that stymies those more-integrating, outsider moves.

117. The foregoing does not seek to determine or opine on whether a policy that

[56] *See* BD, Ex. 17, at 1 (showing counts of net integrative moves by racial pairing and preference status).

[57] This was amply demonstrated in my prior declaration. *See* BD, Ex. 16-18.

perpetuates segregation is *justified* either in policy terms or in legal terms. It simply means that the question "does a policy perpetuate segregation relative to its alternative?" is different from the question "does a policy worsen segregation in absolute terms compared to current conditions?" and that it is the former question as to which proper perpetuation analysis attends.

R. It is improper to count racial groups not part of the two-group pairing being compared.

118. Dr. Siskin attempts to resuscitate his mistaken procedure of treating moves made by persons outside of a two-group demographic pairing – moves that *by definition cannot have* an integrating or segregating effect – as the same as moves made by persons within the two-group demographic pairing that *turn out not to have* an integrating or segregating effect.[58]

119. As I stated in my earlier declaration, "It is absolutely basic to the social science of measuring segregation, and, more specifically, to the application of the dissimilarity measure, that two-group pairs are assessed entirely separately, one pairing at a time."[59]

120. In the White-Black pairing, for example, it is only the moves of Whites and Blacks that can have any bearing on White-Black integration or segregation. When determining the percentage of Whites and Blacks for dissimilarity purposes, one does *not* calculate Whites as a percentage of all, or Blacks as a percentage of all. Whites and Blacks are each calculated as percentages of the *sum of Whites and Blacks:* no matter how many or how few Hispanics or Asians there are in the relevant geography, Hispanics and Asians are entirely irrelevant to the analysis of White-Black dissimilarity (just as Whites and Blacks are entirely irrelevant to the analysis of Hispanic-Asian dissimilarity).

[58] *See* SD, at 72-73, ¶¶ 138-39.

[59] *See* BD, at 46, ¶ 150.

121. Any Black or White mover *can* have an effect on White-Black dissimilarity. Some of those moves might be integrating; some might be segregating; and some might have "no effect." The subset of Black or White moves that *turn out* to be "no effect" moves are *categorically different* from *any* Hispanic or Asian move: *every one of the latter* is irrelevant to the comparison and are properly classified as "impossible to have an effect." My approach recognizes this; Dr. Siskin's approach ignores this.

122. I should also point out the fact that, in the method I use, consistent with the study of housing segregation and the ways that different policies have an impact on housing segregation, there is no move that is "lost" in any way. Each move is "counted" in the three pairings that are relevant to it (each racial group is included in three pairings). Thus, for example, a move by a Black New Yorker is assessed in the White-Black pairing, in the Black-Hispanic pairing, and in the Black-Asian pairing. In other words, I make the assessment everywhere that it is relevant and *could* have an impact.

123. The numbers of net-integrative moves for CP-beneficiaries on one hand and non-beneficiaries on the other are known and agreed upon for all six two-group demographic pairings as to each of the following analyses: (a) for actual awardees; (b) for simulated awardees; and (c) for moves sought to be made by apparently eligible applicants. One would not know this from Dr. Siskin's "simple hypothetical,"[60] because, as is his custom, Dr. Siskin's hypothetical is utterly unrepresentative of the facts on the ground. *In fact, it is always the case that for the lotteries under study there are more net-integrative moves made or sought by non-beneficiaries than by CP-beneficiaries.*

124. Before going further into the details of Dr. Siskin's mistaken premises, let us look

[60] *See* SD, at 73, ¶ 139.

at his hypothetical, and, to make it easier to understand, assume that the groups being compared are Whites and Blacks. Out of 100 outsiders, he has 40 non-beneficiaries who are White or Black. Assume that each move they make is integrative. In this scenario, 100 percent of White and Black outsiders (40 out of 40) have made integrative moves. But by including out-of-pairing moves, Dr. Siskin would describe this – the absolute maximum integration possible on the White-Black axis – as only 40 percent net-integrating.

125. How does he manage this trick of making it appear that the percentage of net-integration is actually lower than it is? Look first at the proper method that I use. The denominator by which I measure the net-integrating moves of a demographic pairing are all the moves of members of that demographic pairing. Each move *could have been integrating*, but they turned out as they did (integrating, segregating, or "no effect"). In this way, one gets a true (unbiased) result. Dr. Siskin, by contrast, inflates the denominator by loading in moves by out-of-pairing applicants that *could never be integrating.* It is of course the case that this tactic would achieve its goal – artificially lowering the percentages of net-integration – but only because there is a significant portion of the denominator *that it was impossible to have in the numerator.* That is improper.

126. Dr. Siskin puts great stock in noting that, in his counterfactual example, there are the same number of net-integrating moves arising from insider moves as there are from outsider moves and criticizes me for describing the outsider rate as double the insider rate. (This is part of his attempt to lure the Court into looking at the dissimilarity index to measure the policy versus the absence of the policy – an inappropriate measure, as discussed in Section P, *supra*.)

127. But, in fact, the outsider rate of net-integration for the demographic pairing in Dr. Siskin's hypothetical (again, let's say Whites and Blacks) *is* double the insider rate. That is, his

hypothetical posits for outsiders two net-integrative moves out of 40 moves made by Whites and Blacks, or 5.0 percent; and posits for insiders two net-integrative moves of out 80 made by Whites and Blacks, or 2.5 percent.

128. Put differently, it is basic to assessing a continuing policy that perpetuates segregation that the difference between outsider net-integration rate and insider net-integration rate continues to apply whether you have 100 or 1,000 or 10,000 or 100,000 White and Black movers. In other words, the rate of net-integration within a pairing that will be generated by outsiders (the ones powerfully restricted by the policy) will predictably be significantly higher than that of insiders, and it grows over time.

129. The goal of Dr. Siskin's exercise, combined with his distraction of looking at change in the dissimilarity index, is very clear: to give the impression that the integrative and segregative moves comprise a smaller percentage of all moves than what the correct methods reveal. The effort should be rejected.

130. Again, however, this is a distraction that, even if looked at, does nothing to change the conclusion that the policy perpetuates segregation. This is not surprising; if Dr. Siskin's method of improperly including moves from the groups not part of the paired comparison had contradicted my findings of perpetuation, he would have reported those results. He did not. (Instead, he has tried to take refuge in change-in-dissimilarity index.)

131. To demonstrate that the perpetuation findings remain true even if non-pair groups are included, I have created tables that show side-by-side the net-integrative moves for CP beneficiaries as a percentage of net-integrative moves for non-beneficiaries: (a) when only the moves of the two groups being evaluated are included (the "Beveridge method"); and (b) when the moves of races not part of the two groups being evaluated are also included (the "Siskin

method"). Table 22, below, deals with actual awardees and summarizes BD Exhibit 16 for the Beveridge Method and Exhibit 29, attached, for the Siskin Method.[61]

Table 22

Net-integrative outsider moves vs. net-integrative insider moves (actual awardees)
(Insider net-integration percentage as percentage of outsider net-integration percentage)

2-race comparison	Beveridge method: only races at issue	Siskin method: including races not part of comparison
W v AA	32.71%	32.14%
W v A	45.87%	57.19%
W v H	65.98%	71.84%
AA v H	12.84%	12.04%
AA v A	25.43%	22.81%
H v A	89.52%	90.91%

132. The pairings where the insider net-integration percentage as a percentage of outsider net-integration percentage is less than 80-percent are highlighted in yellow. The reason for the similarity is because both methods are dealing with the same number of net-integrative moves.

133. Table 23 analyzes moves sought by apparently eligible applicants and summarizes BD Exhibit 17[62] for the Beveridge Method and Exhibit 30, attached, for the Siskin method.

[61] The Beveridge-method results here and in the following two tables are taken directly from BD, Exhibits 16-18, respectively; the Siskin-method results rely on the same underlying data. Please note that BD Tables 11-13, which summarized BD Exhibits 16-18, had accidentally transposed the "W v H" labels and the "W v A" labels found in BD Exhibits 16-18, placing "W v H" above "W v A" instead of below. *See* BD, at 48-50. I apologize for the error. The labels in Table 22 above, and on Tables 23 and 24 on page 36 and 37, below, are correctly placed. Please also note that Chart 4, in PI Brief, at 38, which sets out in graphic form the low relative percentage of net-integrative moves among CB moves and moves sought (actual moves, apparently eligible moves sought, awardee moves from the "with preference" simulations) correctly reflects the underlying data in BD Exhibits 16-18.

[62] *See* n.62, *supra*.

Table 23

Net-integrative outsider moves sought vs. net-integrative insider moves sought by apparently eligible applicants
(Insider net-integration percentage as percentage of outsider net-integration percentage)

2-race comparison	Beveridge method: only races at issue	Siskin method: including races not part of comparison
W v AA	29.51%	30.44%
W v A	17.03%	18.15%
W v H	49.23%	51.83%
AA v H	11.10%	11.02%
AA v A	13.22%	12.63%
H v A	61.24%	59.74%

134. The pairings where the insider net-integration percentage as a percentage of outsider net-integration percentage is less than 80-percent are highlighted in yellow. Table 23 shows that, in all six pairings, the moves sought by apparently eligible outsiders were substantially more net-integrative than those sought by insiders. There is little difference between the results obtained by the two methods. As noted in my earlier declaration, the volume of the integrative outsider moves sought vastly exceeds that of integrative insider moves sought and those outsider moves are being hemmed in by the policy's constriction on the percentage of units available to outsiders.

135. Table 24 deals with moves derived from Dr. Siskin's simulations with preference in effect and summarizes BD Exhibit 18[63] for the Beveridge Method and Exhibit 31, attached, for the Siskin method.

[63] *See* n.62, *supra*.

Table 24 **Net-integrative outsider moves vs. net-integrative insider moves** **(defendant's 1,000 runs of simulation with preference in effect)** (Insider net-integration percentage as percentage of outsider net-integration percentage)		
Two-race comparison	Beveridge method: only races at issue	Siskin method: including races not part of comparison
W v AA	29.61%	29.94%
W v H	33.03%	39.07%
W v A	57.90%	62.21%
AA v H	13.63%	13.16%
AA v A	22.60%	21.05%
H v A	61.76%	61.92%

136. The pairings where the insider net-integration percentage as a percentage of outsider net-integration percentage is less than 80-percent are highlighted in yellow. There is little difference between the results obtained by the two methods. Table 24 shows that, in all six pairings, the simulated moves of outsiders were substantially more net-integrative than the simulated moves of insiders, regardless of method.

S. Comparing the "with preference" simulation to the "without preference" simulation.

137. I have already discussed in the disparate-impacts context the fact that comparing the entire "with preference" simulation to the entire "without preference" simulation misleadingly dilutes the magnitude of the difference caused by the policy.[64]

138. An equivalent problem occurs in the perpetuation-of-segregation context. I begin

[64] *See* discussion, above, at 15-16, ¶¶ 54-56.

with a comparison of net-integrative outsider moves to net-integrative insider moves *within* the "with preference" simulations, as shown by Table 25, below.[65] (Counterintuitively, net integration is shown as a negative number; net segregation would be shown as a positive number.)

Table 25

Cumulative net-integrative outsider moves vs. net-integrative insider moves (defendant's 1,000 runs of simulation with community preference in effect)

Demographic Pairing	Net integrative outsider moves (count)	Net integrative insider moves (count)	Insider net-integration percentage as percentage of outsider net-integration percentage
W v AA	-425,171	-125,801	29.61%
W v A	-178,714	-68,995	33.03%
W v H	-349,875	-215,080	57.90%
AA v H	-530,630	-68,976	13.63%
AA v A	-443,787	-92,294	22.60%
H v A	-323,330	-197,830	61.76%

139. With my method of comparing the number of net-integrative outsider moves in the simulations to the net-integrative insider moves in the simulation, it is easy to see that in both raw and relative terms the net-integrative outsider moves greatly exceed the net-integrative insider moves. Remember, in this "with preference" scenario, the policy is squeezing outsiders down to about 50 percent of the awards. Nevertheless, to take "AA v H" as an example, net-integrative outsider moves as a percentage of *all* net-integrative moves (outsider plus insider), one finds that net-integrative outsider moves constitute 88.50 percent of all AA v H net-integrative moves.[66] The contribution to net-integration from potential outsider moves, in other words, is disproportionately high; conversely, the contribution to net-integration from potential insider moves is

[65] Table 25 replicates BD, Table 13, correcting for BD Table 13's transposition of the "W v A" and "W v H" labels.

[66] The 530,630 net-integrative outsider moves plus the 68,976 net-integrative insider moves total to 599,606 net-integrative moves for AA v H. The 530,630 net-integrative outsider moves represents 88.50 percent of that total.

disproportionately low.

140. Dr. Siskin's approach by contrast, would conceal that difference. Merging insiders and outsiders averages their respective contributions in the "with preference" simulation. As with disparate impact, half of both the "with preference" and "without preference" sides of the equation are non-preference awards that do not assess the difference the policy creates in respect to the 50 percent of awards it touches. As with disparate impact, the doubling of the base (adding in the half of awards not touched by preference) dilutes the differences that exist *between* the 50 percent of awards that are touched by preference and an equivalent number that are not.

141. I say that Dr. Siskin's approach "would" conceal that difference because, as the Court sees, Dr. Siskin interposed an additional layer of misdirection – change in dissimilarity index – and performed his "with" versus "without" comparison on that, and did not actually compare "with preference" versus "without preference" simulations in terms of net-integrative effect.

142. Though I believe that my approach is more sound on the particular facts of this case, I do think that it is important for the Court to see that, even under Dr. Siskin's approach, net-integration is materially higher (the moves perpetuate segregation less) without the policy than with it.

143. Table 26, on the next page, is based on Dr. Siskin's Table 8.[67] It calculates overall net-integrative moves in the "with preference" simulations as a percentage of net-integrative moves in the "without preference" simulations.

[67] *See* SD, at 66.

Table 26 **Net-integrative moves in entire "with preference" simulations as percentage of net-integrative moves in entire "without preference" simulations**	
W v AA	63.04%
W v A	76.78%
W v H	77.08%
AA v H	57.43%
AA v A	59.96%
H v A	78.11%

144. While there is, as anticipated, a substantial dilution effect compared to results from my analysis of the "with preference" simulations (insider versus outsider moves), all simulated "with preference" moves are still relatively lower in net-integration than all simulated "without preference" moves, and relatively lower to a material extent. Even with Dr. Siskin's approach, in all of the six two-race pairings, the insider net-integrative moves are less than 80 percent of outsider net-integrative moves. The results are most striking for the pairings involving Blacks: "with preference" net-integrative moves are only 63.04 percent of "without preference" net-integrative moves in the pairing with Whites; 59.96 percent in the pairing with Asians; and 57.43 percent in the pairing with Hispanics.

145. Historically, most housing segregation cases have asked the question, "Does a practice perpetuate segregation between Whites and Blacks?" Here, as is often the case, the answer is a resounding "yes," as seen through the lenses of actual moves, moves sought by apparently eligible applicants, and simulated moves (the last both by my method, which allows full differences to show, and even by Dr. Siskin's method, which dilutes those differences but still shows their existence).

146. But the stymieing of integration that the policy causes is far more comprehensive: all racial pairings of the four major groups have been compared, and integration is stymied in all

six pairings.

T. Participation and distance analyses.

147. In my original declaration to the Court, I presented a participation analysis that showed, among other things, that between about 85 to 88 percent of unique applicants from each racial group apply for affordable housing outside of their CD *at least* 75 percent of the time.[68]

148. Whatever else is said about it, that analysis showed what applicants *did*, not what defendant or Dr. Siskin or Professor Goetz thought they should do (or want).

149. It was and remains clear from the data that the overwhelming percentage of unique applicants wanted to be considered for housing outside of their CDs an overwhelming percentage of the time. I do not understand how these data could be understood as saying that when they did choose to apply outside of their CDs, they wanted to be penalized in relation to applicants for those lotteries who were applying as insiders.

150. Dr. Siskin acknowledges, as he must, that "it is true that applicants will frequently seek affordable housing outside their community district or their borough," but then asserts that the data show that "they tend to prefer to remain close to the area in which they currently reside," but then acknowledges that the "preference" he has identified "only minimally impact[s] the likelihood of someone applying for a project."[69]

151. Indeed, Dr. Siskin uses a simple regression framework to analyze whether or not those applying as outsiders or as insiders were more likely to apply if the project was closer to where they currently were living. Though using regression analysis, he chose to only report the

[68] *See* BD, at 61, ¶ 208 and Chart 1. The participation analysis is found in BD, at 58-62, ¶¶ 200-210, Tables 15 and 16, and Chart 1.

[69] *See* SD, at 160 and n.114.

statistical significance of the results, and not how much of the variance is explained by distance. However, the program he shared did compute the commonly used R squared, which is a measure of the variance explained by the variable of interest; here, distance to the project from the household residence. If a model fully explained a particular variable, then the variance explained would be 100 percent, and the R squared would be 1.00, which is based upon the overall correlation.

152. I replicated Dr. Siskin's results.[70] For in-CD applicants, Dr. Siskin found statistical significance for only about 60 percent of the projects. Among those 95 projects, what Dr. Siskin presented to the Court was a table showing that, in 93 projects, applicants were more likely to apply to projects closer to their homes. The "preference" that Dr. Siskin's model identified explained less than 2 percent of the variance in 85 projects, and between 2 and 4 percent of the variance in 7 projects. The outlier was a single project with approximately 10 percent of the variance was explained by a preference to be closer to home.

153. For out-of-CD applicants, there was statistical significance for all projects reported on. Of the 155 where the purported preference existed, Dr. Siskin's model explained less than 10 percent of the variance in 141 projects; between 10 and 15 percent of the variance in 13 projects; and approximately 20 percent of the variance in one outlier.

154. These are very weak results, or, as Dr. Siskin said, results that show that distance only minimally impacts the likelihood of someone applying for a project.

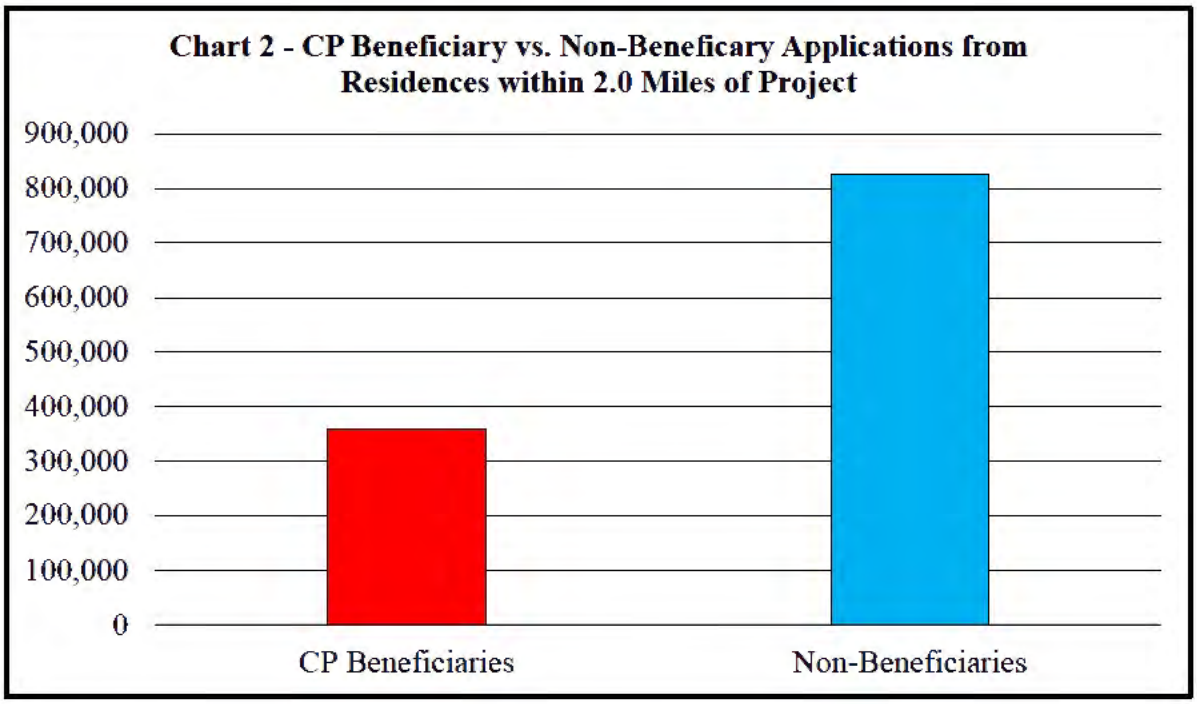
155. I, by contrast, stuck with looking at what the data do show. I was obliged to re-analyze the distance data from Dr. Siskin because Dr. Siskin's "original calculation incorrectly

[70] The findings that follow in this and the following paragraphs were based on the program and data file that he shared with plaintiffs in mid-October. Those data were the basis for his likelier-to-apply-closer-to-home analysis.

entered the latitude as the longitude and vice versa."[71]

156. There is, by definition, a maximum distance from a lottery project that an in-district applicant can live. A convenient proxy is to identify for each project the in-district applicant living furthest from the project. In 119 cases (70 percent of the lotteries under consideration), that maximum distance was 2.0 miles or less. If one were to assume for a moment that the preference policy was intended to help applicants stay "two miles or less" from their homes, the data show that the policy is not organized to capture these "close to home" applicants.

157. Chart 2, below, compares the number of CP beneficiary applications within 2.0 miles of a project with the number of non-beneficiary applications within that radius.



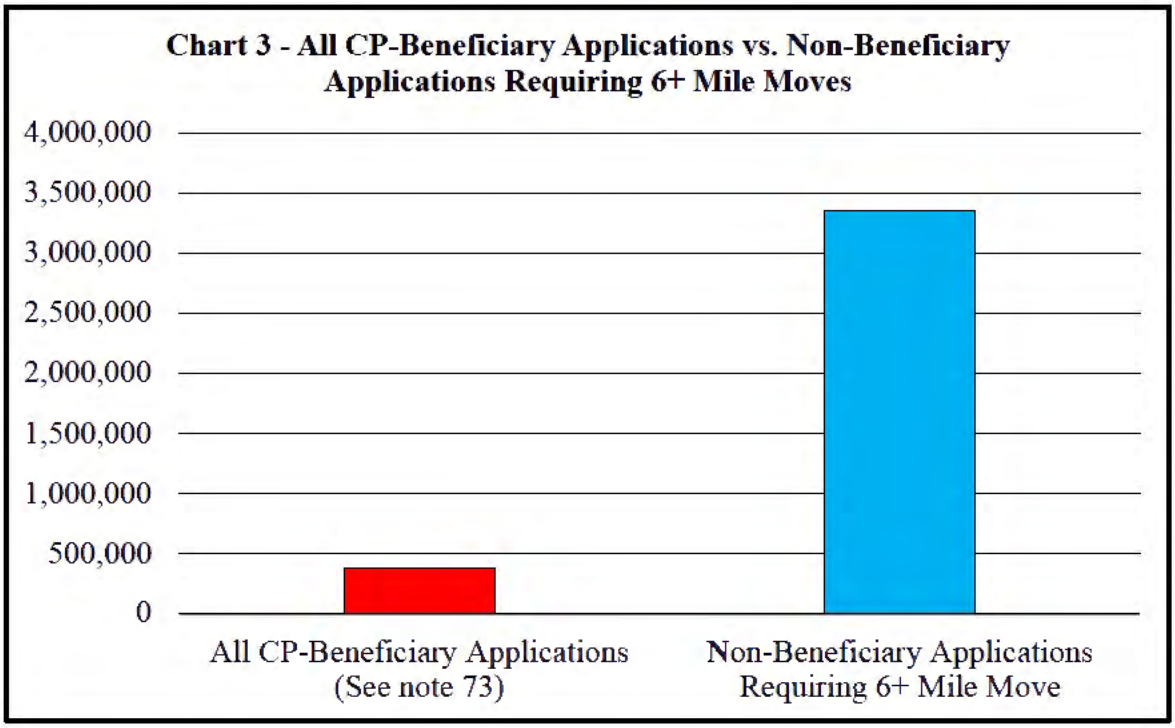
158. It turns out that the number of non-beneficiary applicants applying for projects within that radius is more than twice the number of CP beneficiary applicants. So the policy actually disadvantages substantially *more* two-mile-or-less-from-home applicants than it

[71] *See* SD, at 85, n.113.

advantages.

159. The application data also show that a substantial number of lottery participants are prepared to consider housing that is relatively far from their existing residence.

160. For non-beneficiary applicants, fully half of the applications are for projects located *six* or more miles from the applicant's home.[72] Chart 3, below, shows in blue only the subset of non-beneficiary applications where the outsider lived a distance of six or more miles from the applied-for project. It shows in red *all* CP beneficiary applications, even though literally only a handful of them were seeking moves where the applicant lived a distance of six or more miles from the applied-for project.[73]



In other words, there are nearly nine times more non-beneficiary applications seeking moves of

[72] Moves more than 5.9 miles.

[73] There are literally only a handful of stray CP beneficiary moves that were calculated at a distance of six or more miles.

six miles or more than there are CP beneficiary applications *in toto*.

161. Just as the data debunk the notion that insiders are the principal group applying close to home, the data also debunk the notion that there is not a huge number of applicants wishing to be considered for housing that is at a significant distance from their current home.

U. Rent burden.

162. The criticisms of my rent burden study from Professor Goetz[74] are peculiar. First, though, I should point out a very striking acknowledgment from Professor Goetz: there is no reason to expect that CP beneficiaries would have a higher rent burden than other applicants.[75] In other words, to the extent that the policy is premised on risk of displacement,[76] and if one accepts that rent burden is a non-insignificant measure of that risk,[77] the policy is making a selection not justified by the data.

163. As for the fact that there is variation in the number of applications between and among unique applicants, Professor Goetz misses the point: each application represents a moment when a household presented itself to defendant seeking affordable housing and a moment that defendant said that the application from the household presenting itself as an outsider should be disadvantaged.

164. As a matter of the data, there is no reason to believe – Professor Goetz has not

[74] *See* declaration of Professor Goetz ("Goetz Aug. 2020 Dec"), ECF 898, at 34-37, ¶¶ 62-64.

[75] *See id.* at 35, ¶ 63.

[76] I understand that defendant has now narrowed the kind of displacement the policy is intended to deal with. *See* discussion, at 48-49, ¶¶ 166-71, below.

[77] Professor Goetz recites statistics on rent burden in painting a picture of the affordable housing crisis in New York City. *See* Goetz Aug. 2020 Dec, at 7, ¶ 10.

provided any – that multiple applications from outsiders skew the rent burden distribution.

165. Perhaps most importantly, Professor Goetz's "aha!" moment – many unique households appear on both sides of the table[78] – demonstrates the opposite of what he appears to believe it does. It is true that the same household can be severely rent burdened when it applies as an insider *and* when it applies as an outsider. The difference is not severe rent burden in those two cases, but rather that the same severely rent burdened household is favored by defendant through its policy when applying as an insider and disfavored when applying as an outsider.

V. Displacement and non-imminent displacement from neighborhood.

166. It appears that there is agreement that displacement is difficult to measure. I note that Professor Goetz first states that "the phenomenon is difficult to measure" and that "the various types of displacement add another layer of complexity (one can be displaced from one's home, neighborhood, or city.)"[79] Five things are curious here. First, the identification of different *types* of displacement was not made in the analogous paragraph in Professor Goetz's Feb. 2019 report[80] (a report written before defendant had decided that the policy was not, after all, intended to counter all types of displacement, but only non-imminent displacement from neighborhood).

167. Second, the New York City studies cited by Professor Goetz do *not* distinguish displacement from neighborhood from other types of displacement. He is not reporting on displacement from neighborhood, let alone non-imminent displacement from neighborhood.

168. Third, the displacement rate of 5.1 to 7.1 percent that Professor Goetz attributes to

[78] *See id.* at 37, ¶ 64.

[79] *See id.* at 14, ¶ 24.

[80] *See* excerpts of Feb. 2019 report of Professor Goetz ("Goetz Feb. 2019 Report") annexed hereto as Exhibit 32, at 7.

"studies" (without attribution) in his declaration,[81] he attributed to Freeman and Braconi in his report.[82] This 5.1 to 7.1 percent estimate actually comes from 1987-1999 data.[83]

169. Fourth, when citing the source that was the basis for his estimate for displacement since 2015,[84] he fails to note either that: (a) the most recent Housing and Vacancy Survey (HVS) data the source used was from 2008; or that (b) the source noted that "displacement peaked in the years leading up to 2005, slipping back somewhat over the subsequent three years. . . ."[85]

170. Fifth, Professor Goetz does not inform the Court that, until 2017, the largest category for what was counted as displacement was an HVS category that did not distinguish between "wanted less expensive residence" and "difficulty paying rent or mortgage."[86] (The wording of this question was changed for the 2017 HVS to "wanted greater housing affordability."[87]). Professor Goetz does not explain why "wanted less expensive residence" (if that could be disaggregated from "difficulty paying rent or mortgage") or "wanted greater housing affordability would represent HVS respondents who had been *involuntarily displaced* (as opposed to making a personal household decision about how much household resources should be allocated to rent).

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[81] *See* Goetz Aug. 2020 Dec, at 16, ¶ 27.

[82] *See* Goetz Feb. 2019 Report, at 9.

[83] *See* Lance Freeman and Frank Braconi, 2002. "Gentrification and Displacement." *The Urban Prospect: Housing, Planning and Economic Development in New York, 8 (1): 1-4,* at 2.

[84] *See* Goetz Aug. 2020 Dec, at 16, ¶ 27 n. 47 (citing Elvin Wyly, Kathe Newman, Alex Schafran, and Elizabeth Lee, 2010. "Displacing New York," *Environment and Planning A* 42(11): 2602-2623, at 2607), and text accompanying.

[85] *See id.*

[86] *See id.* at 2608, and *see also Record Layout for 2002 NYC HVS, at 3-4, available online at:* https://www2.census.gov/programs-surveys/nychvs/technical-documentation/record-layouts/2002/occ-02-long.pdf.

[87] See the Record Layout for 2017 NYC HVS, at 3-3, *available online at:* https://www2.census.gov/programs-surveys/nychvs/technical-documentation/record-layouts/2017/occupied-units-17.pdf.

171. I certainly agree that there is *some* displacement from neighborhood that is occurring, but Professor Goetz makes no contribution to estimating how much.

W. Disproportionately placed subsidized housing

172. Public and subsidized housing is not available in equal distribution throughout New York City, but rather is concentrated in neighborhoods (and community districts) with relatively large proportions of African American and/or Latino residents (that, correspondingly, have relatively small proportions of Whites). This fact is demonstrated through the maps that are attached as Exhibits 33 to 39 of this report.

173. All but the last map is based upon the Bytes of the Big Apple, as well as data from the most recent Picture of Subsidized Housing. They show the racial and Hispanic typology of each CD.

174. The location of HUD subsidized vouchers and projects are shown first (Exhibit 33) based on one dot per 5 units, using Census tract boundaries.

175. The next set of maps (Exhibits 34-38) are maps of each borough and its environs with circles that each show the location of HUD-subsidized projects, with the size of the symbol corresponding to the number of units.

176. All of these maps make clear that subsidized projects and units are highly concentrated, principally in CDs that are majority or plurality African American or Latino.

177. The last map (Exhibit 39) is a map produced as part of defendant's Where We Live process and states that it reports on "city-assisted" housing.[88] I have not independently confirmed

[88] The map is available online at https://wherewelive.cityofnewyork.us/explore-data/where-new-yorkers-live/. The accompanying text states, "Government-assisted housing is concentrated, but not exclusively located, in high-poverty neighborhoods in New York City."

these data; but they show a similar pattern of concentration.

X. Defendant substantially overstates the burden of combining CDs.

178. CDs can be combined in a way that would result in the demographic distribution of the combined CD preference area being closer to the demographic distribution of the city as a whole than is the case with the demographic distribution of the single CD in which a development was being built. As I understand Deputy Mayor Been's objections to doing so,[89] she is not arguing otherwise.

179. Her objection is that combining CDs would undermine the understandability and simplicity of the policy. That objection is difficult to understand. All defendant would have to explain (whether in lottery materials, its Marketing Handbook, or in discussions about the policy) is that the preference would always be shared in a way that reduced the racially disparate impacts the policy causes. Explaining that is not complicated, and defendant would be able to demonstrate with real, easy-to-get numbers how the combined CD preference area did vary less from citywide demographics than did the CD in which the development was being planned or built.

180. The Deputy Mayor's objection that demographics could change is also puzzling. One can obviously stay relatively up-to-date, starting with the 2020 census and, if one were really concerned about rapid, meaningful change in racial composition of CDs in New York City, one could decide which iterations of the annually-produced five-year American Community Survey one wanted to use as replacements in between the 2020 census and the 2030 census. In any event, the public would understand which data set was being used, because defendant would clearly state it.

[89] *See* Aug. 2020 declaration of Vicki Been, ECF 899, at 44-45, ¶¶ 90-92.

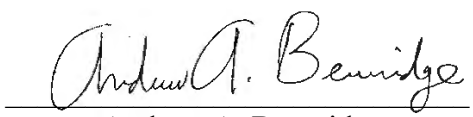
181. Ironically, defendant publicly maintains a "Population FactFinder" webpage[90] where anyone can explore the demographics of the city at different levels, including the Public Use Microdata Area (PUMA) level, which largely correspond to individual CDs (except for a few combinations of two CDs). Thus, interested parties could either confirm what defendant was saying about a particular combination (the site can produce the demographics of single PUMAs or PUMAs in any combination, side-by-side with citywide demographics), or propose to defendant potential combinations.

182. It is true that "sharing the preference" does reduce the preference given to residents of any one CD. But, because the preference gives such an enormous boost in odds to insiders,[91] even a shared preference under a revised policy would leave the multi-CD insiders with a distinct advantage over their outsider peers.

Y. Conclusion.

183. Despite the massive amount of data analyzed and presented, and despite the best efforts of Dr. Siskin and Dr. Goetz to obscure the basic facts by presenting tortured analogies, hypotheticals, and analyses, the basic facts of this case remain relatively simple: Defendant opts to have a preference that causes disparate impacts and perpetuates segregation. It could choose to have an equal-access lottery instead with none of those shortcomings.

Executed in Westchester County, New York on October 29, 2020.



Andrew A. Beveridge

[90] *See* https://popfactfinder.planning.nyc.gov/#12.25/40.724/-73.9868.

[91] *See* BD, at 18, Table 2.

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

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SHAUNA NOEL and EMMANUELA SENAT,

Plaintiffs,

-against-

Civil Action No.: 15-CV-5236

CITY OF NEW YORK,

Defendant.

----------x

November 15, 2019
10:37 a.m.

VIDEOTAPED DEPOSITION of PROFESSOR BERNARD R. SISKIN, taken by Plaintiffs, pursuant to Notice, held at the offices of Veritext Legal Solutions, 1250 Broadway, New York, New York, before Judith Castore, a Certified Livenote Reporter and Notary Public of the State of New York.

was -- and I hope we're not going to have an issue with this today.

MS. SADOK: We are if you keep interrupting him.

Q The question, Dr. Siskin -- I will repeat it is: Are the questions "Can someone compete for housing fairly in Location A, and can someone compete for housing fairly in Location B?" are each of those questions that have a disparate impact element to them?

MS. SADOK: Objection.

A They have a disparate impact element only to the extent that the ability to compete fairly in one area, i.e., you have the preference and another area where you do not have the preference, doesn't offset so that a group, a particular race, or protected class winds up getting less -- less apartments as the result of the preference. That's the only way in which it has an impact on disparate impact.

However, if, in fact, the --

Q I'm sorry. Go ahead.

A -- policy results in one area of

I, BERNARD R. SISKIN, certify I have read the transcript of my testimony taken under oath in my deposition on November 15, 2019; that the transcription is a true, complete and correct record of what was asked, answered and said during this deposition, and that the answers on the record as given by me are true and correct.

Bernard R Siskin

Bernard R. Siskin, Ph.D.

Sworn and subscribed to before me

this 19th day of December, 2019.

Notary Public

Commonwealth of Pennsylvania - Notary Seal
ERIC SISKIN - Notary Public
Philadelphia County
My Commission Expires May 10, 2023
Commission Number 1262372

C E R T I F I C A T I O N

STATE OF NEW YORK)
) ss.:
COUNTY OF NEW YORK)

I, JUDITH CASTORE, Shorthand Reporter and Notary Public within and for the State of New York, do hereby certify:

That BERNARD R. SISKIN, the witness whose deposition is hereinbefore set forth, was duly sworn by me and that this transcript of such examination is a true record of the testimony given by such witness.

I further certify that I am not related to any of the parties to this action by blood or marriage and that I am in no way interested in the outcome of this matter.

IN WITNESS WHEREOF, I have hereunto set my hand this 19th day of November, 2019.

Judith Castore

JUDITH CASTORE

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

----------x

SHAUNA NOEL and EMMANUELA SENAT,

Plaintiffs,

-against-

Civil Action No.: 15-CV-5236

CITY OF NEW YORK,

Defendant.

----------x

August 26, 2019
9:59 a.m.

VIDEOTAPED DEPOSITION of PROFESSOR BERNARD R. SISKIN, taken by Plaintiffs, pursuant to Notice, held at the offices of Veritext Legal Solutions, 1250 Broadway, New York, New York, before Judith Castore, a Certified Livenote Reporter and Notary Public of the State of New York.

A Yes.
Q I'm asking you to look at Hypothetical 3 on Page 13.
A That's what I am looking at.
Q Okay.
So you see that first column?
A Yes.
Q And those applicants are coded blue for CP applicant and gold for non-CP applicant, correct?
A Correct.
Q And they're 50/50. There's a one to one ratio, correct?
A Correct.
Q Correct?
A Correct.
Q Okay.
Now, that's -- that's not a very realistic modeling of what happens in housing lotteries, right?
MS. SADOK: Objection.
A Correct.
Q So I forget the number, but if you would just look at Professor

SISKIN

Beveridge's report. I think that's the first one that was marked. Not the sources and appendix, but the first one. And look at Exhibit 6, if you would.

MS. SADOK: Plaintiff's 322 for the record.

MR. GURIAN: Thank you.

Q There are exhibit tabs.

So you can go directly to the six.

A Um-hum.

Q You see there are three groupings of data, all apparently eligible households, apparently CP beneficiary households, apparently eligible non-beneficiary households.

Do you see that?

A Yes.

Q And as the key explains, the applicants who have -- who are eligible are coded in that left-most column with one.

Do you see that?

A Yes.

Q And so in terms of all apparently eligible households for majority non-Hispanic white, do you see how there's 900,000 and change in that top grouping but with the number one for ELIGX.

Do you see there's a total of 916,298?

A Majority non-Hispanic white?

Q Yes.

A Okay. Um-hum.

Q And then, if you look down in that last grouping, the apparently eligible non-beneficiary households, the majority non-Hispanic white is 887,086.

Do you see that?

A Yes.

Q So I can represent to you that the -- the non-beneficiary as opposed to the beneficiary wasn't one to one, but these were 96.8 percent, and in that middle group the apparently

eligible CP beneficiaries, 29,212, are 3.2 percent. So if we round up to 4 percent and round down to 96 percent, that winds up giving us for every 25 apparently eligible candidates 24 who are non-CP, right?

A I would assume your calculations are correct.

Q So this -- Siskin Hypo 3-CP impact on awards should be marked as, bear with me, I apologize, Electronic Exhibit 326.

(Siskin Hypo 3-CP impact on awards (plaintiffs' model), was marked Plaintiff's Exhibit 326, for identification, as of this date.)

Q And you can see, it -- you can see it there on the screen. So we kept the apparently eligible universe, and we also kept your disparate ratio of who's found not eligible or withdraws, and we ran it out.

Do you see in Columns B and C

that runs it without CP preference. And every -- every 25, there's one of those blues that turn up, and one out of every two blues gets an award, and as you see at the top only one out of every three non-CP.

Do you see that?

A Yes.

Q In that scenario, it turns out that there are 19 non-CP awards. And then when you do it with CP preference the first ten -- you have to skip over a lot of people, but the first ten are ten CP awards. It continues down, you get the point. And then there are open awards. And so in that -- and they all go to non-CP. So the difference is with the policy you have ten and ten. And without the policy under these conditions you have 19 non-CP and one CP.

So with that kind of ratio that very closely resembles what happens in white majority lotteries,

the application of CP preference had a very significant effect on awards, didn't it?

MS. SADOK: Objection.

A Yes.

Q So in this scenario the community preference policy was reserving 50 percent of the units for a little bit less than 4 percent of the apparently eligible applicants, right?

MS. SADOK: Objection.

A That's correct.

Q So that's one policy. That's the current policy. Another policy which is -- might be good or bad depending on your point of view, would be to not have a community preference policy.

Dr. Siskin, I really need your full attention on this. If there's a question I'm going to ask you that's coming out of something I will -- I will do it.

A Okay.

SISKIN

Q That's not what I said.

A Had community preference.

Q That's not what I said.

A Then you have to restate your question.

Q I will.

I think you know, so I want you to confirm this or tell me otherwise, that when you look at all of the CP entrants there are, and see what portion of them are reached by a developer, and get a determination of one kind or another that that proportion is higher than the proportion of non-CP entrants who are reached by the developer?

MS. SADOK: Objection.

A I can't prove that. I believe it's probably true, but I don't have the data if it's actually reached.

Q Well, let's talk about considered in the way you talk about considered in your report. You know that there's a significantly higher

percentage of apparently eligible community preference applicants who are considered than the percentage of apparently eligible non-community preference applicants, right?

A That's correct.

Q I did want to turn now to Page 30 of your report. This is part of where you're talking about stages.

And do you see there in Table 1 you identify stages?

A Yes.

Q How did you determine that these are the stages of the lottery?

MS. SADOK: Objection.

A Well, as I explained in the report, my understanding it has a lot -- and it's not done precisely the same in every case. Okay.

Q You're starting on a road where I know that you're not answering the question I asked, so I apologize and I will try to frame it more precisely.

A C K N O W L E D G E M E N T

STATE OF NEW YORK)
) ss.:
COUNTY OF NEW YORK)

I, BERNARD R. SISKIN, certify, I have read the transcript of my testimony taken under oath in my deposition of August 26, 2019; that the transcript is a true, complete and correct record of what was asked, answered and said during this deposition, and that the answers on the record as given by me are true and correct.

BERNARD R. SISKIN

Sworn and subscribed to before me

this 11th day of October, 2019.

Notary Public

Commonwealth of Pennsylvania - Notary Seal
ERIC SISKIN - Notary Public
Philadelphia County
My Commission Expires May 10, 2023
Commission Number 1262372

C E R T I F I C A T I O N

STATE OF NEW YORK)
) ss.:
COUNTY OF NEW YORK)

I, JUDITH CASTORE, Shorthand Reporter and Notary Public within and for the State of New York, do hereby certify:

That BERNARD R. SISKIN, the witness whose deposition is hereinbefore set forth, was duly sworn by me and that this transcript of such examination is a true record of the testimony given by such witness.

I further certify that I am not related to any of the parties to this action by blood or marriage and that I am in no way interested in the outcome of this matter.

IN WITNESS WHEREOF, I have hereunto set my hand this 28th day of August, 2019.

Judith Castore

JUDITH CASTORE

Exhibit 24

Consideration Rates* by CD Typology, CP Status, and Race

Majority White CD Typology					
CP Status	White	Black	Hispanic	Asian	Total
Insider	44.09%	46.34%	31.10%	50.82%	38.56%
Outsider	6.83%	6.40%	6.12%	6.04%	6.27%
Majority Black CD Typology					
CP Status	White	Black	Hispanic	Asian	Total
Insider	32.37%	30.72%	33.26%	29.05%	31.25%
Outsider	12.65%	12.92%	12.37%	13.07%	12.63%
Majority Hispanic CD Typology					
CP Status	White	Black	Hispanic	Asian	Total
Insider	32.79%	52.89%	47.45%	46.41%	48.88%
Outsider	15.50%	16.38%	15.69%	14.94%	15.87%
Majority Asian CD Typology					
CP Status	White	Black	Hispanic	Asian	Total
Insider	86.84%	76.81%	63.24%	53.48%	56.34%
Outsider	44.14%	38.85%	35.63%	27.02%	35.50%
Plurality White CD Typology					
CP Status	White	Black	Hispanic	Asian	Total
Insider	41.19%	25.28%	25.09%	28.67%	28.58%
Outsider	15.45%	10.12%	9.35%	9.96%	10.64%
Plurality Black CD Typology					
CP Status	White	Black	Hispanic	Asian	Total
Insider	22.52%	18.09%	18.36%	18.28%	18.34%
Outsider	15.85%	15.06%	15.30%	12.43%	15.04%
Plurality Hispanic CD Typology					
CP Status	White	Black	Hispanic	Asian	Total
Insider	55.59%	33.35%	32.00%	50.91%	36.52%
Outsider	15.48%	11.25%	10.20%	10.65%	11.15%

*Using Dr. Siskin's construction of "considered" ("best estimate" values).

Exhibit 24

Outsider Consideration Rate* as a Percentage of Insider Consideration Rate

Majority White CD Typology				
White	Black	Hispanic	Asian	Total
15.49%	13.80%	19.66%	11.89%	16.27%
Majority Black CD Typology				
White	Black	Hispanic	Asian	Total
39.09%	42.06%	37.18%	44.98%	40.41%
Majority Hispanic CD Typology				
White	Black	Hispanic	Asian	Total
47.27%	30.97%	33.07%	32.18%	32.46%
Majority Asian CD Typology				
White	Black	Hispanic	Asian	Total
50.83%	50.58%	56.35%	50.51%	63.01%
Plurality White CD Typology				
White	Black	Hispanic	Asian	Total
37.52%	40.03%	37.26%	34.75%	37.22%
Plurality Black CD Typology				
White	Black	Hispanic	Asian	Total
70.38%	83.22%	83.29%	68.00%	82.01%
Plurality Hispanic CD Typology				
White	Black	Hispanic	Asian	Total
27.84%	33.73%	31.87%	20.91%	30.52%

*Using Dr. Siskin's construction of "considered" ("best estimate" values).

Exhibit 24

Racial Group Share of Considered by Typology and CP Status*

Majority White CD Typology				
CP Status	White	Black	Hispanic	Asian
Insider	30.44%	12.76%	35.44%	6.71%
Outsider	10.95%	34.75%	33.73%	7.12%
Majority Black CD Typology				
CP Status	White	Black	Hispanic	Asian
Insider	2.73%	59.18%	23.04%	1.56%
Outsider	6.07%	41.65%	34.57%	5.07%
Majority Hispanic CD Typology				
CP Status	White	Black	Hispanic	Asian
Insider	0.91%	35.45%	54.12%	1.17%
Outsider	3.91%	39.89%	41.74%	3.41%
Majority Asian CD Typology				
CP Status	White	Black	Hispanic	Asian
Insider	2.54%	4.09%	12.34%	67.46%
Outsider	5.11%	35.67%	33.26%	13.33%
Plurality White CD Typology				
CP Status	White	Black	Hispanic	Asian
Insider	19.66%	35.57%	19.44%	6.27%
Outsider	15.28%	34.66%	27.52%	6.56%
Plurality Black CD Typology				
CP Status	White	Black	Hispanic	Asian
Insider	5.07%	52.84%	27.72%	1.13%
Outsider	7.41%	38.88%	36.19%	4.63%
Plurality Hispanic CD Typology				
CP Status	White	Black	Hispanic	Asian
Insider	14.18%	25.15%	36.78%	9.32%
Outsider	10.65%	36.14%	34.12%	5.46%

*Using Dr. Siskin's construction of "considered" ("best estimate" values). Share represents considered members of racial group in a CP status as a percentage of all considered applicants in that CP status.

Exhibit 24

Demographic Distributions of Considered and Apparently Eligible Applicants,* by Insiders and Outsiders, and by CD Typology

CONSIDERED APPLICANTS

Section 1a - Demographic Distribution of Insider Considered Applicants by CD Typology (counts)

CD Typology	White	Black	Hispanic	Asian	Refused	All Other	Total
Majority White	3,667	1,537	4,269	808	937	827	12,045
Majority Black	459	9,968	3,881	262	1,163	1,110	16,843
Majority Hispanic	161	6,294	9,609	207	796	687	17,754
Majority Asian	33	53	160	875	85	91	1,297
Plurality White	881	1,594	871	281	463	391	4,481
Plurality Black	152	1,584	831	34	175	222	2,998
Plurality Hispanic	805	1,428	2,089	529	444	384	5,679
All Typologies	6,158	22,458	21,710	2,996	4,063	3,712	61,097

Section 1b - Demographic Distribution of Outsider Considered Applicants by CD Typology (counts)

CD Typology	White	Black	Hispanic	Asian	Refused	All Other	Total
Majority White	6,718	21,312	20,685	4,368	4,032	4,219	61,334
Majority Black	5,189	35,626	29,570	4,337	5,175	5,638	85,535
Majority Hispanic	3,736	38,084	39,858	3,259	5,129	5,415	95,481
Majority Asian	290	2,026	1,889	757	410	308	5,680
Plurality White	3,694	8,378	6,653	1,585	1,888	1,977	24,175
Plurality Black	1,404	7,365	6,857	878	1,169	1,272	18,945
Plurality Hispanic	3,774	12,804	12,088	1,933	2,415	2,418	35,432
All Typologies	24,805	125,595	117,600	17,117	20,218	21,247	326,582

APPARENTLY ELIGIBLE APPLICANTS

Section 2a - Demographic Distribution of Insider Apparently Eligible Applicants by CD Typology (counts)

CD Typology	White	Black	Hispanic	Asian	Refused	All Other	Total
Majority White	8,317	3,317	13,725	1,590	2,295	1,989	31,233
Majority Black	1,418	32,443	11,670	902	3,559	3,907	53,899
Majority Hispanic	491	11,901	20,250	446	1,631	1,606	36,325
Majority Asian	38	69	253	1,636	149	157	2,302
Plurality White	2,139	6,305	3,471	980	1,415	1,367	15,677
Plurality Black	675	8,755	4,525	186	1,000	1,203	16,344
Plurality Hispanic	1,448	4,282	6,529	1,039	1,057	1,197	15,552
All Typologies	14,526	67,072	60,423	6,779	11,106	11,426	171,332

Section 2b - Demographic Distribution of Outsider Apparently Eligible Applicants by CD Typology (counts)

CD Typology	White	Black	Hispanic	Asian	Refused	All Other	Total
Majority White	98,348	333,170	338,190	72,261	61,407	74,106	977,482
Majority Black	41,007	275,661	239,137	33,192	39,929	48,435	677,361
Majority Hispanic	24,102	232,489	253,980	21,821	31,673	37,703	601,768
Majority Asian	657	5,215	5,301	2,802	1,098	926	15,999
Plurality White	23,903	82,792	71,148	15,908	15,449	18,047	227,247
Plurality Black	8,859	48,913	44,827	7,064	7,045	9,227	125,935
Plurality Hispanic	24,387	113,817	118,546	18,158	19,678	23,322	317,908
All Typologies	221,263	1,092,057	1,071,129	171,206	176,279	211,766	2,943,700

*Using Dr. Siskin's construction of "considered" ("best estimate" values); apparently eligible counts from BD Ex. 10.

Exhibit 25

Simulated Awards: "With Preference" vs. "Without Preference," by CD Typology and Race (Not Disaggregating "With Preference" Simulation by CP Status)

Section 1a - "With Preference" Simulation, Not Disaggregating by CP Status (Counts)

CD Typology	White	Black	Hispanic	Asian	Refused	All Other	Total
Majority White	435,601	460,270	693,998	158,036	145,714	137,381	2,031,000
Majority Black	77,678	1,178,542	682,573	80,523	143,795	144,889	2,308,000
Majority Hispanic	59,593	1,058,230	1,372,814	66,185	143,056	132,122	2,832,000
Majority Asian	4,633	25,627	32,652	60,427	9,908	8,753	142,000
Plurality White	167,882	233,370	180,034	67,217	76,232	73,265	798,000
Plurality Black	17,260	128,156	83,200	9,261	16,765	19,358	274,000
Plurality Hispanic	336,383	421,957	596,469	187,587	178,001	139,603	1,860,000
All Typologies	1,099,030	3,506,152	3,641,740	629,236	713,471	655,371	10,245,000

Section 1b - "With Preference" Simulation, Not Disaggregating by CP Status (Demographic group as percentage of total in CD typology)

CD Typology	White	Black	Hispanic	Asian	Refused	All Other	Total
Majority White	21.45%	22.66%	34.17%	7.78%	7.17%	6.76%	100.00%
Majority Black	3.37%	51.06%	29.57%	3.49%	6.23%	6.28%	100.00%
Majority Hispanic	2.10%	37.37%	48.48%	2.34%	5.05%	4.67%	100.00%
Majority Asian	3.26%	18.05%	22.99%	42.55%	6.98%	6.16%	100.00%
Plurality White	21.04%	29.24%	22.56%	8.42%	9.55%	9.18%	100.00%
Plurality Black	6.30%	46.77%	30.36%	3.38%	6.12%	7.06%	100.00%
Plurality Hispanic	18.09%	22.69%	32.07%	10.09%	9.57%	7.51%	100.00%
All Typologies	10.73%	34.22%	35.55%	6.14%	6.96%	6.40%	100.00%

Section 2a - "Without Preference" Simulation, Not Disaggregating by CP Status (Counts)

CD Typology	White	Black	Hispanic	Asian	Refused	All Other	Total
Majority White	262,767	659,122	681,120	162,508	130,310	135,173	2,031,000
Majority Black	112,116	1,003,295	798,158	113,862	137,384	143,185	2,308,000
Majority Hispanic	90,607	1,097,469	1,245,012	98,812	151,956	148,144	2,832,000
Majority Asian	5,711	41,709	44,251	32,266	10,193	7,870	142,000
Plurality White	153,625	229,160	202,358	70,856	70,547	71,454	798,000
Plurality Black	19,308	109,351	97,182	14,346	15,716	18,097	274,000
Plurality Hispanic	310,854	506,850	582,004	153,579	171,899	134,814	1,860,000
All Typologies	954,988	3,646,956	3,650,085	646,229	688,005	658,737	10,245,000

Section 2b - "Without Preference" Simulation, Not Disaggregating by CP Status (Demographic group as percentage of total in CD typology)

CD Typology	White	Black	Hispanic	Asian	Refused	All Other	Total
Majority White	12.94%	32.45%	33.54%	8.00%	6.42%	6.66%	100.00%
Majority Black	4.86%	43.47%	34.58%	4.93%	5.95%	6.20%	100.00%
Majority Hispanic	3.20%	38.75%	43.96%	3.49%	5.37%	5.23%	100.00%
Majority Asian	4.02%	29.37%	31.16%	22.72%	7.18%	5.54%	100.00%
Plurality White	19.25%	28.72%	25.36%	8.88%	8.84%	8.95%	100.00%
Plurality Black	7.05%	39.91%	35.47%	5.24%	5.74%	6.60%	100.00%
Plurality Hispanic	16.71%	27.25%	31.29%	8.26%	9.24%	7.25%	100.00%
All Typologies	9.32%	35.60%	35.63%	6.31%	6.72%	6.43%	100.00%

Exhibit 28 - Siskin Hypothetical 3 with: (a) apparently eligible universe and (b) 4 percent of apparently eligible universe = CP beneficiaries. (Electronic Exhibit 326 at Siskin I deposition.)

Siskin Hypo 3 with: (a) apparently eligible universe; and (b) 4 percent of apparently eligible universe = CP beneficiaries											
NON-CP											
CP											
"BYPASSED"											
SELECTED											
NOT CONSIDERED											
			TWO STAGES OF CP PREERENCE PROCESSING								
		WITHOUT CP PREFERENCE		STAGE 1: CP AWARDS			STAGE 2: OPEN AWARDS			OVERALL PREF SYSTEM RESULTS	
		1 CP, 19 NON-CP AWARDS		10 CP, 0 NON-CP AWARDS			0 CP, 10 NON-CP AWARDS			10 CP, 10 NON-CP AWARDS	
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Siskin Hypo 3 with: (a) apparently eligible universe; and (b) 4 percent of apparently eligible universe = CP beneficiaries												
NON-CP												
CP												
"BYPASSED"												
SELECTED												
NOT CONSIDERED												
	WITHOUT CP PREFERENCE			TWO STAGES OF CP PREERENCE PROCESSING								
	1 CP, 19 NON-CP AWARDS			STAGE 1: CP AWARDS			STAGE 2: OPEN AWARDS			OVERALL PREF SYSTEM RESULTS		
				10 CP, 0 NON-CP AWARDS			0 CP, 10 NON-CP AWARDS			10 CP, 10 NON-CP AWARDS		
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Siskin Hypo 3 with: (a) apparently eligible universe; and (b) 4 percent of apparently eligible universe = CP beneficiaries												
NON-CP				TWO STAGES OF CP PREERENCE PROCESSING								
CP												
"BYPASSED"	WITHOUT CP PREFERENCE			STAGE 1: CP AWARDS			STAGE 2: OPEN AWARDS			OVERALL PREF SYSTEM RESULTS		
SELECTED	1 CP, 19 NON-CP AWARDS			10 CP, 0 NON-CP AWARDS			0 CP, 10 NON-CP AWARDS			10 CP, 10 NON-CP AWARDS		
NOT CONSIDERED												
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Siskin Hypo 3 with: (a) apparently eligible universe; and (b) 4 percent of apparently eligible universe = CP beneficiaries												
NON-CP												
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"BYPASSED"												
SELECTED												
NOT CONSIDERED												
	WITHOUT CP PREFERENCE			TWO STAGES OF CP PREERENCE PROCESSING								
	1 CP, 19 NON-CP AWARDS			STAGE 1: CP AWARDS				STAGE 2: OPEN AWARDS			OVERALL PREF SYSTEM RESULTS	
				10 CP, 0 NON-CP AWARDS				0 CP, 10 NON-CP AWARDS			10 CP, 10 NON-CP AWARDS	
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Siskin Hypo 3 with: (a) apparently eligible universe; and												
(b) 4 percent of apparently eligible universe = CP beneficiaries												
NON-CP				TWO STAGES OF CP PREERENCE PROCESSING								
CP												
"BYPASSED"	WITHOUT CP PREFERENCE			STAGE 1: CP AWARDS			STAGE 2: OPEN AWARDS			OVERALL PREF SYSTEM RESULTS		
SELECTED	1 CP, 19 NON-CP AWARDS			10 CP, 0 NON-CP AWARDS			0 CP, 10 NON-CP AWARDS			10 CP, 10 NON-CP AWARDS		
NOT CONSIDERED												
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Siskin Hypo 3 with: (a) apparently eligible universe; and (b) 4 percent of apparently eligible universe = CP beneficiaries												
NON-CP												
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"BYPASSED"					TWO STAGES OF CP PREERENCE PROCESSING							
SELECTED	WITHOUT CP PREFERENCE				STAGE 1: CP AWARDS			STAGE 2: OPEN AWARDS			OVERALL PREF SYSTEM RESULTS	
NOT CONSIDERED	1 CP, 19 NON-CP AWARDS				10 CP, 0 NON-CP AWARDS			0 CP, 10 NON-CP AWARDS			10 CP, 10 NON-CP AWARDS	
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Siskin Hypo 3 with: (a) apparently eligible universe; and (b) 4 percent of apparently eligible universe = CP beneficiaries			TWO STAGES OF CP PREERENCE PROCESSING		
NON-CP CP "BYPASSED" SELECTED NOT CONSIDERED	WITHOUT CP PREFERENCE 1 CP, 19 NON-CP AWARDS	STAGE 1: CP AWARDS 10 CP, 0 NON-CP AWARDS	STAGE 2: OPEN AWARDS 0 CP, 10 NON-CP AWARDS	OVERALL PREF SYSTEM RESULTS 10 CP, 10 NON-CP AWARDS	

Siskin Hypo 3 with: (a) apparently eligible universe; and (b) 4 percent of apparently eligible universe = CP beneficiaries												
NON-CP												
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"BYPASSED"												
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NOT CONSIDERED												
	WITHOUT CP PREFERENCE			TWO STAGES OF CP PREERENCE PROCESSING								
	1 CP, 19 NON-CP AWARDS			STAGE 1: CP AWARDS			STAGE 2: OPEN AWARDS				OVERALL PREF SYSTEM RESULTS	
				10 CP, 0 NON-CP AWARDS			0 CP, 10 NON-CP AWARDS				10 CP, 10 NON-CP AWARDS	
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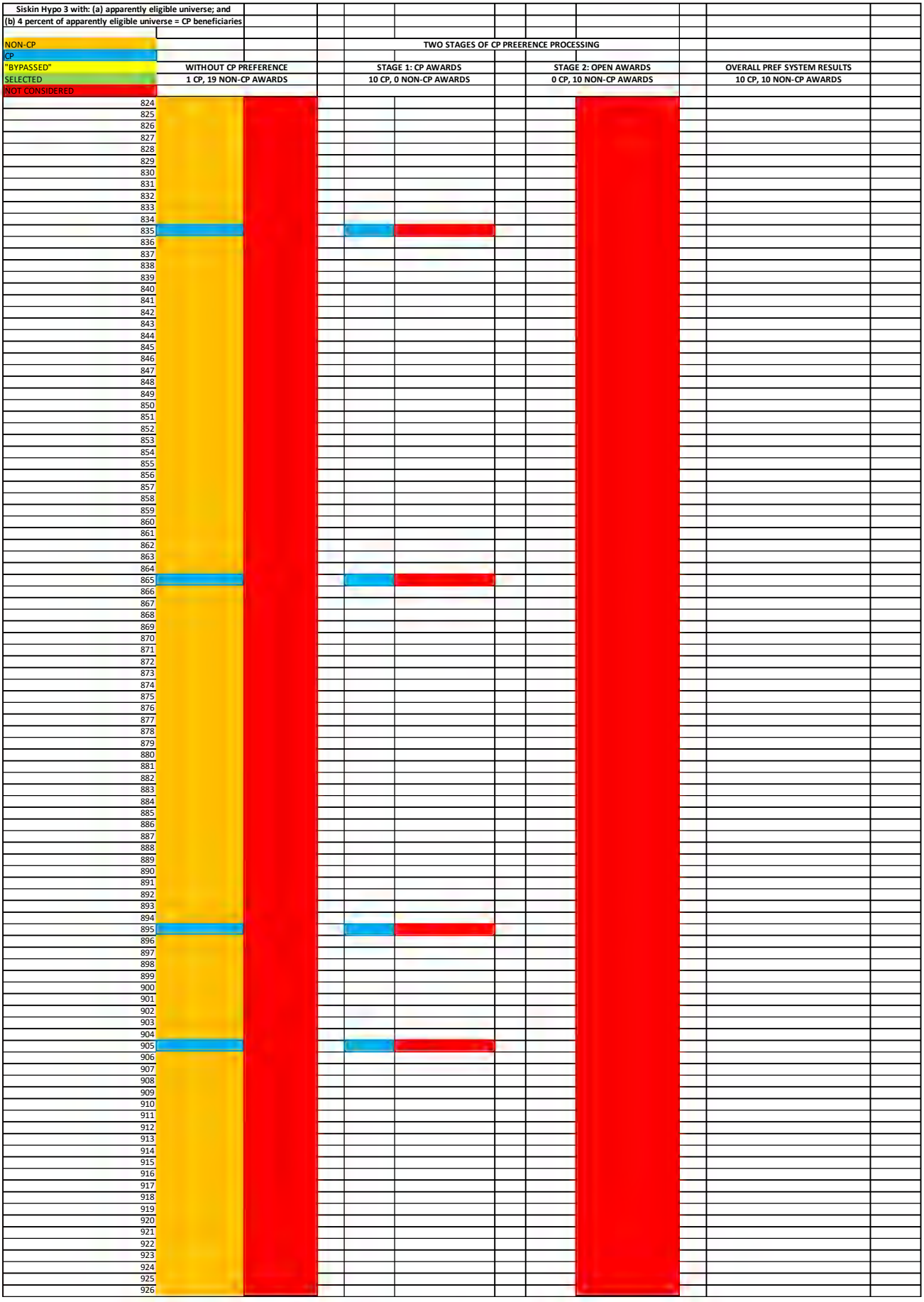
Siskin Hypo 3 with: (a) apparently eligible universe; and
(b) 4 percent of apparently eligible universe = CP beneficiaries
NON-CP
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"BYPASSED"
SELECTED
NOT CONSIDERED
TWO STAGES OF CP PREERENCE PROCESSING
WITHOUT CP PREFERENCE
1 CP, 19 NON-CP AWARDS
STAGE 1: CP AWARDS
10 CP, 0 NON-CP AWARDS
STAGE 2: OPEN AWARDS
0 CP, 10 NON-CP AWARDS
OVERALL PREF SYSTEM RESULTS
10 CP, 10 NON-CP AWARDS

Siskin Hypo 3 with: (a) apparently eligible universe; and												
(b) 4 percent of apparently eligible universe = CP beneficiaries												
NON-CP				TWO STAGES OF CP PREERENCE PROCESSING								
CP												
"BYPASSED"	WITHOUT CP PREFERENCE			STAGE 1: CP AWARDS			STAGE 2: OPEN AWARDS			OVERALL PREF SYSTEM RESULTS		
SELECTED	1 CP, 19 NON-CP AWARDS			10 CP, 0 NON-CP AWARDS			0 CP, 10 NON-CP AWARDS			10 CP, 10 NON-CP AWARDS		
NOT CONSIDERED												
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Exhibit 27

Increase or Decrease in Average Awards from "Without Preference" to "With Preference," by CD Typology and Race

Section A* - Demographic Distribution of Simulated Awardees in "With Preference" Simulation (Average counts across 1,000 simulations "with preference," by CD typology) (Not disaggregating by CP status)

CD Typology	White	Black	Hispanic	Asian	Refused	Other	Total
Majority White	436	460	694	158	146	137	2031
Majority Black	78	1179	683	81	144	145	2308
Majority Hispanic	60	1058	1373	66	143	132	2832
Majority Asian	5	26	33	60	10	9	142
Plurality White	168	233	180	67	76	73	798
Plurality Black	17	128	83	9	17	19	274
Plurality Hispanic	336	422	596	188	178	140	1860

Section B* - Demographic Distribution of Simulated Awardees in "Without Preference" Simulation (Average counts across 1,000 simulations "without preference," by CD typology)

CD Typology	White	Black	Hispanic	Asian	Refused	Other	Total
Majority White	263	659	681	163	130	135	2031
Majority Black	112	1003	798	114	137	143	2308
Majority Hispanic	91	1097	1245	99	152	148	2832
Majority Asian	6	42	44	32	10	8	142
Plurality White	154	229	202	71	71	71	798
Plurality Black	19	109	97	14	16	18	274
Plurality Hispanic	311	507	582	154	172	135	1860

Section C - Increase or Decrease in Awards from Without Preference to With Preference, by CD Typology (Comparing Section A with Section B)

CD Typology	White	Black	Hispanic	Asian	Refused	Other	Total
Majority White	173	-199	13	-4	15	2	0
Majority Black	-34	175	-116	-33	6	2	0
Majority Hispanic	-31	-39	128	-33	-9	-16	0
Majority Asian	-1	-16	-12	28	0	1	0
Plurality White	14	4	-22	-4	6	2	0
Plurality Black	-2	19	-14	-5	1	1	0
Plurality Hispanic	26	-85	14	34	6	5	0

*The numbers shown here reflect the average across the 1,000 simulations -- *i.e.*, the numbers in Exhibit 25, divided by 1,000. Note: The Section C tallies reflect the non-rounded "with preference" number in Exhibit 25 minus the non-rounded "without preference" number in Exhibit 25. In some cases, rounding that difference results in a tally varying by one from the result of subtracting the rounded number in Section B from the rounded number in Section A.

Exhibit 28 Intentionally Omitted

Exhibit 29

Actual Awardees by Demographic Group Pairings, Net-Integrative Effect Disaggregated as between Insiders and Outsiders

(Counts)

Groups	Effect	Number	all_cb*	Net	Groups	Effect	Number	all_cb*	Net	Groups	Effect	Number	all_cb*	Net
W vs. AA	Segregate	151	0	-299	W vs. AA	Segregate	52	1	-84	W vs. AA	Segregate	203	Any	-383
W vs. AA	No Effect	1474	0		W vs. AA	No Effect	1594	1		W vs. AA	No Effect	3068	Any	
W vs. AA	Integrate	450	0		W vs. AA	Integrate	136	1		W vs. AA	Integrate	586	Any	
W vs. AA	Not In Group	2313	0		W vs. AA	Not In Group	2054	1		W vs. AA	Not In Group	4367	Any	
W vs. AA	Total Including Not In Group	4388	0		W vs. AA	Total Including Not In Group	3836	1		W vs. AA	Total Including Not In Group	8224	Any	
W vs. A	Segregate	144	0	-114	W vs. A	Segregate	83	1	-57	W vs. A	Segregate	227	Any	-171
W vs. A	No Effect	408	0		W vs. A	No Effect	660	1		W vs. A	No Effect	1068	Any	
W vs. A	Integrate	258	0		W vs. A	Integrate	140	1		W vs. A	Integrate	398	Any	
W vs. A	Not In Group	3578	0		W vs. A	Not In Group	2953	1		W vs. A	Not In Group	6531	Any	
W vs. A	Total Including Not In Group	4388	0		W vs. A	Total Including Not In Group	3836	1		W vs. A	Total Including Not In Group	8224	Any	
W vs. H	Segregate	205	0	-285	W vs. H	Segregate	107	1	-179	W vs. H	Segregate	312	Any	-464
W vs. H	No Effect	1487	0		W vs. H	No Effect	1684	1		W vs. H	No Effect	3171	Any	
W vs. H	Integrate	490	0		W vs. H	Integrate	286	1		W vs. H	Integrate	776	Any	
W vs. H	Not In Group	2206	0		W vs. H	Not In Group	1759	1		W vs. H	Not In Group	3965	Any	
W vs. H	Total Including Not In Group	4388	0		W vs. H	Total Including Not In Group	3836	1		W vs. H	Total Including Not In Group	8224	Any	
AA vs. H	Segregate	485	0	-399	AA vs. H	Segregate	212	1	-42	AA vs. H	Segregate	697	Any	-441
AA vs. H	No Effect	1928	0		AA vs. H	No Effect	2237	1		AA vs. H	No Effect	4165	Any	
AA vs. H	Integrate	884	0		AA vs. H	Integrate	254	1		AA vs. H	Integrate	1138	Any	
AA vs. H	Not In Group	1091	0		AA vs. H	Not In Group	1133	1		AA vs. H	Not In Group	2224	Any	
AA vs. H	Total Including Not In Group	4388	0		AA vs. H	Total Including Not In Group	3836	1		AA vs. H	Total Including Not In Group	8224	Any	
AA vs. A	Segregate	132	0	-316	AA vs. A	Segregate	44	1	-63	AA vs. A	Segregate	176	Any	-379
AA vs. A	No Effect	1345	0		AA vs. A	No Effect	1358	1		AA vs. A	No Effect	2703	Any	
AA vs. A	Integrate	448	0		AA vs. A	Integrate	107	1		AA vs. A	Integrate	555	Any	
AA vs. A	Not In Group	2463	0		AA vs. A	Not In Group	2327	1		AA vs. A	Not In Group	4790	Any	
AA vs. A	Total Including Not In Group	4388	0		AA vs. A	Total Including Not In Group	3836	1		AA vs. A	Total Including Not In Group	8224	Any	
H vs. A	Segregate	182	0	-229	H vs. A	Segregate	55	1	-182	H vs. A	Segregate	237	Any	-411
H vs. A	No Effect	1439	0		H vs. A	No Effect	1512	1		H vs. A	No Effect	2951	Any	
H vs. A	Integrate	411	0		H vs. A	Integrate	237	1		H vs. A	Integrate	648	Any	
H vs. A	Not In Group	2356	0		H vs. A	Not In Group	2032	1		H vs. A	Not In Group	4388	Any	
H vs. A	Total Including Not In Group	4388	0		H vs. A	Total Including Not In Group	3836	1		H vs. A	Total Including Not In Group	8224	Any	
* all_cb was determined by joining against "beveridge_awd_unit_type" using field "all_cb"														
NOTE: Counts are the same as in BD Ex 16														

Exhibit 29

Actual Awardees by Demographic Group Pairings, Net-Integrative Effect Disaggregated as between Insiders and Outsiders
[Caution: See note* regarding calculation of "no effect"]

(Percentages)

Groups	Effect	Percentage	all_cb	Net		Groups	Effect	Percentage	all_cb	Net		Groups	Effect	Percentage	all_cb	Net		Relative percentage** including not in group as "no effect"
W vs. AA	Segregate	3.44%	0	-6.81%		W vs. AA	Segregate	1.36%	1	-2.19%		W vs. AA	Segregate	2.47%	Any	-4.66%		32.14%
W vs. AA	No Effect*	86.30%	0			W vs. AA	No Effect*	95.10%	1			W vs. AA	No Effect*	90.41%	Any			
W vs. AA	Integrate	10.26%	0			W vs. AA	Integrate	3.55%	1			W vs. AA	Integrate	7.13%	Any			
W vs. A	Segregate	3.28%	0	-2.60%		W vs. A	Segregate	2.16%	1	-1.49%		W vs. A	Segregate	2.76%	Any	-2.08%		57.19%
W vs. A	No Effect*	90.84%	0			W vs. A	No Effect*	94.19%	1			W vs. A	No Effect*	92.40%	Any			
W vs. A	Integrate	5.88%	0			W vs. A	Integrate	3.65%	1			W vs. A	Integrate	4.84%	Any			
W vs. H	Segregate	4.67%	0	-6.49%		W vs. H	Segregate	2.79%	1	-4.67%		W vs. H	Segregate	3.79%	Any	-5.64%		71.84%
W vs. H	No Effect*	84.16%	0			W vs. H	No Effect*	89.75%	1			W vs. H	No Effect*	86.77%	Any			
W vs. H	Integrate	11.17%	0			W vs. H	Integrate	7.46%	1			W vs. H	Integrate	9.44%	Any			
AA vs. H	Segregate	11.05%	0	-9.09%		AA vs. H	Segregate	5.53%	1	-1.09%		AA vs. H	Segregate	8.48%	Any	-5.36%		12.04%
AA vs. H	No Effect*	68.80%	0			AA vs. H	No Effect*	87.85%	1			AA vs. H	No Effect*	77.69%	Any			
AA vs. H	Integrate	20.15%	0			AA vs. H	Integrate	6.62%	1			AA vs. H	Integrate	13.84%	Any			
AA vs. A	Segregate	3.01%	0	-7.20%		AA vs. A	Segregate	1.15%	1	-1.64%		AA vs. A	Segregate	2.14%	Any	-4.61%		22.81%
AA vs. A	No Effect*	86.78%	0			AA vs. A	No Effect*	96.06%	1			AA vs. A	No Effect*	91.11%	Any			
AA vs. A	Integrate	10.21%	0			AA vs. A	Integrate	2.79%	1			AA vs. A	Integrate	6.75%	Any			
H vs. A	Segregate	4.15%	0	-5.22%		H vs. A	Segregate	1.43%	1	-4.74%		H vs. A	Segregate	2.88%	Any	-5.00%		90.91%
H vs. A	No Effect*	86.49%	0			H vs. A	No Effect*	92.39%	1			H vs. A	No Effect*	89.24%	Any			
H vs. A	Integrate	9.37%	0			H vs. A	Integrate	6.18%	1			H vs. A	Integrate	7.88%	Any			
*Note: "No Effect" is warped by including "Not in group" moves, per Dr. Siskin's approach																		
**CP beneficiary net percentage as percentage of non-beneficiary net percentage																		

Exhibit 30

Moves Sought by Apparently Eligible Applicants (by Demographic Group Pairings), Net-Integrative Effect Disaggregated as between Insiders and Outsiders

(Counts)

NOT SCALED															
Groups*	Effect	Number	cd_pref	Net		Groups	Effect	Number	cd_pref	Net		Groups	Effect	Number	cd_pref	Net
W vs. AA Section 3	Segregate	72797	0	-358187		W vs. AA Section 3	Segregate	1618	1	-5609		W vs. AA Section 3	Segregate	74415	Any	-363796
W vs. AA Section 3	No Effect	645987	0			W vs. AA Section 3	No Effect	52171	1			W vs. AA Section 3	No Effect	698158	Any	
W vs. AA Section 3	Integrate	430984	0			W vs. AA Section 3	Integrate	7227	1			W vs. AA Section 3	Integrate	438211	Any	
W vs. AA Section 3	Not In Group	1240841	0			W vs. AA Section 3	Not In Group	61975	1			W vs. AA Section 3	Not In Group	1302816	Any	
W vs. AA Section 3	Total Including Not In Group	2390609	0			W vs. AA Section 3	Total Including Not In Group	122991	1			W vs. AA Section 3	Total Including Not In Group	2513600	Any	
W vs. A Section 3	Segregate	53278	0	-64058		W vs. A Section 3	Segregate	1838	1	-598		W vs. A Section 3	Segregate	55116	Any	-64656
W vs. A Section 3	No Effect	180866	0			W vs. A Section 3	No Effect	14988	1			W vs. A Section 3	No Effect	195854	Any	
W vs. A Section 3	Integrate	117336	0			W vs. A Section 3	Integrate	2436	1			W vs. A Section 3	Integrate	119772	Any	
W vs. A Section 3	Not In Group	2039129	0			W vs. A Section 3	Not In Group	103729	1			W vs. A Section 3	Not In Group	2142858	Any	
W vs. A Section 3	Total Including Not In Group	2390609	0			W vs. A Section 3	Total Including Not In Group	122991	1			W vs. A Section 3	Total Including Not In Group	2513600	Any	
W vs. H Section 3	Segregate	108002	0	-301581		W vs. H Section 3	Segregate	3329	1	-8041		W vs. H Section 3	Segregate	111331	Any	-309622
W vs. H Section 3	No Effect	612327	0			W vs. H Section 3	No Effect	46498	1			W vs. H Section 3	No Effect	658825	Any	
W vs. H Section 3	Integrate	409583	0			W vs. H Section 3	Integrate	11370	1			W vs. H Section 3	Integrate	420953	Any	
W vs. H Section 3	Not In Group	1260697	0			W vs. H Section 3	Not In Group	61794	1			W vs. H Section 3	Not In Group	1322491	Any	
W vs. H Section 3	Total Including Not In Group	2390609	0			W vs. H Section 3	Total Including Not In Group	122991	1			W vs. H Section 3	Total Including Not In Group	2513600	Any	
AA vs. H Section 3	Segregate	265344	0	-358681		AA vs. H Section 3	Segregate	5476	1	-2033		AA vs. H Section 3	Segregate	270820	Any	-360714
AA vs. H Section 3	No Effect	990859	0			AA vs. H Section 3	No Effect	83068	1			AA vs. H Section 3	No Effect	1073927	Any	
AA vs. H Section 3	Integrate	624025	0			AA vs. H Section 3	Integrate	7509	1			AA vs. H Section 3	Integrate	631534	Any	
AA vs. H Section 3	Not In Group	510381	0			AA vs. H Section 3	Not In Group	26938	1			AA vs. H Section 3	Not In Group	537319	Any	
AA vs. H Section 3	Total Including Not In Group	2390609	0			AA vs. H Section 3	Total Including Not In Group	122991	1			AA vs. H Section 3	Total Including Not In Group	2513600	Any	
AA vs. A Section 3	Segregate	63270	0	-349939		AA vs. A Section 3	Segregate	1148	1	-2273		AA vs. A Section 3	Segregate	64418	Any	-352212
AA vs. A Section 3	No Effect	625317	0			AA vs. A Section 3	No Effect	49549	1			AA vs. A Section 3	No Effect	674866	Any	
AA vs. A Section 3	Integrate	413209	0			AA vs. A Section 3	Integrate	3421	1			AA vs. A Section 3	Integrate	416630	Any	
AA vs. A Section 3	Not In Group	1288813	0			AA vs. A Section 3	Not In Group	68873	1			AA vs. A Section 3	Not In Group	1357686	Any	
AA vs. A Section 3	Total Including Not In Group	2390609	0			AA vs. A Section 3	Total Including Not In Group	122991	1			AA vs. A Section 3	Total Including Not In Group	2513600	Any	
H vs. A Section 3	Segregate	100362	0	-258359		H vs. A Section 3	Segregate	2002	1	-7941		H vs. A Section 3	Segregate	102364	Any	-266300
H vs. A Section 3	No Effect	622857	0			H vs. A Section 3	No Effect	42354	1			H vs. A Section 3	No Effect	665211	Any	
H vs. A Section 3	Integrate	358721	0			H vs. A Section 3	Integrate	9943	1			H vs. A Section 3	Integrate	368664	Any	
H vs. A Section 3	Not In Group	1308669	0			H vs. A Section 3	Not In Group	68692	1			H vs. A Section 3	Not In Group	1377361	Any	
H vs. A Section 3	Total Including Not In Group	2390609	0			H vs. A Section 3	Total Including Not In Group	122991	1			H vs. A Section 3	Total Including Not In Group	2513600	Any	
*Section 3 refers to the bottom panel of Table 7 in Dr. Siskin's Aug. 13, 2020 declaration (moves sought by apparently eligible applicants)																
NOTE: Counts are the same as in BD Ex. 17																

Exhibit 30

Moves Sought by Apparently Eligible Applicants (by Demographic Group Pairings), Net-Integrative Effect Disaggregated as between Insiders and Outsiders
[Caution: See note* regarding calculation of "no effect"]

(Percentages)

NOT-SCALED RESULTS TRANSLATED TO PERCENTAGES																
Groups	Effect	Percentage	cd_pref	Net	Groups	Effect	Percentage	cd_pref	Net	Groups	Effect	Percentage	cd_pref	Net		Relative percentage** including not in group as "no effect"
W vs. AA Section 3	Segregate	3.05%	0	-14.98%	W vs. AA Section 3	Segregate	1.32%	1	-4.56%	W vs. AA Section 3	Segregate	2.96%	Any	-14.47%		30.44%
W vs. AA Section 3	No Effect*	78.93%	0		W vs. AA Section 3	No Effect*	92.81%	1		W vs. AA Section 3	No Effect*	79.61%	Any			
W vs. AA Section 3	Integrate	18.03%	0		W vs. AA Section 3	Integrate	5.88%	1		W vs. AA Section 3	Integrate	17.43%	Any			
W vs. A Section 3	Segregate	2.23%	0	-2.68%	W vs. A Section 3	Segregate	1.49%	1	-0.49%	W vs. A Section 3	Segregate	2.19%	Any	-2.57%		18.15%
W vs. A Section 3	No Effect*	92.86%	0		W vs. A Section 3	No Effect*	96.52%	1		W vs. A Section 3	No Effect*	93.04%	Any			
W vs. A Section 3	Integrate	4.91%	0		W vs. A Section 3	Integrate	1.98%	1		W vs. A Section 3	Integrate	4.76%	Any			
W vs. H Section 3	Segregate	4.52%	0	-12.62%	W vs. H Section 3	Segregate	2.71%	1	-6.54%	W vs. H Section 3	Segregate	4.43%	Any	-12.32%		51.83%
W vs. H Section 3	No Effect*	78.35%	0		W vs. H Section 3	No Effect*	88.05%	1		W vs. H Section 3	No Effect*	78.82%	Any			
W vs. H Section 3	Integrate	17.13%	0		W vs. H Section 3	Integrate	9.24%	1		W vs. H Section 3	Integrate	16.75%	Any			
AA vs. H Section 3	Segregate	11.10%	0	-15.00%	AA vs. H Section 3	Segregate	4.45%	1	-1.65%	AA vs. H Section 3	Segregate	10.77%	Any	-14.35%		11.02%
AA vs. H Section 3	No Effect*	62.80%	0		AA vs. H Section 3	No Effect*	89.44%	1		AA vs. H Section 3	No Effect*	64.10%	Any			
AA vs. H Section 3	Integrate	26.10%	0		AA vs. H Section 3	Integrate	6.11%	1		AA vs. H Section 3	Integrate	25.12%	Any			
AA vs. A Section 3	Segregate	2.65%	0	-14.64%	AA vs. A Section 3	Segregate	0.93%	1	-1.85%	AA vs. A Section 3	Segregate	2.56%	Any	-14.01%		12.63%
AA vs. A Section 3	No Effect*	80.07%	0		AA vs. A Section 3	No Effect*	96.29%	1		AA vs. A Section 3	No Effect*	80.86%	Any			
AA vs. A Section 3	Integrate	17.28%	0		AA vs. A Section 3	Integrate	2.78%	1		AA vs. A Section 3	Integrate	16.58%	Any			
H vs. A Section 3	Segregate	4.20%	0	-10.81%	H vs. A Section 3	Segregate	1.63%	1	-6.46%	H vs. A Section 3	Segregate	4.07%	Any	-10.59%		59.74%
H vs. A Section 3	No Effect*	80.80%	0		H vs. A Section 3	No Effect*	90.29%	1		H vs. A Section 3	No Effect*	81.26%	Any			
H vs. A Section 3	Integrate	15.01%	0		H vs. A Section 3	Integrate	8.08%	1		H vs. A Section 3	Integrate	14.67%	Any			
*Note: "No Effect" is warped by including "Not in group" moves, per Dr. Siskin's approach																
**CP beneficiary net percentage as percentage of non-beneficiary net percentage																

Exhibit 31

Defendant's Perpetuation of Segregation Simulation, Net-Integrative Effect Disaggregated as between Insiders and Outsiders
(1,000 Runs of Simulation with Community Preference in Effect, by Demographic Group Pairing)

(Counts)

NOT SCALED											
Groups	Effect	pref=CB	Number	Net	pref=CB	Number	Net	pref=CB	Number	Net	
W vs AA	Segregate	0	133,568	-425,171	1	47,982	-125,801	Any	181,550	-550,972	
W vs AA	No Effect	0	1,344,122		1	1,812,936		Any	3,157,058		
W vs AA	Integrate	0	558,739		1	173,783		Any	732,522		
W vs AA	Not In Group	0	2,241,041		1	2,191,990		Any	4,433,031		
W vs AA	Race Refused	0	319,285		1	333,401		Any	652,686		
W vs. A	Segregate	0	105,812	-178,714	1	87,958	-68,995	Any	193,770	-247,709	
W vs. A	No Effect	0	370,251		1	644,137		Any	1,014,388		
W vs. A	Integrate	0	284,526		1	156,953		Any	441,479		
W vs. A	Not In Group	0	3,516,987		1	3,337,690		Any	6,854,677		
W vs. A	Race Refused	0	319,285		1	333,401		Any	652,686		
W vs. H	Segregate	0	201,521	-349,875	1	123,718	-215,080	Any	325,239	-564,955	
W vs. H	No Effect	0	1,340,947		1	1,760,560		Any	3,101,507		
W vs. H	Integrate	0	551,396		1	338,798		Any	890,194		
W vs. H	Not In Group	0	2,183,624		1	2,003,530		Any	4,187,154		
W vs. H	Race Refused	0	319,285		1	333,401		Any	652,686		
AA vs. H	Segregate	0	457,313	-530,630	1	228,316	-68,976	Any	685,629	-599,606	
AA vs. H	No Effect	0	1,759,939		1	2,531,355		Any	4,291,294		
AA vs. H	Integrate	0	987,943		1	297,292		Any	1,285,235		
AA vs. H	Not In Group	0	1,072,187		1	1,169,596		Any	2,241,783		
AA vs. H	Race Refused	0	319,285		1	333,401		Any	652,686		
AA vs. A	Segregate	0	116,408	-443,787	1	39,792	-92,294	Any	156,200	-536,081	
AA vs. A	No Effect	0	1,195,317		1	1,551,057		Any	2,746,374		
AA vs. A	Integrate	0	560,195		1	132,086		Any	692,281		
AA vs. A	Not In Group	0	2,405,550		1	2,503,756		Any	4,909,306		
AA vs. A	Race Refused	0	319,285		1	333,401		Any	652,686		
H vs. A	Segregate	0	175,649	-323,330	1	58,118	-197,830	Any	233,767	-521,160	
H vs. A	No Effect	0	1,254,727		1	1,597,244		Any	2,851,971		
H vs. A	Integrate	0	498,979		1	255,948		Any	754,927		
H vs. A	Not In Group	0	2,348,133		1	2,315,296		Any	4,663,429		
H vs. A	Race Refused	0	319,285		1	333,401		Any	652,686		
NOTE: Counts are the same as in BD Ex. 18											

Exhibit 31

Defendant's Perpetuation of Segregation Simulation, Net-Integrative Effect Disaggregated as between Insiders and Outsiders
(1,000 Runs of Simulation with Community Preference in Effect, by Demographic Group Pairing)
[Caution: See note* regarding calculation of "no effect"]

(Percentages)

NOT-SCALED RESULTS TRANSLATED TO PERCENTAGES												
Groups	Effect	pref=CB	Percent**	Net	pref=CB	Percent**	Net	pref=CB	Percent**	Net	cb net % as percentage of non-cb net % including not in group as "no effect"	non-cb net % as percentage of cb net % including not in group as "no effect"
W vs AA	Segregate	0	3.12%	-9.94%	1	1.14%	-2.98%	Any	2.13%	-6.48%	29.94%	333.96%
W vs AA	No Effect*	0	83.82%		1	94.75%		Any	89.25%			
W vs AA	Integrate	0	13.06%		1	4.11%		Any	8.61%			
W vs. A	Segregate	0	2.47%	-4.18%	1	2.08%	-1.63%	Any	2.28%	-2.91%	39.07%	255.95%
W vs. A	No Effect*	0	90.87%		1	94.21%		Any	92.53%			
W vs. A	Integrate	0	6.65%		1	3.71%		Any	5.19%			
W vs. H	Segregate	0	4.71%	-8.18%	1	2.93%	-5.09%	Any	3.82%	-6.64%	62.21%	160.74%
W vs. H	No Effect*	0	82.40%		1	89.06%		Any	85.71%			
W vs. H	Integrate	0	12.89%		1	8.02%		Any	10.47%			
AA vs. H	Segregate	0	10.69%	-12.41%	1	5.40%	-1.63%	Any	8.06%	-7.05%	13.16%	760.16%
AA vs. H	No Effect*	0	66.21%		1	87.56%		Any	76.82%			
AA vs. H	Integrate	0	23.10%		1	7.03%		Any	15.11%			
AA vs. A	Segregate	0	2.72%	-10.37%	1	0.94%	-2.18%	Any	1.84%	-6.30%	21.05%	475.13%
AA vs. A	No Effect*	0	84.18%		1	95.93%		Any	90.02%			
AA vs. A	Integrate	0	13.10%		1	3.13%		Any	8.14%			
H vs. A	Segregate	0	4.11%	-7.56%	1	1.38%	-4.68%	Any	2.75%	-6.13%	61.92%	161.49%
H vs. A	No Effect*	0	84.23%		1	92.57%		Any	88.37%			
H vs. A	Integrate	0	11.67%		1	6.06%		Any	8.88%			
*Note: "No Effect" is warped by including "Not in group" moves, per Dr. Siskin's approach												
**"Race refused" not included in denominator of calculation												

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

----------x

SHAUNA NOEL and EMMANUELLA SENAT,

Plaintiffs.

15 CV 5236 (LTS)(KHP)

- against -

CITY OF NEW YORK,

Defendant.

----------x

EXPERT REPORT OF EDWARD G. GOETZ

that have produced growing inequality. The city is now characterized by intense socio-economic inequalities and severe housing affordability problems for low-income and middle class residents.[33]

Displacement is occurring in New York City and other cities across the country.

Considerable research has confirmed that displacement of low-income families occurs. Displacement has been the subject of significant attention by researchers for many years. The earliest research was done in the context of urban renewal and the forced displacement of lower-income residents subject to full-scale demolition and clearance projects. While some studies focused on measuring displacement and estimating its prevalence, the majority reported on the relocation efforts to move and resettle displaced households who had lost their homes in redevelopment clearance.[34] In 1979 the U.S. Department of Housing and Urban Development published a report on displacement.

The first academic studies were completed in the 1960s.[35] After an initial flurry of studies, academic attention to the question of displacement declined due in large part to the difficulty of measuring displacement and the lack of good data on the subject.

Most recent research on displacement has emerged from a) the extensive literature on gentrification and b) research on the impacts of public housing demolition and redevelopment. In the gentrification literature, studies have been done to document the extent of displacement, the degree of neighborhood change induced, and the characteristics and motivations of in-movers. The literature on public housing demolition has attempted to similarly document the extent of displacement, track the post-displacement movement of low-income households, and measure the impact that displacement has had on a range of individual-level social, health, and economic well-being outcomes.

Estimates of the severity of displacement vary. By its nature, the phenomenon is difficult to measure; displaced persons are hard to find. The difficulties of measuring displacement are, in fact, the source of some debate among researchers regarding the relationship between displacement in gentrification. Research published roughly 15 years ago called into question whether in fact gentrification is associated with higher rates of displacement. Vigdor[36] and

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[33] New York City Independent Budget Office, "New York City by the Numbers," https://ibo.nyc.ny.us/cgi-park2/2017/04/how-has-the-distribution-of-income-in-new-york-city-changed-since-2006/.

[34] A list of 38 such reports is provided in Chester Hartman, 1964. "The Housing of Relocated Families." *Journal of the American Institute of Planners*, November: 266–86;

[35] See, for example, Marc Fried, 1963. "Grieving for a Lost Home." In *The Urban Condition*, ed. Leonard Duhl, 151–72. New York: Basic Books; Hartman, "The Housing of Relocated Families"; Anderson, *The Federal Bulldozer*; and, Herbert J. Gans 1962. *The Urban Villagers: Group and Class in the Life of Italian-Americans*, New York: Free Press of Glencoe.

[36] Jacob Vigdor, 2002. "Does Gentrification Harm the Poor?" *Brookings-Wharton Papers on Urban Affairs*, pp. 134-173.

Qualitative approaches are able to identify and consider the variety of ways in which displacement can occur or the ways in which displacement pressures can affect households. Zuk and Chapple, for example, use a qualitative research approach and challenge both the distinction between voluntary and involuntary moves that is the basis of quantitative analyses, as well as the idea that displacement necessarily happens *after* the gentrification process has begun.[43]

Despite the research debate about the relationship between displacement and gentrification, and different estimates of the rate of displacement, there is consensus on three important points; that displacement is occurring, that public policies should be devised to mitigate displacement, and that the tenant protections in place in New York City have helped to reduce displacement. The debate among researchers just described is not about *the fact of displacement*, rather it is about whether the rate of displacement is higher or lower in gentrifying neighborhoods. Beyond that, there is substantial agreement among researchers about displacement. Freeman and Braconi conclude that although they find the rate of displacement in gentrifying neighborhoods to be no more elevated than in non-gentrifying neighborhoods, "this does not mean that no one is being displaced."[44] They in fact estimate the rate of displacement in New York City to be between 5.1 and 7.1 percent, a figure that translates to close to 10,000 displacements each year. Newman and Wyly re-estimate and find a higher rate but a slightly lower volume estimate of displacement in New York City.[45] Then, in a follow-up study examining more recent data, Wyly et al. estimate that the number of displaced households in New York City varies over time and rose to as high as 18,000 per year between 2002 and 2005.[46] The fact of displacement is not disputed by any of these authors. Indeed, Freeman and Braconi note that in gentrifying neighborhoods rent burdens among poor people are almost 20% higher than in other neighborhoods. Ultimately, this debate, though interesting to scholars of gentrification, makes little difference in the policy context. Both sides of the research debate agree that rent increases, conversions, and landlord pressure are producing range from nearly 10,000 to 18,000 displacements throughout the city annually. This is the first important point of agreement.

The second point of agreement is that the overall rate of displacement in the city warrants a public policy response. As noted previously, Freeman and Braconi suggest that one explanation for the lower-than-expected rate of displacement in gentrifying neighborhoods is the desire of low-income households to remain in those neighborhoods in order to experience the benefits of upgrading. This, they write, provides a rationale for anti-displacement programs. "If our speculation that many disadvantaged households would prefer to stay in their neighborhoods as they gentrify is correct, this is all the more reason to fashion housing policy to mitigate some of the pressures of displacement."[47] Thus, Freeman and Braconi do not feel that their findings

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[43] Miriam Zuk and Karen Chapple, 2015. *Case Studies on Gentrification and Displacement in the San Francisco Bay Area*. Center for Community Innovation, University of California, Berkeley.
[44] Freeman and Braconi, "Gentrification and Displacement", page 50.
[45] Newman and Wyly, "The Right to Stay Put, Revisted", p. 30.
[46] Wyly et al., "Displacing New York", p. 2607.
[47] Freeman and Braconi, "Gentrification and Displacement", p 50.

a large and multi-faceted plan to address the affordable housing crisis, the City of New York's Community Preference policy operates in ways that are distinct from the City's other programs. The Community Preference policy is the only policy the City operates that combines the direct prevention of displacement with the creation of new affordable housing, targets households rather than units, and works prior to the crisis-intervention stage. Thus, the program is aimed at addressing the fear of displacement that is so widespread among city residents by providing them with greater opportunities to remain in their communities.

The City has a legitimate government interest in preventing and minimizing the displacement that is occurring throughout the city as a result of rapidly rising housing costs and neighborhood change. Such a policy minimizes the disruption to the lives of residents who wish to remain in their communities and to benefit from the increased investment and neighborhood improvements that are occurring.

Respectfully submitted,

Edward G. Goetz, Ph.D.
February 13, 2019
Minneapolis, MN

Exhibit 33. Community District Typology with HUD Subsidized Vouchers and Projects. 2013 to 2017 ACS Data Allocated. Boundaries based upon Bytes of the Big Apple. HUD Data based upon the 2017 Picture of Subsidized Households.

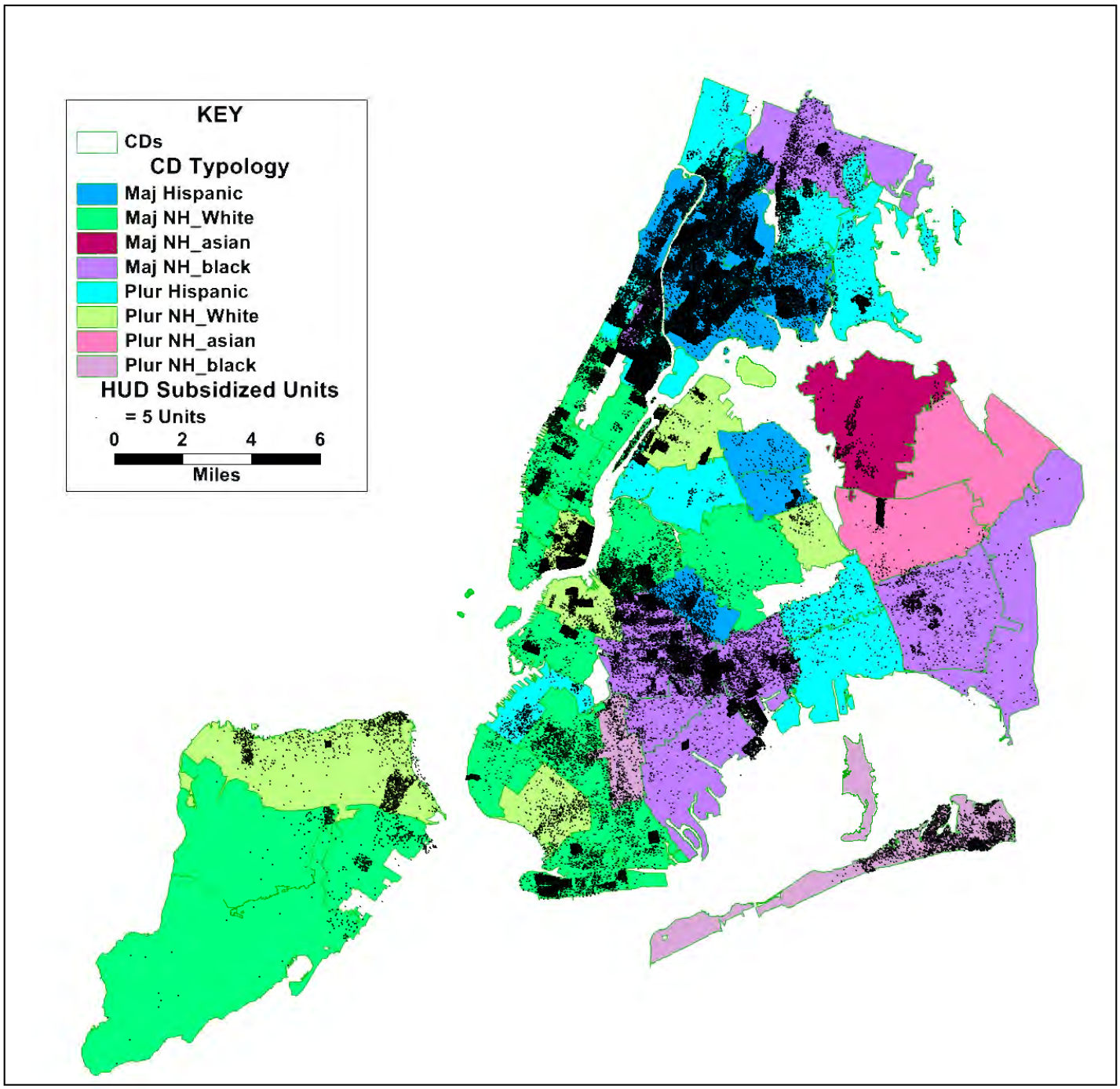

Exhibit 34. Community District Typology with HUD Subsidized Projects in the Bronx and environs. 2013 to 2017 ACS Data Allocated. Boundaries based upon Bytes of the Big Apple. HUD Data based upon the 2017 Picture of Subsidized Households.

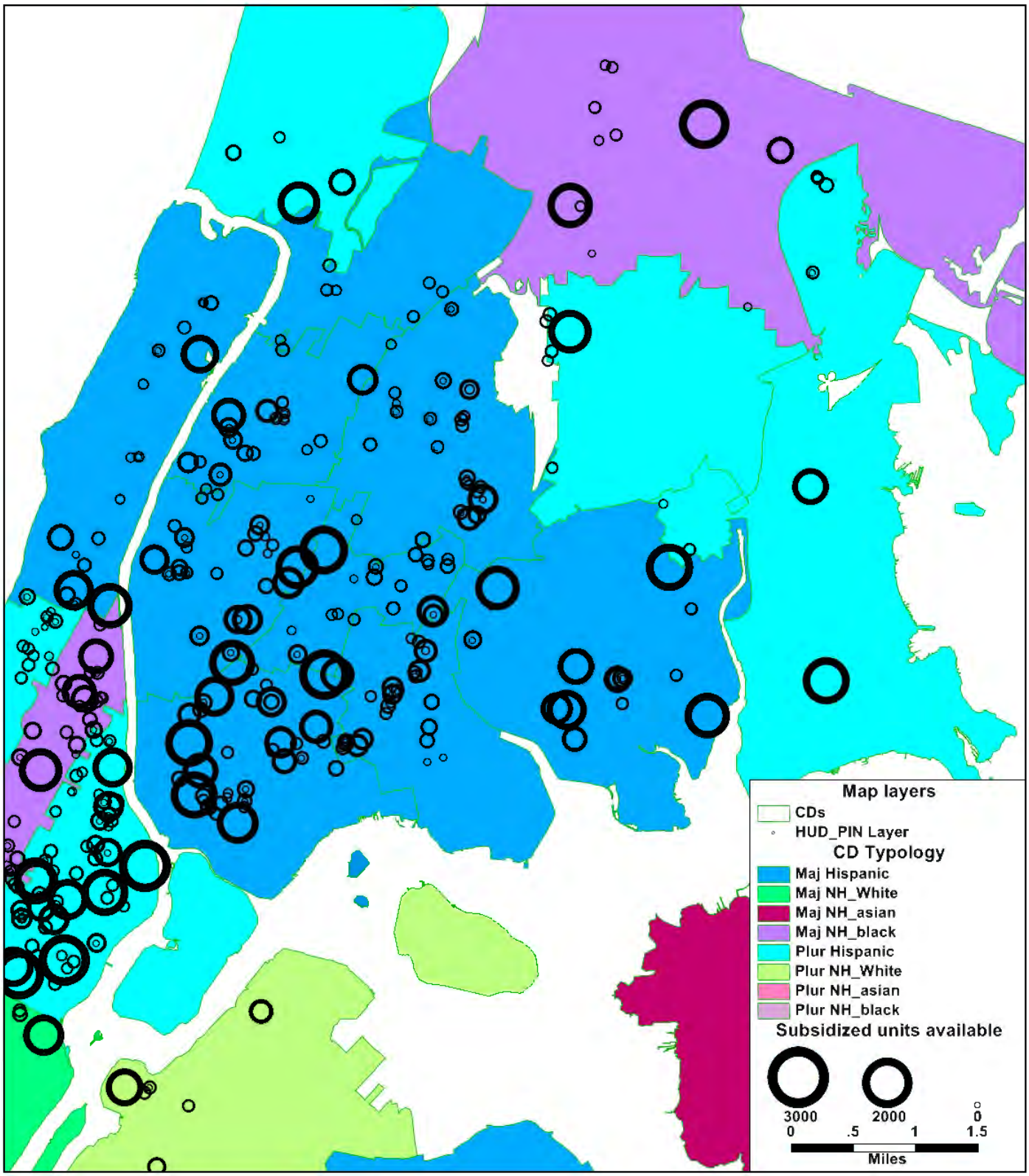

Exhibit 35. Community District Typology with HUD Subsidized Projects in Manhattan and environs. 2013 to 2017 ACS Data Allocated. Boundaries based upon Bytes of the Big Apple. HUD Data based upon the 2017 Picture of Subsidized Households.

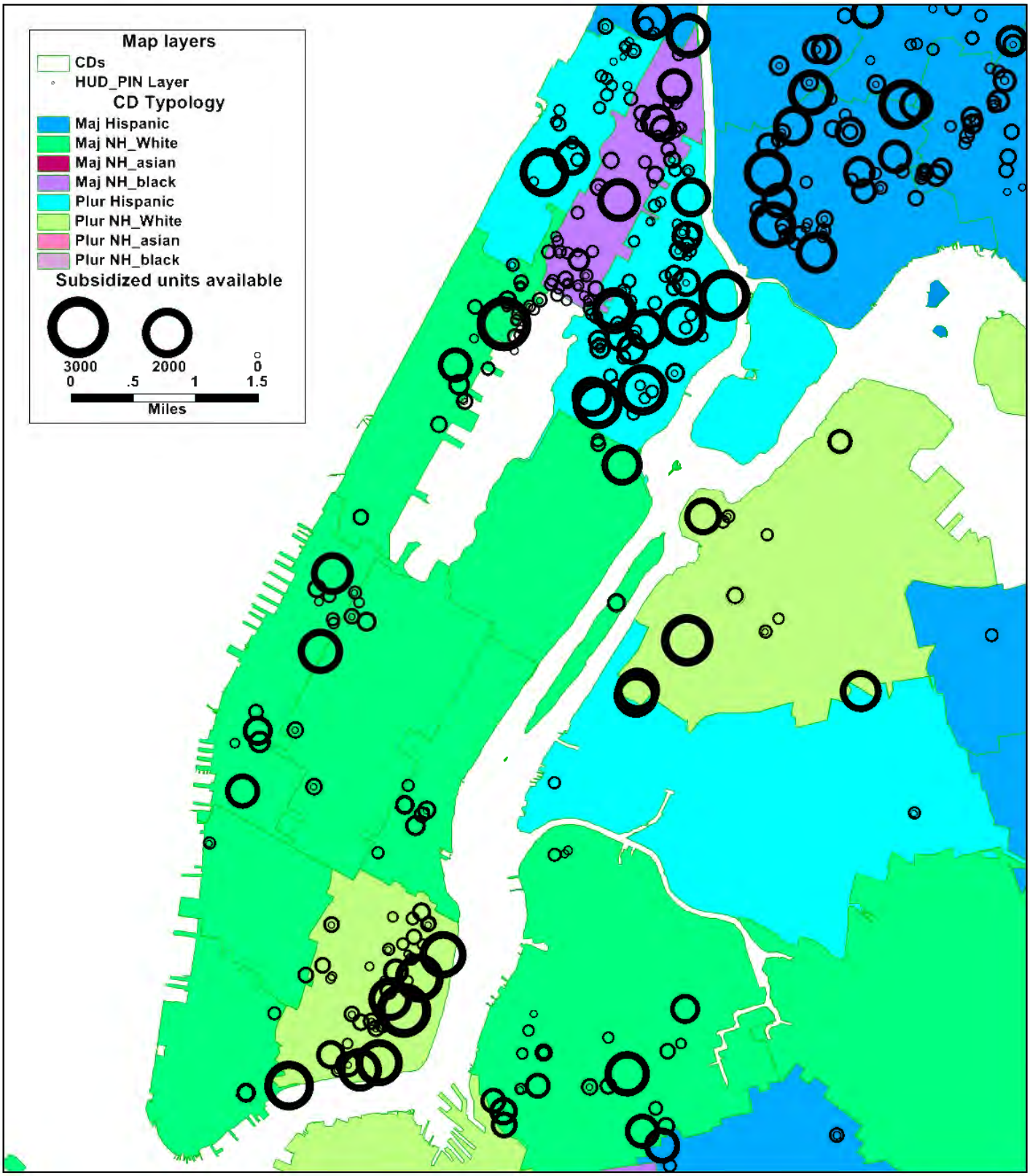

Exhibit 36. Community District Typology with HUD Subsidized Projects in Staten Island and environs. 2013 to 2017 ACS Data Allocated. Boundaries based upon Bytes of the Big Apple. HUD Data based upon the 2017 Picture of Subsidized Households.

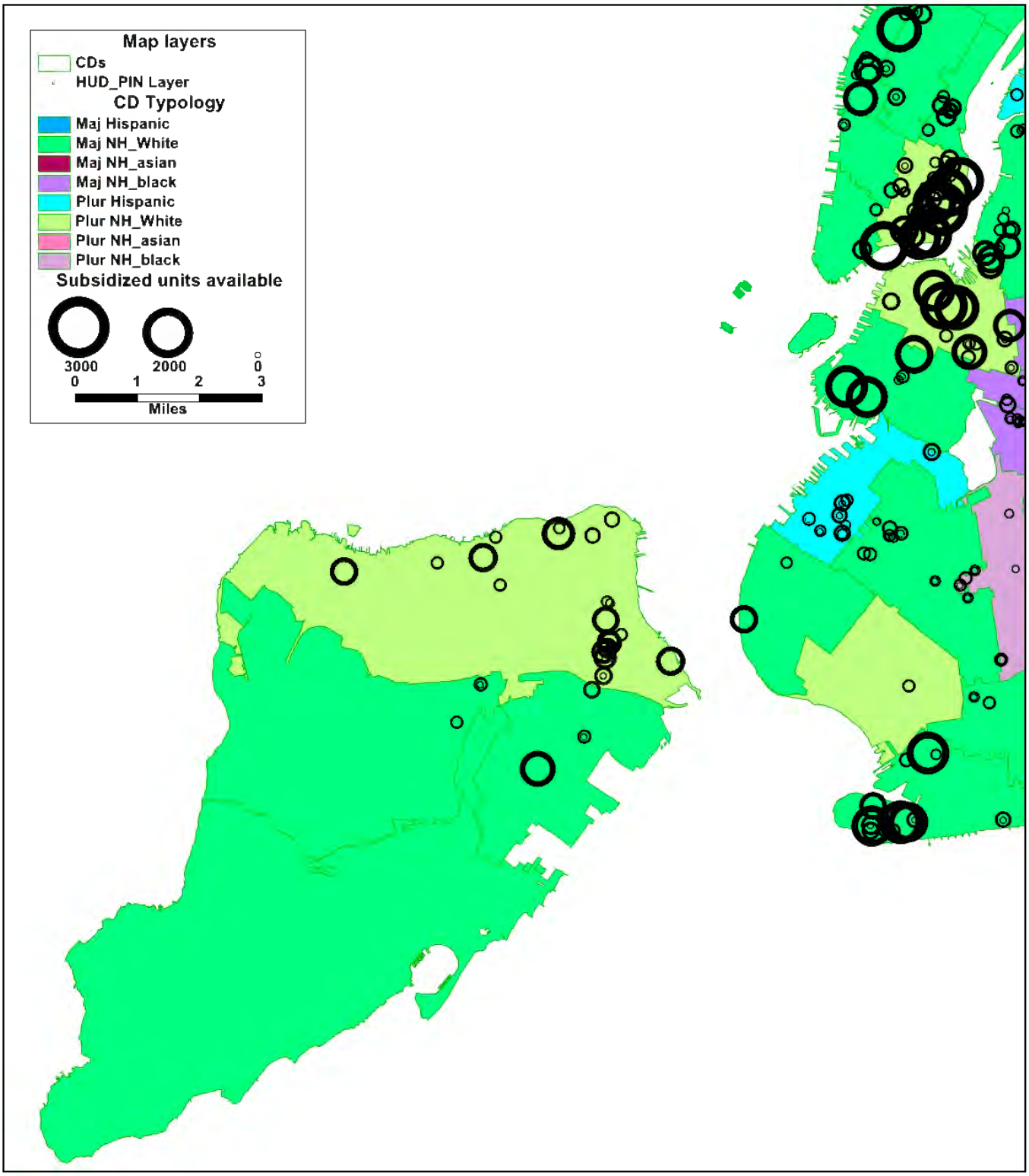

Exhibit 37. Community District Typology with HUD Subsidized Projects in Brooklyn and environs. 2013 to 2017 ACS Data Allocated. Boundaries based upon Bytes of the Big Apple. HUD Data based upon the 2017 Picture of Subsidized Households.

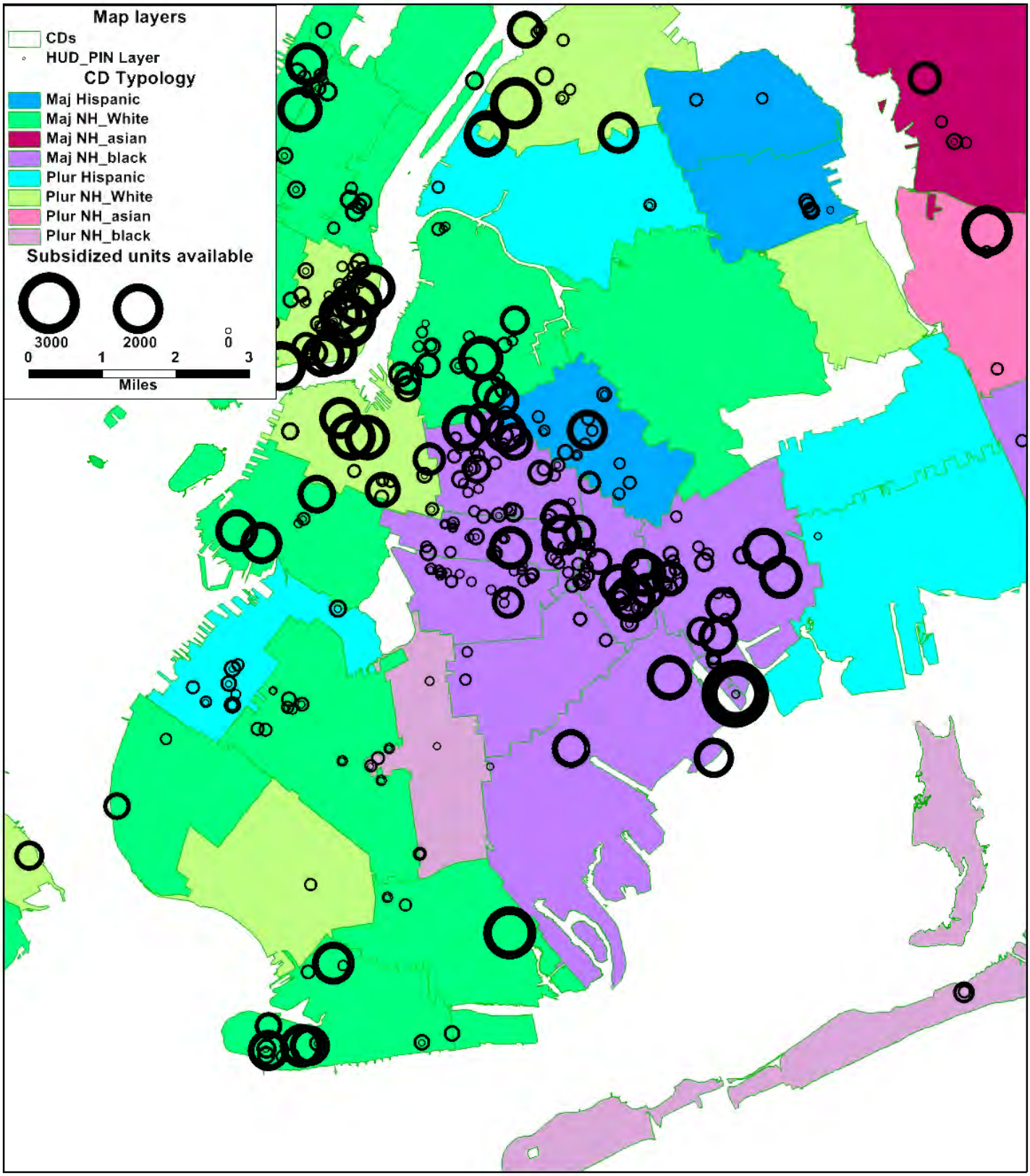

Exhibit 38. Community District Typology with HUD Subsidized Projects in Queens and environs. 2013 to 2017 ACS Data Allocated. Boundaries based upon Bytes of the Big Apple. HUD Data based upon the 2017 Picture of Subsidized Households.

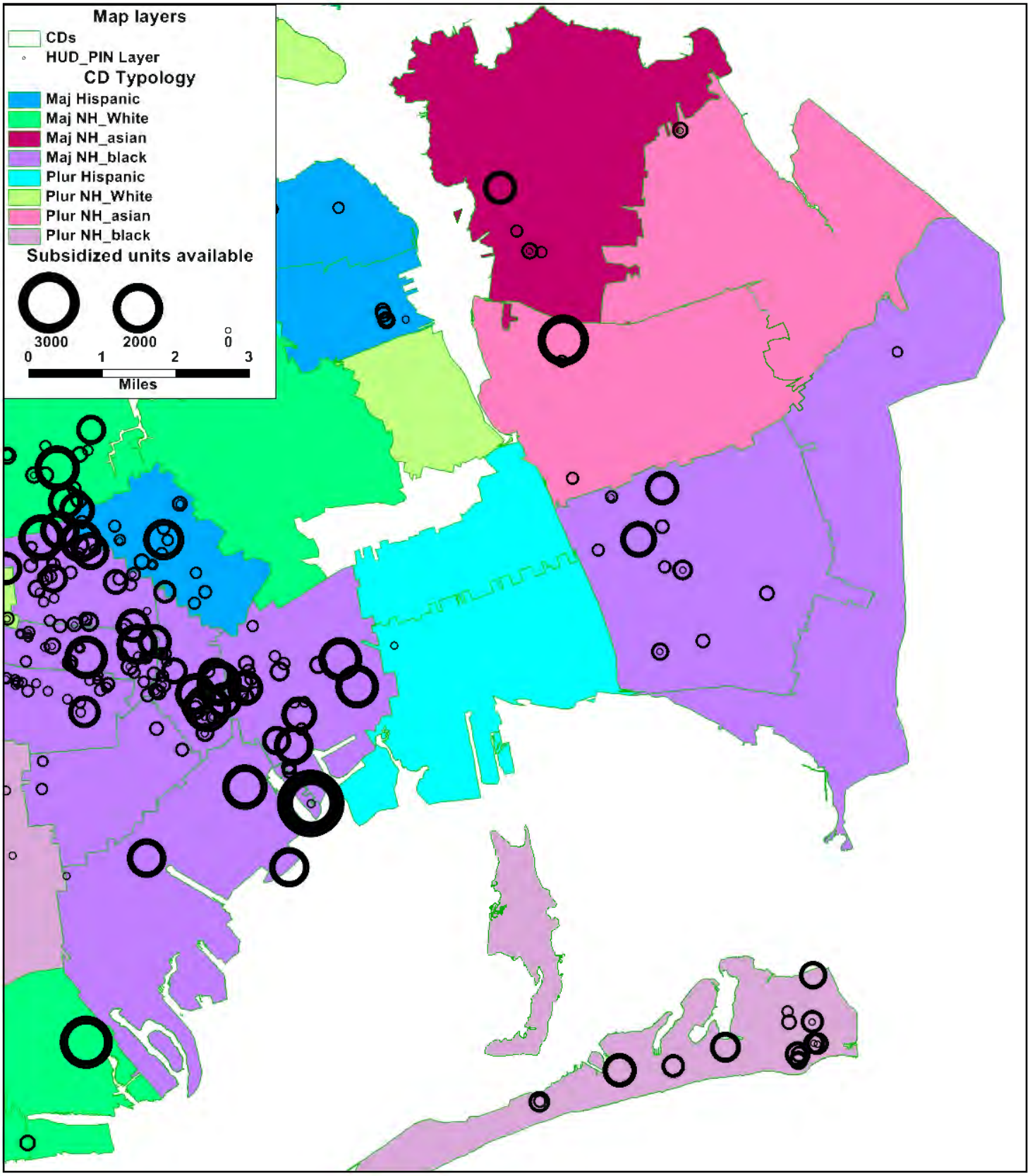

Exhibit 39: City-assisted housing, from defendant's "Where We Live" website