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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EXPERT REPORT OF PROFESSOR ANDREW A. BEVERIDGE IN REPLY TO THE SEPTEMBER 4, 2019 AMENDED EXPERT REPORT OF DR. BERNARD R. SISKIN

September 19, 2019

Amended October 27, 2019

1. This report is written in reply to the criticism of my April 1, 2019 report contained in the September 4, 2019 amended report by Dr. Bernard Siskin ("Amended Siskin Report"), and more specifically to contradict and rebut the evidence identified in the Amended Siskin Report.[1]

I. Understanding disparate impacts across the City

2. Dr. Siskin criticizes me for not examining defendant's community preference policy on a citywide basis, but that is what I did and what he failed to do. I looked at a policy that was *in force* citywide but *implemented in each case* at the community district ("CD") level.[2]

3. In doing so, I chose not to ignore a central feature of the policy, which is the racial/geographic sorting process it imposes through its allocation and applicant sequencing elements. That sorting process is intended to *operate* at the community district level and is therefore appropriately examined at the community district typology level. Doing so allows for the possibility that the policy plays itself out differently (causes different groups to be hurt) in different parts of the City.

4. It is the community district typology approach that allows us to measure whether and to what extent New Yorkers throughout the City can make their own personal decisions regarding competing in the affordable housing lotteries of their choice without having defendant impose a racially-disparate burden on one type of choice (a New Yorker's decision to apply as an outsider to a lottery in a community district preference area other than one in which that New Yorker's racial or ethnic group is dominant).

5. Rather than recognizing that, throughout the City, the policy had localized effects – like

[1] Dr. Siskin initially submitted a report on June 27, 2019 ("Original Siskin Report").

[2] In the relative handful of cases that the community preference in a particular lottery applied to more than one community district, the community district preference area was still always a small number of aggregated community districts.

helping the chances of Whites applying to lotteries for affordable housing in the White-majority CD typology and hurting the chances of Blacks applying to lotteries in that White-majority CD typology – Dr. Siskin sought to cloak those disparities with a separate-but-equal approach.

6. Underlying that approach was that each affordable housing unit is "fungible" – an apartment, is an apartment, is an apartment. In fact, apartments are not fungible in that way. That is explicitly true in relation to lottery housing as compared with other types of defendant's housing. Though defendant does have centralized applications or wait lists for some types of housing, it has exactly the opposite approach *for the lottery housing being examined*: a distinct lottery is held for each project, with separate applications and separate results.

7. Defendant itself labels lottery projects as having a distinctive feature: special value for residents of the community district (recognized by a preference 10 times larger than the preference given for either municipal employees or to applicants who have mobility impairments).

8. I would not expect Dr. Siskin to disagree that, *for an applicant* to a specific lottery, the apartments in that lottery may *not* be fungible with other apartments (depending on whichever of the features of the particular lottery – including the pros and cons of a particular neighborhood – that might be individually appealing). And, in any event, the question is "will the applicant's choice of where to apply be honored by defendant without defendant putting its thumb on the competition scale in a way (by applying the community preference policy) that hurts you or helps you depending on your racial characteristics and the racial characteristics of the community district preference area where you are applying?".[3]

[3] Imagine a White homeowner in a White community district putting his house up for sale. Latino New Yorker responds to the ad. White homeowner says, "I'm not selling to Latinos; you can get a house in your own neighborhood." I don't think that Latino New Yorker would properly be told that a house in a Latino neighborhood was "fungible" for the one he was denied because of the barrier erected by an act of intentional discrimination. Here, the barrier is erected by the disparate effects of a facially neutral

9. Dr. Siskin's answer is that the only thing to be examined is whether or not impacts "balance out" across the City. The impacts do not balance out: the fact that you can get a benefit by choosing to stay in your own racial area does not protect you from or "cancel out" the detriment imposed when choosing to try to move to an area where another racial group is dominant.

10. The separate-but-equal analysis adopted by Dr. Siskin is illustrated in Exhibit 1, explored with Dr. Siskin at his deposition.[4] There you have a hypothetical city perfectly segregated by race, with a lottery priority system that perfectly sorts White applicants into the White borough; Black applicants into the Black borough; etc. Choosing only to examine aggregate results, Dr. Siskin came to the unequivocal conclusion that there was no disparate impact. It is a conclusion that ignores entirely the different harms being caused by the lottery priority system depending on where in the city the policy is implemented.

II. Correlation and causation

11. Dr. Siskin criticizes me for conflating correlation with causation in my analysis and asserts that there are "many other factors and policies"[5] involved in who will get an award. The criticism reveals a fundamental lack of understanding of the place and role of the community preference process.

12. After whomever has decided to apply in a lottery has done so, HPD has a single, unified pool of applicants. That entire pool is assigned a single set of random lottery numbers – regardless of where the applicants come from; regardless of what their household income and household size

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community preference policy, but that fact does not make the desired housing unit any more fungible with other potential housing units than in the intentional discrimination example.

[4] *See* Exhibit 1 annexed hereto (Electronic Exhibit 327 at Siskin deposition), *see also* excerpts of August 26, 2019 deposition transcript of Dr. Siskin ("Siskin Depo."), annexed hereto as Exhibit 2, at 75-81.

[5] *See, e.g.*, Amended Siskin Report, at 10.

may be; regardless of whether that household income and household size appears to meet the requirements of one or more unit types in the lottery in question; regardless of whatever "propensity" they may have to "remain interested" or "not remain interested" if reached by a developer; regardless of their race or ethnicity; regardless of the community district in which the development with the units to be lotteried off is located; regardless of what preference other than community preference, if any, they are eligible for; and regardless of their actual eligibility for one or more unit types. All of the personal characteristics of the applicants, in other words, exist prior to anything else happening in the lottery.

13. Then defendant does something very particular, which is why we have here an unusual natural experiment. The existing pool of applicants, with the existing characteristics of those applicants, is not allowed to have whatever their differences may be play out in an equal-access system. Instead, defendant displaces what would otherwise exist with its community preference rules of applicant sequencing and unit allocation. As such, a large, otherwise random single group of applicants is split at defendant's direction into two groups in each CD typology (one benefitting from CD preference[6]; the other's chances hurt by its application).

14. There is not a question but that having preference helps one's chance and not having preference hurts one's chances. The question is not polluted by other, already accounted-for factors; it is a simple one: whether the benefits and harms of the community preference policy are equally distributed between and among racial and ethnic groups in a CD typology.[7]

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[6] To the extent that the NYCHA preference gives preference on the basis of living in NYCHA housing in the community district preference area of the lottery, it is community preference by another name.

[7] They are not. This is true at the entrant level and it is true at the apparently eligible level. Moreover, contrary to Dr. Siskin, the effects that are introduced by who gets reached by the developer are not "isolated" at a particular "stage" (even if one, contrary to the actual lottery process, only looked at the subset of apparently eligible applicants). Those community preference "who-gets-reached" effects continue to shape the bottom line of who gets awards. When you have a 50 percent CD preference, for example, it does not

15. To put it another way, Dr. Siskin has told defendant that apparently-eligible African-Americans are less likely to be found "interested and qualified" than Whites when reached by a developer.[8] He has told defendant that apparently-eligible applicants from outside of the community district preference area are much less likely to be found interested and qualified for a unit.[9] That would seem to tell defendant that apparently eligible African-American applicants from outside of the community district preference area are, independent of the community preference applicant sequencing and unit allocation system, less likely to get apartments.

16. So what does the community preference policy proceed to do in a lottery in a White-majority CD preference area? It imposes rules that make it *even more difficult* for those apparently eligible African-American New Yorkers from outside of the CD preference area to compete for affordable housing units. In the White-majority CD typology, defendant, through the policy, reserves 50 percent of units for the 4 percent of the apparently-eligible applicants who are community preference ("CP") beneficiaries (a group that is distinctly more White and less African-American than the 96 percent of applicants who are non-beneficiaries). That action by defendant is taken and operates independent of the characteristics of the applicants.

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matter how many apparently eligible non- CP-beneficiary applicants there are (indeed, it does not matter how many actually eligible and interested non- CP-beneficiary applicants there are). None of that eligibility or continuing interest would lower by even one unit the number of affordable apartments in a lottery that are subject to the preference and available exclusively to CP-beneficiaries to the extent that CP-beneficiaries are available to fill them.

[8] The decrease in probability reported in the Original Siskin Report was -17.58 percent. *See* Original Siskin Report, at 33. The decrease in probability reported in the Amended Siskin Report was down to -6.63 percent. *See* Amended Siskin Report, at 33. The continuing flaws in Dr. Siskin's construction of "considered" applications, in his regression, and in the inferences he draws in connection with the meaning of "bypassed" applications (those applicants Dr. Siskin deems to have been considered by a developer but not selected for an award) are discussed below, at 10-18.

[9] The increase in probability for CP preference applicants reported in the Original Siskin Report was 592.54 percent. *See* Original Siskin Report, at. 33. The increase in probability reported in the Amended Siskin Report was down to 200.29 percent in the Amended Siskin Report. *See* Amended Siskin Report, at 33.

III. Stages of the lottery

17. Dr. Siskin's model of the lottery process does not comport with the actual lottery process and thus conceals some of the many ways in which the community preference distorts that process.

18. Contrary to the depiction provided by Dr. Siskin of the lottery's stages,[10] developers are required to deal with all lottery applicants in the order of the random lottery sequence number each has been assigned, as modified by various lottery sequencing and allocation rules, most notably community preference.

19. Properly understood, the process has as its first stage the submission of applications and the assignment of random lottery numbers. At this stage, all applicants are placed on an even playing field to compete for affordable apartments.

20. Being found "apparently eligible" is neither part of that stage, nor constitutes the next stage. In fact, the second stage is HPD making available to developers the list of randomly assigned applicants with their basic self-provided data (except for their community preference status, which HPD calculates), and having the developers proceed according to the joint HPD/HDC marketing guide or manual. That guide or manual requires developer adherence to rules that allocate 50 percent of units to CP beneficiary applicants[11] and requires the processing of CP beneficiary applicants to have priority over the processing of non-beneficiary applicants during such time as the community preference is being filled.

[10] *See, e.g.,* the stages listed in Amended Siskin Report, Table 1, at 31.

[11] CP beneficiaries are not limited to a proportionate share of each available unit type in each lottery; on the contrary, it is first-come, first-served. It is possible that a developer could run out of qualified candidates to fill the community preference slots fully, something that I am advised generally does not happen now. That would represent a circumstance where 100 percent of apparently eligible CP-beneficiaries had been reached and considered by the developer.

21. As such, it is the community preference policy that splits the applicants apart before any have been reached by or evaluated by a developer. Their odds of being awarded a unit shift accordingly, with CP beneficiaries (the much smaller and prioritized group) having their odds enhanced, and the non-beneficiaries (the much larger and disfavored group) having their odds reduced.

22. The next stage of the process is for developers to consider applicants, regardless of their qualifications but in keeping with community preference sequencing and allocation rules.[12] As I understand it, considered status is supposed to be reflected by the fact that a developer has reviewed a household's application and made a determination.

23. Findings of "apparently eligible" (principally having a combination of household income and household size for one or more of the units that are available) are part of the stage that occurs once a developer reaches an application in the proper sequence.

24. Once an application has been reached by a developer, the developer will reject an applicant who does not appear apparently eligible and will take one of two paths in respect to a New York City applicant that is apparently eligible. If there are no more units of a type for which the applicant is apparently eligible, the applicant will be put on hold for later consideration, and, if the lottery closes without an appropriate unit opening up, the applicant will be put on the waiting list. Otherwise, that applicant will be invited for an interview and required to document that he or she is actually eligible.

25. The utility of "apparently eligible" for analysis purposes in this case is that it is the best and only proxy available to assess eligibility for all applicants: since so many applicants are never reached and considered by a developer, there is never a determination of actual eligibility made or

[12] *See* the discussion of nesting and sequencing in the Sources and Methodology Appendix to my April 1, 2019 report, at 9-10.

available for those applicants.

26. As happens often in his report, Dr. Siskin reports applicants and the subset of applicants that he imputes to have been reached and considered by developers without delineating which are CP beneficiaries and which are not, thereby concealing one of the impacts of the community preference policy.[13]

27. Nevertheless, there is no dispute but that a higher percentage of CP-beneficiary applicants are reached and considered by developers than the percentage of non-beneficiaries who are reached and considered.[14]

IV. Dr. Siskin's lottery simulation

28. Dr. Siskin seeks to undercut my findings by running a simulation of lottery awards.[15] His report is misleading because he has used citywide results in order to obscure clear differences that exist at the CD typology level. What I did was take the results of all 1,000 simulations that Dr. Siskin ran with community preference in effect, identified which applicants Dr. Siskin had identified as CP versus those he had not, and ran the results by CD typology. As shown in Table 1 on the following page, the patterns are confirmatory and reinforcing of the patterns I had found previously.[16]

29. In all four majority CD typologies, and one of the three plurality typologies, the simulated awards results show that the dominant group secured the most benefit from the community preference policy, and there were one or more other groups that suffered significant

[13] *See* Amended Siskin Report, at 31.

[14] *See* Siskin Depo., at 52-53.

[15] *See* Amended Siskin Report, at 35-39, including Table 3.

[16] This table is derived from the data shown in Exhibit 3, annexed hereto.

detriment. In the majority White CD typology in the simulations, the detriment to Blacks (approximately 26 percent) is paired with a benefit of approximately 67 percent for Whites.

Defendant's Simulation Confirms Disparate Racial Results of Policy
Table 1 – Relative percentage change for each group from share of non-beneficiary simulated awardees to share of CP beneficiary simulated awardees, by CD typology

CD typology	White	Black	Hispanic	Asian
Majority White	66.59%	-26.05%	11.94%	-31.66%
Majority Black	-44.53%	33.16%	-25.78%	-51.06%
Majority Hispanic	-73.43%	-5.25%	21.14%	-71.31%
Majority Asian	-53.78%	-64.23%	-47.78%	213.73%
Plurality White	12.47%	14.15%	-20.61%	-17.25%
Plurality Black	-27.79%	26.47%	-22.55%	-15.14%
Plurality Hispanic	37.78%	-34.68%	0.81%	76.15%

30. Dr. Siskin's running of the simulation 1,000 times vividly underlines the fact that the racially different outcomes between those with community preference and those without are a predictable feature of the community preference policy.

31. Having now discussed the most profoundly misleading aspect of analysis and presentation – an undifferentiated citywide approach that ignores varied localized effects – I should also note another way that Dr. Siskin's approach fails to capture fully the impact of the policy.

32. When you compare, as he does, the 1,000 simulations with community preference in effect with the 1,000 without community preference in effect, you mask the impact of the policy by including in the results the part of the lottery that is equal access (from 38 percent up to 50 percent, depending on the extent to which CP beneficiary awards are nested with other preferences). To see how the preference is operating, it is important, as I have done, to compare how disparate the community preference and non- community preference parts of the lottery are.

33. Even with Dr. Siskin's masking approach, the results by CD typology in the 1,000 simulations where community preference was not implemented are markedly closer to the distribution of *non-CP awardees* in the 1,000 simulations with community preference than they are to the distribution of *CP awardees* in the 1,000 simulations with community preference.[17] This is true, of course, because such a high percentage of apparently eligible applicants are not CP beneficiaries.

V. Determining "considered" applications

34. Dr. Siskin describes his process for modeling whether an applicant had his or her application considered in Appendix C of his report, at 5-6. That modeling requires knowing, among other things, what preferences were awarded to which applicants, and also what unit types were awarded to which applicants.

35. It is unusual for any data set to be perfect, and, here, both sides agree that the data derived about consideration of applicants is certainly not perfect. That is why it is important not to extend the use of the data beyond where they can reasonably go.

36. Dr. Siskin did not follow this maxim. His procedure for imputing "consideration" to applicants is exquisitely sensitive to error. That fact was already demonstrated in corrections that he had to make in the face of errors discussed with him at his deposition;[18] corrections that, among other things, took the number of apparently eligible applicants he calculated to be "considered" from his initial count of 1,059,039 to his revised (but still inaccurate) count of 551,658.[19] (The difference represents approximately 48 percent of the initial count.)

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[17] *See* Exhibit 4, annexed hereto.

[18] *See* Siskin Depo., at 148-76.

[19] Compare Original Siskin Report, Table 1, at 30 with Amended Siskin Report, Table 1, at 31.

37. Dr. Siskin used a field in a table we provided setting out awards called "all_cb," even though that field was intended to convey the specific fact that an awardee was a CP *beneficiary* (including NYCHA-CB and NYCHA-project awardees), not account for CP awards that were nested within a disability preference award (the CB_num field encompasses such awards).[20] When using a list of all awardees who were marked on HPD or HDC status sheets as getting a CP award, and overriding the all_cb field in the 63 instances where all_CB had not shown CP status, I found that this changed Dr. Siskin's results substantially (even though it had no impact on my results).[21]

38. One critical and recurring problem is that it appears that Dr. Siskin's programming did not adequately account for the circumstance where the quantity of units required for a preference category (a "preference bucket") was filled via nesting *prior* to the time when a particular list of applicants would have been reviewed. The prime example of this is municipal employee ("ME").

39. If a preference has been satisfied prior to the need to review applicants who have that preference arises, then there would be no reason to proceed with doing so, and the process would skip to the next preference category (in the case of ME, the next category would be applicants who are New York City residents without a preference; "NP" in Dr. Siskin's lingo).

40. Unfortunately, Dr. Siskin's program did not carry this out. When it saw that no awards were made in a particular preference bucket, it assumed – incorrectly – that the worst award made

[20] In such a case, the applicant would have gotten a preference because of disability status, and thus I did not count such a person as a CP beneficiary.

[21] I also found circumstances where ME information failed to be produced in the ME field on the award table (leaving blanks). When supplementing that information, I found 126 instances where an applicant was not designated previously as having gotten an ME award. Again, this had substantial cascading impacts on Dr. Siskin's results but did not have any impact on mine. This is true because I had already taken the approach that only an ME awardee who was also a CP awardee was to be treated as a CP beneficiary. In other words, I treated both ME awardees and NP awardees who are not CP awardees as non-beneficiaries of the policy.

to someone in that preference group was 9999999, effectively treating *everybody* in the preference group as having been considered but not selected ("bypassed").[22]

41. For example, using Dr. Siskin's treatment of awards as they "should have" been processed, he assigned no awards in Lottery 275 to ME.[23] There were, however, enough awarded units nested as ME according to him[24] to satisfy the ME preference prior to beginning the processing of "pure" or "stand-alone" ME applicants – meaning applicants who were ME and who had not been selected based on the presence of a higher ranking preference.

42. If Dr. Siskin's programming had adequately queried the data to ask, "Is this preference bucket already filled so that there is *no* need to review this list," the program would then have followed the actual logic of the situation: with the ME bucket filled, processing would have moved directly to the consideration of applicants on the NP list (including those who were ME-eligible but who had not been processed). Instead, the false interpretation created and compelled by his program is that the absence of any ME award meant that *every* ME applicant had been considered and not selected.

43. Turning back to how this played out in Lottery 275 according to Dr. Siskin's analysis, the very last award to a person with no preference went to the selected NP applicant with the worst lottery number: 19,934. Nevertheless, as reflected in the output of Dr. Siskin's population query merged with what he calls his brn_considered_flag, Dr. Siskin records 3,162 applicants with lottery numbers *worse* than the worst NP number as having been "bypassed" (considered but not selected), all of whom are applicants eligible for ME preference and no other preference.

[22] When brought to the attention of Dr. Siskin and his team, the response through defendant's counsel was that the 9999999 programming was intended.

[23] As reflected in his "awards" file and his "Beveridge_unit_type_award_pref" file.

[24] As reflected in his "Beveridge_unit_type_award_pref" file.

Consistent with Dr. Siskin's explicit description of how to determine whether an application was "considered," those ME-eligible applicants should have been treated as "not considered": they (a) had not been considered as part of the ME process and were eligible to be considered as part of the NP process; but (b) they had lottery numbers worse than the NP awardee with the worst lottery number. Each of those 3,162 bypasses (in one lottery) was therefore an apparently erroneous bypass ("AEB").[25]

44. Because this seemed to be a systemic error (and despite my qualms about pretending, as Dr. Siskin does, that developer sequencing in lotteries actually perfectly follows the prescribed order), I tested the sequencing of applicant processing using his determination of the last award given in each preference bucket in a lottery (the award that satisfied the preference).

45. What I did was examine Dr. Siskin's data on "bypassed" and "selected" applicants in a lottery, and I reviewed all the people in a preference bucket who were *eligible* to be selected for that preference. If the applicant had a lottery number *better* than that of the applicant who Dr. Siskin had marked as being the awardee in the category with the worst number, I would note that the applicant was bypassed during that preference loop. If the applicant eligible for the preference had a lottery number worse than the awardee in the category with the worst number, I would not mark the applicant as having been processed at that preference loop. I would then continue through each preference loop, performing the same procedure (the way Dr. Siskin arranged the data, an applicant would appear in effect on each preference list for which he or she was eligible, and all applicants would appear on the NP list; so, if the applicant *ever* had a lottery number better than the worst number awarded on a particular list, that applicant would have been found and identified

[25] As another of many illustrations, see Lottery 317, which is again a case where the ME bucket had been filled by nesting prior to there having been any need to review the list of applicants for ME awards. Nevertheless, there were 3,811 apparently erroneous bypasses of applicants with ME eligibility who had a lottery number worse than the worst lottery number Dr. Siskin identified for an award to an NP applicant.

in my procedure at that time).

46. I found that there was a very significant number of applicants – *85,000 of them* – that Dr. Siskin had erroneously marked as bypassed – candidates who, given Dr. Siskin's own calculations of "worst-awardee-number-per-bucket" could not have been processed in *any* bucket.

47. These erroneous bypasses were imposed overwhelmingly on non-CP applicants.

48. After taking into account updated ME-award information, CP-award information that Dr. Siskin had ignored, and the erroneous bypasses identified in paragraph 46, it turned out that the number of "considered" applicants in Dr. Siskin's terms ("bypassed" plus 10,245 "selected") was neither the 1,059,039 he reported in the Original Siskin Report, nor the 551,668 he reported in the Amended Siskin Report, but rather 429,266 (419,021 "bypassed" plus 10,245 "selected").

Table 2 – The Elusive Number of "Considered" Applicants per Dr. Siskin's Method

Original Siskin Report	Amended Siskin Report	Results with partial corrections described above	Results with additional needed corrections described below
1,059,039	551,668	429,266	TBD*
* If and when Dr. Siskin were to undertake the necessary corrections.			

49. Before continuing, a note of caution: these results still contain uncorrected errors of Dr. Siskin's, and errors reflecting the fact that Dr. Siskin imposed an orderliness to the sequence of developer processing of applicants (how the processing "should have" been handled), that did not exist in the real world.

50. Whichever version of "considered" that is examined, one thing is consistent: it is always the case that the percentage of CP-beneficiaries considered is higher than the percentage

of non-beneficiaries considered, whether making the comparison based on the number of apparently eligible applicants in the respective pools, or making the comparison based on the number of all entrants in the respective pools.

51. As noted previously, Dr. Siskin's consideration data are plagued by still more problems. For example, he failed to use the "duns" column, which stands for "disability – unspecified." There were several lotteries where the awards as listed by the agencies on the status sheets did not specify hearing or vision ("HV") or mobility ("MB"), but rather simply listed disability.

52 . Dr. Siskin's failure to use the information available to him had multiple consequences, of which Lottery 199 illustrates two. In this case, he did not pick up the existence of five disability awards, something that may not seem like much. But it did have a larger consequence in terms of applicants who were fully-closed out of all of the unit types as to which they were apparently eligible. Dr. Siskin's stated process and analytical position in that case is to treat such applicants as "not considered" rather than to treat them as "considered but not selected" ("bypassed").

53. When the five applicants who actually received disability set-aside awards are considered, applicants who were apparently eligible for unit types 1, 2, and 3 became fully closed out when NP applicant with the lottery number 763 was awarded unit type 2. Nevertheless, Dr. Siskin erroneously identified many NP applicants (including ME-eligible applicants considered during the NP phase) with lottery numbers worse than 763 as being bypassed. In other words, this subset of erroneous bypasses was zero for community preference (since unit type 2 remained open throughout the CP loop and into the NP loop) and well over 300 for non-CP applicants.

54. Another consequence of the failure to identify applicants who, in reality, got disability-related awards is that it caused Dr. Siskin to list four of those awards to have been awards to NP applicants. These were the four supposedly NP awards with the worst lottery numbers. When the

adjustment is made, the worst NP award actually went to the NP applicant with lottery number 3,924, not lottery number 37,556. Because of the error ("every NP with a lottery number better than 37,556 is someone presumed to have been considered and not selected"), Dr. Siskin erroneously marked nearly 6,000 NP applicants as "bypassed."

55. Another error occurs in Dr. Siskin's failure to consider the various NYCHA preferences. It is true that there are not many lotteries with such preferences. But, when there is a lottery that includes a "NYCHA – unspecified" award, the consequences for Dr. Siskin's system can be dramatic. Lottery 279 is an example.

56. The last "true" NP award in this lottery went to the applicant with lottery number 6,042, even though Dr. Siskin, by ignoring "NYCHA – unspecified," treated as NP awards those non- CP beneficiary applicants with lottery numbers as bad as 52,121. That creates the potential for 12,879 erroneous NP bypasses in this one lottery alone.

57. Now, not *all* of those bypasses were erroneous. To the extent that an applicant was "NYCHA – unspecified," that applicant *would have been considered* during the NYCHA-applicant processing phase. From the final log,[26] though, it appears that only 10 percent of the applicants in the random number range from 6,042 to 52,121 were NYCHA residents not living the community district. At that ratio, the data point to more than 10,000 erroneous NP bypasses.

58. It might be noted that a single award listed by Dr. Siskin as an NP in the string of NP awards from 6,042 to 52,121 was not "NYCHA – unspecified" but actually a disability-mobility award (Dr. Siskin did not count it as such because his system operates on what the developers and the agencies "should have" done, not what actually happened, and, in that counter-factual situation, that award went beyond what was needed to fill the mobility preference bucket).

[26] *See* NYC_0118936.

59. Common sense suggests the utter implausibility of going through all of the NP applicants with lottery numbers worse than 6,042 and not finding one interested in and actually eligible for a remaining unit until the NP applicant with lottery number 47,491 (the disability-mobility awardee referenced in the preceding paragraph). But one did not need to rely on a commonsense impression. Lottery applicant 47,491, as shown on the award_unit_table that I provided, was processed by HDC on February 7, 2017, smack in the middle of the concurrent processing of disability-eligible and CP-eligible applicants. The first "pure" NP applicant, by contrast, was not processed until October 2017, eight months later.

60. So, it turns out, there were two assumptions that led to the conclusion that NP applicants with lottery numbers worse than 6,042 and as bad as 52,121 were among those considered but not selected – principally the assumption that it did not matter for Dr. Siskin's purposes whether a non-CP NYCHA-unspecified applicant should be treated as an NP, and, secondarily, that a disability award that "should not" have been made equated with the applicant actually being processed *as though* he or she had not gotten the disability award. Both assumptions were wrong, and they caused a large number of erroneous bypasses.

61. It is not only the disconnect between Dr. Siskin's assumed processing order and the actual processing order as shown in the award_unit_type file that demonstrates the unreliability of Dr. Siskin's method of determining "considered" applicants. One needs to question a process that can so markedly vary from what is shown on the developer's statistical report. For Lottery 261, for example, Dr. Siskin had designated 6,726 NP applicants as bypassed. The developer's statistical report,[27] by contrast, shows that there were only 3,565 "no preference" rejections, a number that *includes* applicants who were not apparently eligible in the first place (*i.e.*, many who,

[27] *See* NYC_0122136.

in Dr. Siskin's terms, were "ineligible" and hence not supposed to be part of the "consideration" process that he attempted to model).

62. It is possible that the developer could have been underreporting by thousands the number of rejections of no preference applicants. But awareness of the strong discordance certainly should leave one with a two-fold conclusion. First, that since, as defendant has explained, the closest approximation to what was actually awarded comes from the HDC and HPD status sheets, the best approach is to accept those determinations across the board. Second, that given such variability in developer approach, a procedure that relies on perfection down to a single preference designation – at the risk of hundreds or even thousands of errors – is folly.

63. To reiterate, the error types illustrated in paragraphs 51-62 remain to be corrected, and thus even the partially corrected identification and count of "considered" applicants is still polluted in a way that exaggerates the numbers and improperly skews the relative shares of "considered but not selected," artificially reducing the CP beneficiary share and artificially inflating the non-beneficiary share.

64. And I have not discussed here the additional problem of treating applicants who are partially closed-out (*i.e.*, some of the unit types as to which they were apparently eligible were no longer available at the time they were evaluated by the developer) as equally situated with applicants who had their full range of unit types available to them, something that Dr. Siskin clearly does. (I discuss this problem and its corrupting influence on his regression in the next section.)

65. It should be clear from all of the foregoing that Dr. Siskin's method for determining "considered" applicants was not sufficiently reliable for the purposes that Dr. Siskin intended.

VI. Problems with Dr. Siskin's regression

66. Since Dr. Siskin's method for determining "considered but not selected" ("bypassed")

is not sound, his regression, relying on the accuracy of "considered but not selected," cannot be sound. Moreover, his regression has the problem of multicollinearity.

67. Nevertheless, for comparative purposes, I began by replicating his approach, using the partial corrections to "considered" that I had made. Doing so, the increase in probability for CP applicants (an increase in probability that Dr. Siskin, independent of the regression, interprets through the lens of continuing interest and qualification) stood at 140.79 percent, down from the 200.29 percent in the Amended Siskin Report and the 592.54 percent in the Original Siskin Report. *Bear in mind that this result is still an overstatement – there remain errors in his designation of who has been "considered" that will likely make that result shrink further.*

68. I will report further results in a moment. But before continuing, an essential point must be made. Even if it *were* the case that Dr. Siskin's regression were correct, it would be of no moment. Even if it *were* established that apparently eligible non-beneficiaries of the community preference policy had more of a propensity to lose interest in getting an apartment through the lottery (less "sticktoitiveness") than their apparently eligible CP-beneficiary counterparts, or that apparently eligible non-beneficiaries were ultimately found to be not actually qualified at a greater rate than their apparently eligible CP-beneficiary counterparts, those would be characteristics – like income or family size or race – that preexisted the lottery. The lottery *could* be run on a fully equal-access basis, and the consequences of those characteristics would play out however they played out. But defendant has chosen not to run an equal-access lottery, instead supplanting such a system with a community preference system that, independent of any and all pre-existing applicant characteristics, artificially limits through its sequencing and allocation rules who is able to be considered and selected for what universe of apartments. The consideration process is not *immune* from the community preference, it is *fundamentally shaped* by the community

preference.[28] Put most simply, taking all the applicants as they are, the City can achieve one set of probabilities (chances) and outcomes using community preference; it can achieve a different set of probabilities (chances) and outcomes not using community preference. The two sets are distinctly different in terms of racial composition. The only thing that happens to the applicants is that the City determines its desired set of probabilities and outcomes by choosing the community preference approach.

69. I had to depart from Dr. Siskin's approach because that approach is marred by a basic conceptual problem. Dr. Siskin's model imagines that each applicant, when considered, has available to him the full range of unit types for which he is apparently eligible that he would have had if he had been the first applicant to be considered in a lottery. He has no variable to account for the fact that, in each lottery, there comes a point where the quantity of a unit type originally available is exhausted by applicants who have been awarded that unit type. In other words, the unit type is "closed out."[29] When that happens, subsequent considered applicants who had that unit type as one of the ones for which they were apparently eligible are themselves partially closed-out: they do not have the opportunity to be considered for the full range of unit types for which they are apparently eligible. I will use the term "partially closed-out" to describe these applicants.

70. But Dr. Siskin treats partially closed-out applicants as equal to applicants who are not closed out at all. This is an error. He does not remove partially-closed out applicants altogether (as he tried to do with fully-closed out applicants); if he had done so, his regression would at least

[28] *See* footnote 7.

[29] This is not a necessary lottery organizing principle. Defendant could choose to limit unit-type availability for a preference to the same proportion as the preference group bears to all of the awards. Instead, it allows the preference candidates to take as many of a particular unit type – up to all of them – as there are preference slots to fill in a bucket, without limitation.

have been making an apples-to-apples assessment between and among only those who were not closed out a all. Likewise, he does not include in his regression a variable that queries the impact on the likelihood of selection when a substantial portion of units has already been awarded.

71. This is not just a theoretical concern. Take as an example Lottery 263. This lottery offered a 1BR unit type that was similarly priced and had similar eligibility requirements to the studio in the same lottery. The 1BR unit type was exhausted when the award to CP-beneficiary 31,011 was made. The studio unit type was not exhausted until there was an award to NP applicant 7,798.

72. Now examine all of the "considered" applicants who were eligible both for the studio and the 1BR and not anything else (there was also a 2BR unit type in the lottery). As the processing of applicants began, these applicants were considered at a moment when both of the relevant unit types were still available. In other words, they were not closed out in any way.

73. After CP-beneficiary 31,011 was awarded a 1BR, however, the remaining "considered" applicants who were apparently eligible for both the 1BR and the studio were partially closed-out: they no longer had the 1BR available to them. This put them in a different circumstance from applicants who had come before. Applicants who had come before may have applied only having the 1BR in mind,[30] and may have been found not actually eligible, for example. But applicants who came after (the partially closed-out applicants) may have entered the lottery with the same exclusive interest in a 1BR apartment, and were not given the opportunity to be considered for the unit type they were interested in. Dr. Siskin's interpretation of "not remaining interested" fails to account for this kind of difference.

[30] A household applies to a lottery in general; the household does not specify unit-type interest.

74. In Lottery 263, there were some CP-beneficiary applicants who were partially closed-out in the sense described above. These 56 applicants were marked bypassed. There were, by contrast, a significantly greater number of ME or NP applicants – 811 – who were marked bypassed even though they were partially closed out.[31]

75. One would expect that partial close-outs would tend to occur later in the lottery process and that the partial close-out issue would ordinarily disproportionately affect later-considered applicants (*i.e.*, make it less likely for them to be awarded units). To test this hypothesis, I modified Dr. Siskin's regression in a number of ways.

76. First, I replaced the CP variable with a proportion-of-units-left variable. For instance, I estimated the impact of decreasing the proportion of units left by 50 percent. Doing so, I found that there was a more than 120 percent increase in likelihood of getting a unit if you happened to be 50 percent higher in the consideration queue (*e.g.,* if you were reached when 75 percent of units were still available as compared with only 25 percent of units still available).

77. Then I ran the regression with both the CP variable and the proportion-of-units-available variable present. In that iteration of the regression, having CP increased your chances of getting a unit not by 592 or 200 or 140 percent, but by 45 percent. Having 50 percent more units available relative to another applicant increased your chances by 59 percent. This is not a regression that supports Dr. Siskin's unequivocal interpretation of the data to mean that non-beneficiary applicants are either less interested or less frequently found actually qualified than their CP beneficiary counterparts.

78. Dr. Siskin has yet to identify correctly the subset of apparently eligible applicants who were "considered"; has repeatedly overestimated the size of the parameter associated with being a

[31] This only counts applicants who had numbers better that the worst lottery number of an NP applicant awarded a studio unit (7,798).

CP beneficiary; has failed to use a proportion-of-units-left variable; and has inappropriately treated partial close-outs as though those applicants had all of their unit types available to them. Neither his regression nor his interpretation of his regression is valid.

VII. Perpetuation of segregation

79. As an initial methodological matter, Dr. Siskin exaggerates the number of "no effect" moves by including in the two-group comparisons used to measure moves made by applicants those movers whose race/ethnicity did not correspond to either of the two groups (*e.g.,* including moves by Asians and Hispanics when calculating Black-White dissimilarity).

80. Dr. Siskin also attempts to incorporate his "considered" analysis – something that, as previously described, is deeply flawed.

81. Third, Dr. Siskin acknowledges that the extent of index change is a function of the fact that the apartments being lotteried off represent a very small fraction of the housing units in New York City. Here, as in other kinds of perpetuation of segregation cases, it does not matter how much or how little an index of segregation moves depending on whether a particular housing development is built. What matters is whether it is reasonably predictable that the development would be tenanted in a less segregated way than would be the case with the challenged policy (be it community preference or exclusionary zoning).

82. Fourth, the more units involved over time, the more change there will be.

83. Fifth, the baseline comparison is an equal-access lottery (no community preference). Dr. Siskin acknowledges that the community preference policy tilts three of six comparison pairs – all of the pairs including whites – in the direction of more segregation than would otherwise be the case. That includes the Black-White index, the most highly segregated pairing.

84. Sixth, Dr. Siskin's approach of not disaggregating CP beneficiaries from non-

beneficiaries once again masks the effects of the policy. This is true both in connection with his Table 6 regarding awards and in connection with the bottom panel of his Table 7 (simulation results when the community preference is being applied).[32] Both tables report the "net effect" of the moves Dr. Siskin describes as segregating or integrating, but he chooses not to compare the net effect of the CP beneficiary moves with the net effect of the non-beneficiary moves. That is an important omission because the perpetuation of segregation question, regardless of absolute results, is simply one of which state (equal-access or community preference) perpetuates segregation relatively less than the other.

85. Seventh, if Dr. Siskin were correct about the other three groupings (those not involving Whites) on a relative basis (preference versus no-preference), the conclusion would be that the policy does not cause more segregation *in respect to those groups*, not that the policy's segregating White-Black, White-Hispanic, or White-Asian effects are erased.

VIII. Distance

86. Dr. Siskin concludes that "while it is true that applicants will frequently seek affordable housing outside their community district, it also is true that the data shows [*sic.*] they tend to prefer to remain close to the area in which they currently reside."[33]

87. His procedure is fundamentally flawed and his conclusions invalid.

88. First, nothing in Dr. Siskin's report rebuts my finding of there being "no evidence of any substantial group of lottery applicants limiting themselves only to lotteries that occur in the community district from which they are applying . . . ."[34] Nothing in his report rebuts my finding

[32] *See* Amended Siskin Report, at 56 for Table 6, and at 59 for Table 7.

[33] *See* Amended Siskin Report, at 63-64.

[34] *See* my May 10, 2019 report in rebuttal to the report of Dr. Goetz, at 7.

that "there is clear evidence that the overwhelming percentage of unique applicant households have themselves made a decision that they value finding affordable housing somewhere in the City – even when that housing is not located in their existing community district."[35]

89. Second, Dr. Siskin acknowledged at his deposition that he had only found "small" correlations.[36] In fact, the correlations are remarkably small. More specifically, for CP beneficiaries, the correlations ranged from -.0.0393 at the 25th percentile of lotteries to -0.0066 at the 75th percentile of lotteries. On the non-beneficiary side, the correlations ranged from -.0.0043 at the 25th percentile of lotteries to -0.0016 at the 75th percentile of lotteries.[37] In other words, distance from a project generally explains very little of the variance in applying or not applying. It is a large and unwarranted leap to claim that the data show what people "prefer."

90. Third, even if the correlation were stronger, Dr. Siskin's approach ignores the basic fact that it is *not* the case that that any household had in front of it a menu of 168 lotteries as to which it could make a decision – "apply" or "don't apply" – at a single moment in time. Rather, lottery application periods occur over time. That is significant because, over time, there are a variety of personal factors that can influence or determine why (other than distance) a person does not apply to a lottery. These include a person no longer living in New York City, not having the same household composition, not needing an apartment any longer, not having the required household income to be eligible for a lottery, and feeling discouraged from not getting an apartment in a lottery and thus taking a hiatus from applying. Dr. Siskin takes none of these factors into account.

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[35] *Id.*

[36] *See* Siskin Depo., at 252-53.

[37] CP beneficiary median lottery correlation is -0.0178; non-beneficiary median correlation is -0.0029.

91. And these non-distance factors arise over time in addition to other non-distance factors that can exist at any time: like not applying because of not learning about a lottery, or not having time to apply given the press of other business, or not looking favorably on something about a particular lottery building's location other than the distance (schools, crime rate, etc.). Dr. Siskin took none of these factors into account, either.

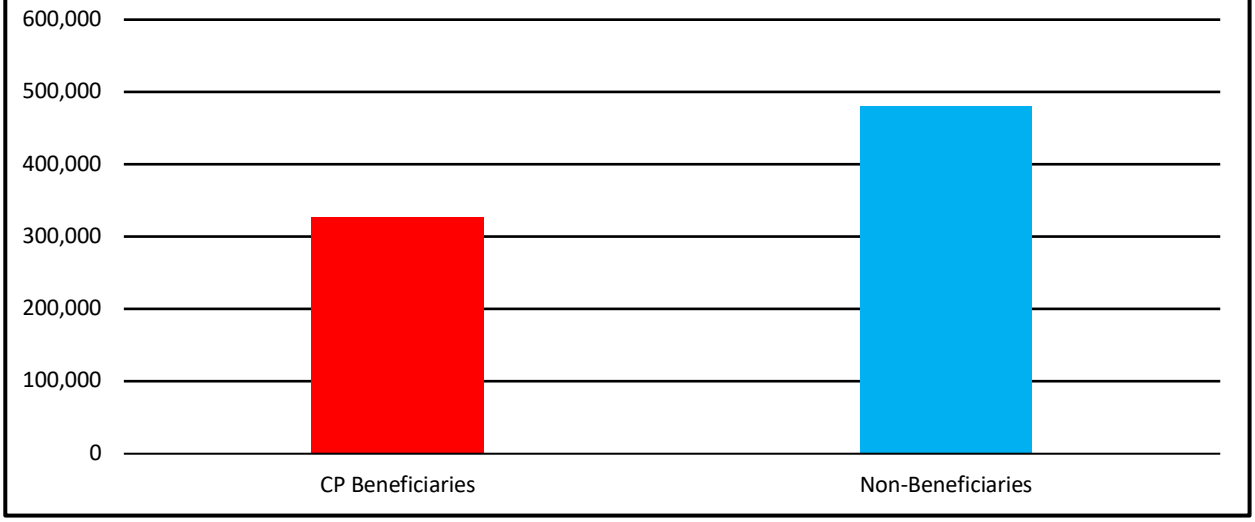
92. Fourth, since Dr. Siskin is interested in the distance of a non-applicant from a lottery project to which the non-applicant did not apply, it is not clear how Dr. Siskin can be confident in what that non-applicant's address was at the time that the non-applicant did not apply.

93. Fifth, 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. There are two possibilities. The first is that trying to distinguish a "preference closer to home" when making an assessment within a radius of two miles is not terribly meaningful.

94. Alternatively, or in addition, imagine for a moment that "two miles or less" *is* meaningful (and has anything to do with a reason for the community preference policy). If that were true, the community preference policy is not organized to capture the people it wants to be helping "stay close."

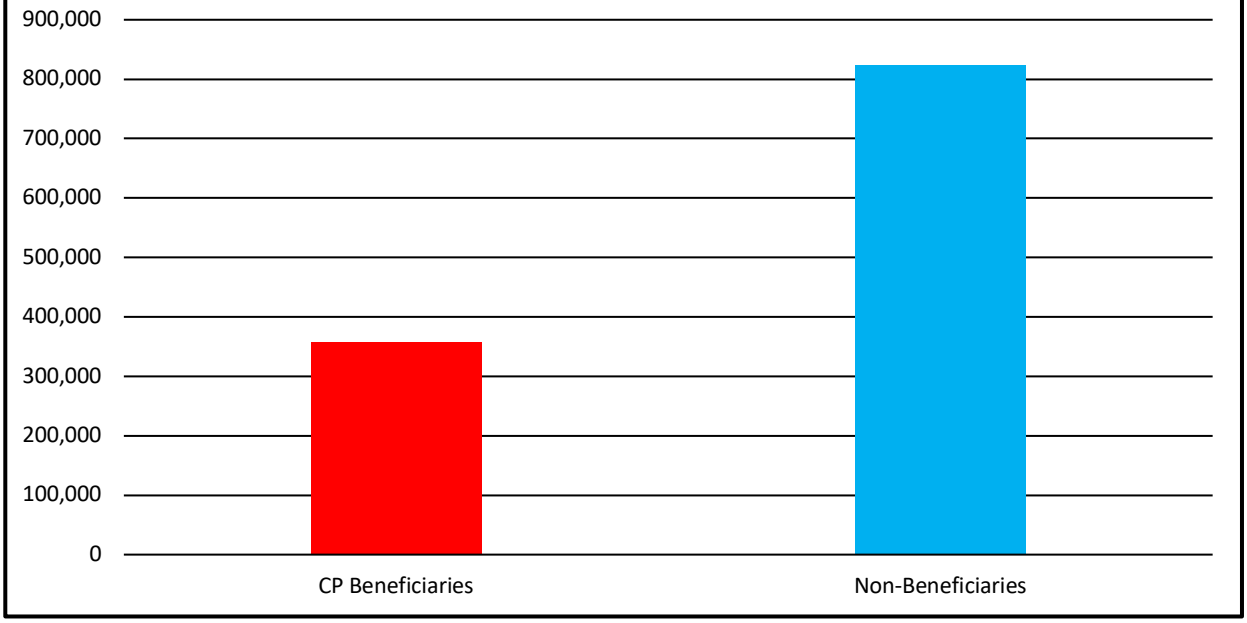
95. As shown in Table 3 on the next page, one could draw the radius even tighter – 1.5 miles. It turns out that significantly more non- community preference beneficiaries are applying to projects that are outside of their CD but within 1.5 miles of their current residence as there are CP beneficiaries applying within that radius.

Table 3 – CP Beneficiary vs. Non-Beneficary Applications from Residences within 1.5 Miles of Project



96. If one examines a two-mile radius (that's the radius where, in 119 lotteries, an in-district applicant could not help to fall within, regardless of "preferred" closeness), the gap is even wider. As shown in Table 4 below, the number of non-beneficiary applicants applying for projects within that radius is well more than double the number of CP beneficiary applicants.

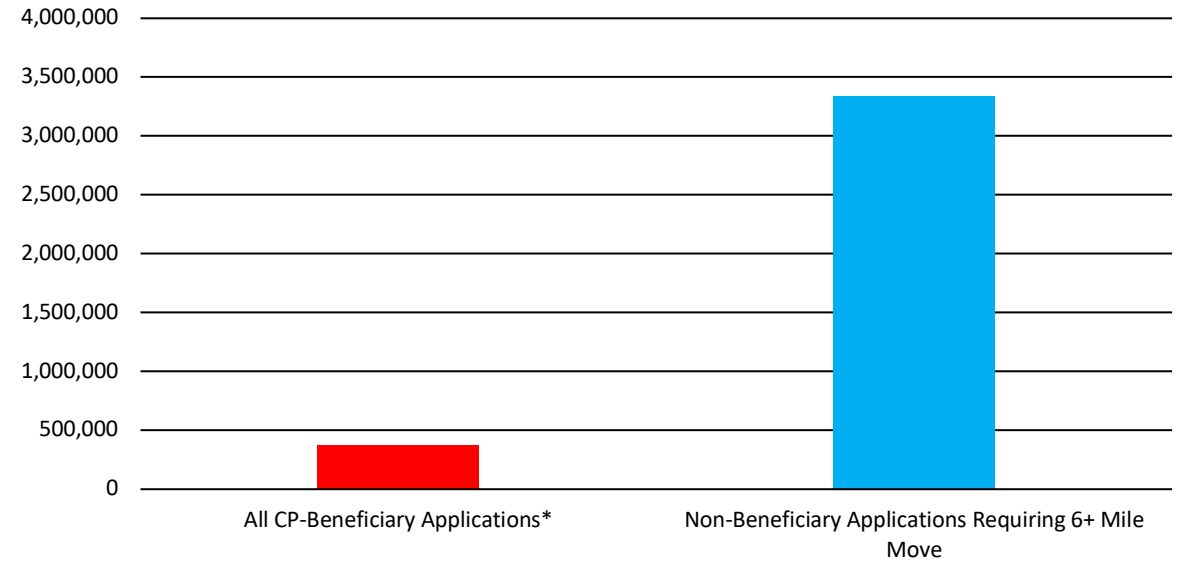
Table 4 – CP Beneficiary vs. Non-Beneficary Applications from Residences within 2.0 Miles of Project



97. While not reported by Dr. Siskin, his data show further support for the point I originally made that many New Yorkers are prepared to consider (as measured by the fact of applying) housing that is not in their CD. Indeed, his data demonstrate that a substantial number of lottery participants are prepared to consider (as measured by the fact of applying) housing that is relatively far from their existing residence.

98. For non-beneficiary applicants, fully half of the applications are for projects located *six* or more miles from the applicant's home. The scale of these applications is illustrated in Table 5 below. It shows in blue just the non-beneficiary applications that represented a distance of six or more miles from the applied-for project. It shows in red virtually *all* CP beneficiary applications.[38] In other words, there are nearly nine times more non-beneficiary applications requiring moves of six miles or more than there are CP beneficiary applications *in toto*.

Table 5 – All CP-Beneficiary Applications vs. Non-Beneficiary Applications Requiring 6+ Mile Moves



* See note in text.

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

99. In sum, the distance data produced by Dr. Siskin do not support his interpretations and do support and amplify the points that I have previously made.

IX. Miscellaneous

100. Throughout his report, Dr. Siskin both conducts his own analyses without disaggregating CD typologies or without disaggregating CP beneficiaries and non-beneficiaries; he also at times recasts my analyses by aggregating CD typologies to a citywide total or by aggregating CP beneficiaries and non-beneficiaries. Those techniques simply mask the basic impact of the community preference policy.

101. Dr. Siskin apparently does not appreciate that disparate impacts are well understood to be able to exist in connection with one or more aspects or phases of a policy or procedure, regardless of bottom-line result.

102. Dr. Siskin's reference to African-Americans being awarded housing "in disproportionate numbers . . . compared to their representation in New York City" (including at lower income levels)[39] has nothing to do with the matters at hand. There is, of course, the error of thinking the impact of the policy reducing the chances of African-Americans to compete for housing in White majority CDs can be "balanced out" by improving the chances of African-Americans to compete for housing in African-American CDs. But, in addition, the relevant population for disparate impact purposes consists of those households who have applied, not the overall City population. African-Americans are not "over-represented" in the applicant pool – their representation is what it is until the community preference policy interferes.

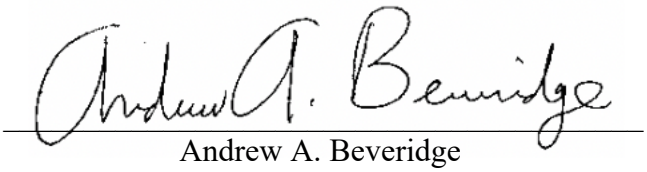
103. In terms of Dr. Siskin's comments about tract versus community district composition, the relevant geography – community district preference area – is defined in all cases by defendant's

[39] *See* Amended Siskin Report, at 35.

policy. That a community district preference area might have a census tract whose composition differs from the composition of the community district preference area as a whole (or the CD typology) does not change a basic fact: preference is going not to the residents of a census tract but to the residents of the community district preference area (generally a single community district). The disparate impact occurs not between beneficiaries of a census tract preference policy and non-beneficiaries of a census tract preference policy, but rather between beneficiaries of a community district preference policy and non-beneficiaries of the community district preference policy.

Dated: September 19, 2019

Amended October 27, 2019:



Andrew A. Beveridge

Ex 1 - Disparate Impact Hypothetical re Preference Policy ("SBE"), Electronic Ex 327 at Siskin 2019 08 26 Deposition

Segregation City has four boroughs:

White borough - 100 percent NH White
Black borough - 100 percent NH Black
Hispanic borough- 100 percent Hispanic
Asian borough - 100 percent NH Asian

In each lottery, an equal number of applicants from each borough applies (1,000), an equal number from each borough are apparently eligible (500).

Only one unit type 2BRs at the same rent are available in each lottery. There are 100 units available per lottery

Applicants from each borough and apparent eligibility status are perfectly and evenly distributed throughout each lottery's random number sequencing.

Finally, apparently eligible applicants from each borough are equally likely to follow through and be awarded an apartment IF THEY ARE REACHED (20 percent of those reached)

Hypothetical A - Instead of proceeding in order of random number sequencing, the lottery rule is that applicants living in borough of the lotteried development get priority in being reviewed (in their sequence order) by developers. Any apartments left over after that allocation are allocation in random number sequencing originally assigned.

Alternative processing: everyone processed in random sequence order as originally assigned

White borough developments	White, NH apps	Black NH apps	Hispanic apps	Asian NH apps	White, NH app. Elig	Black NH app. Elig	Hispanic app. Elig	Asian NH app. Elig	White, NH awards	Black, NH awards	Hispanic awards	Asian, NH awards	% White NH app elig. Reviewed	% Black NH app elig. Reviewed	% Hispanic app elig. Reviewed	% Asian app elig. Reviewed	White, NH awards	Black, NH awards	Hispanic awards	Asian, NH awards	% White NH app elig. Reviewed	% Black NH app elig. Reviewed	% Hispanic app elig. Reviewed	% Asian app elig. Reviewed
1	1,000	1,000	1,000	1,000	500	500	500	500	100	0	0	0	100	0	0	0	25	25	25	25	25	25	25	25
2	1,000	1,000	1,000	1,000	500	500	500	500	100	0	0	0	100	0	0	0	25	25	25	25	25	25	25	25
3	1,000	1,000	1,000	1,000	500	500	500	500	100	0	0	0	100	0	0	0	25	25	25	25	25	25	25	25
Sub-total in White NH borough developments	3,000	3,000	3,000	3,000	1,500	1,500	1,500	1,500	300	0	0	0	100	0	0	0	75	75	75	75	25	25	25	25
									100%	0%	0%	0%					25%	25%	25%	25%				
Black borough developments																								
4	1,000	1,000	1,000	1,000	500	500	500	500	0	100	0	0	0	100	0	0	25	25	25	25	25	25	25	25
5	1,000	1,000	1,000	1,000	500	500	500	500	0	100	0	0	0	100	0	0	25	25	25	25	25	25	25	25
6	1,000	1,000	1,000	1,000	500	500	500	500	0	100	0	0	0	100	0	0	25	25	25	25	25	25	25	25
Sub-total in Black NH borough developments	3,000	3,000	3,000	3,000	1,500	1,500	1,500	1,500	0	300	0	0	0	100	0	0	75	75	75	75	25	25	25	25
									0%	100%	0%	0%					25%	25%	25%	25%				
Hispanic borough developments																								
7	1,000	1,000	1,000	1,000	500	500	500	500	0	0	100	0	0	0	100	0	25	25	25	25	25	25	25	25
8	1,000	1,000	1,000	1,000	500	500	500	500	0	0	100	0	0	0	100	0	25	25	25	25	25	25	25	25
9	1,000	1,000	1,000	1,000	500	500	500	500	0	0	100	0	0	0	100	0	25	25	25	25	25	25	25	25
Sub-total in Hispanic borough developments	3,000	3,000	3,000	3,000	1,500	1,500	1,500	1,500	0	0	300	0	0	0	0	0	75	75	75	75	25	25	25	25
									0%	0%	100%	0%					25%	25%	25%	25%				
Asian borough developments																								
10	1,000	1,000	1,000	1,000	500	500	500	500	0	0	0	100	0	0	0	100	25	25	25	25	25	25	25	25
11	1,000	1,000	1,000	1,000	500	500	500	500	0	0	0	100	0	0	0	100	25	25	25	25	25	25	25	25
12	1,000	1,000	1,000	1,000	500	500	500	500	0	0	0	100	0	0	0	100	25	25	25	25	25	25	25	25
																	25%	25%	25%	25%				
Sub-total in Asian NH borough developmen	3,000	3,000	3,000	3,000	1,500	1,500	1,500	1,500	0	0	0	300	0	0	0	100	75	75	75	75	25	25	25	25
									0%	0%	0%	100%					25%	25%	25%	25%				
CITYWIDE	12,000	12,000	12,000	12,000	6,000	6,000	6,000	6,000	300	300	300	300	25	25	25	25	300	300	300	300	25	25	25	25
									25%	25%	25%	25%					25%	25%	25%	25%				

5

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.

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.

SISKIN

First, I wanted to ask you if you had spoken with your attorneys during the break?

A Briefly, yes.

Q Was there testimony that you wanted to change?

A We didn't discuss testimony.

Q Was there testimony that you wanted to change?

A No.

Q So I'm showing you what I'm marking as electronic Exhibit 327.

(SBE (plaintiffs' hypothetical), was marked Plaintiff's Exhibit 327, for identification, as of this date.)

Q And what you will see here is not New York City, but a perfectly segregated city. There's an all white borough, an all black borough, an all Hispanic borough, and an Asian borough, all Asian borough. And there are lotteries for affordable housing units. And it turns out that everything about

it is even. There's one type of -- there's one type of unit. There are 100 units available per lottery. You see it in that Column A that there's an equal number applying from each borough. An equal number apparently eligible. Everybody's equally likely to follow through. And if they're reached, it's 20 percent of those reached.

And so what we've done here -- and so here's the rule which is stated right at the top. Instead of proceeding in order of random number sequencing, the lottery rule is that applicants living in the borough of the lottery development get priority in being reviewed in their sequence order by developers. Any apartments left over after that allocation are allocated, typo, and random number sequence originally assigned.

So it's not a set aside it's a priority, but it's 100 percent

priority. This particular city thinks it's very important to give everybody who wants to a chance to be in their same borough.

And if you start looking at the results of Columns L to O, you see what happens in each of the lotteries. In the aggregate, in the white borough lotteries there are 300 whites who get it. In the black borough lotteries, there are 300 blacks who get it. And the same thing is true in terms of the apparently eligible reviewed. In the white, it's only the white who are reviewed and the black there is only the black.

But when you get down to the bottom line, it turns out that exactly the same number of blacks, whites, Hispanics and Asians get apartments, overall, citywide the same percentage have been reviewed.

Does this practice cause any disparate impact?

SISKIN

MS. SADOK: Objection.

A You have to define a lot more information to be able to answer that.

Q Well, everything -- I don't think so. We may have to get into it a little bit more.

Everybody is the same. Everybody is equally qualified --

A That's not the question.

Q Okay.

A The question is: You developed four boroughs, you developed four units, are the units fungible? A unit is a unit is a unit. They're equally as good, equally as bad. Is the -- that's the first question.

If that's the case, in that scenario, this would not have a disparate impact in terms of allocation of units. It would have obviously a very questionable allocation problem which would go to the question of perpetuating segregation. But it wouldn't go to disparate impact.

SISKIN

Q Okay. So assuming for the moment that the apartments were fungible, and leaving aside perpetuation of segregation, no disparate impact, correct?

MS. SADOK: Objection.

Q Correct?

MS. SADOK: Objection.

A If this were four areas, and these were equivalent units, and the policy is consistent, then the relevant question would be: Does this policy have an impact making it most likely to award apartments to blacks, whites, Hispanics and Asians, the answer to that is no. It's a question of distribution, not a question of assignment. And I think if they're all equivalent, putting aside the question of segregation, then under -- under my understanding of disparate impact, it would not have a disparate impact.

Q Okay.

Just to make sure you see

SISKIN

this. In Columns U to AB, you see what happens without the priority policy. Within each -- within the boroughs there's equal distribution among the groups, and then at the bottom line it winds up to be exactly the same.

You saw that, right?

A Yeah, but that goes to the question again which is the valid question about the assignment. But doesn't go to the question of disparate impact in allocation of apartments if they're fungible.

Q Let me ask you something else about this. Let's say cases happen at different moments in time, sometimes the moments -- sometimes cases seem to go along for a long, long time but -- so what I've shown you is one particular moment. My hypothetical has this particular moment. Everything is in Eqiports. I've already gone through my correct spelling today so...

Now, let's say what happens

is there's a flurry of development, like they're the same size, everything else is the same. There's a flurry of development only in the white borough. There are six more developments. They're all in the white borough, they all work out the same way. And so now at the bottom line instead of having 300, 300, 300, 300, you have 900, 300, 300, 300. That would be a disparate impact from your point of view?

MS. SADOK: Objection.

A Yes.

Q But if the city kept on building an equivalent number of developments in the different boroughs, it would maintain this separate but equal scenario, yes?

MS. SADOK: Objection.

A That's correct.

Q Let's say there were a race neutral rule that said you can only move on to a block in which the majority of residents are the same race

SISKIN

VIDEOGRAPHER: Going off the record. The time is 1:00 p.m. This is end of Media Unit 2.

(Whereupon, a brief recess was taken.)

VIDEOGRAPHER: We're back on the record. The time is 1:07 p.m. This is the beginning of Media Unit 3.

Q I just wanted to confirm something with you. You remember you talked earlier about having taken a look at at least some of the final logs and their being sort of all over the place. Done in widely different ways, yes?

A Correct.

Q Your assumption in developing your considered measure and the things that flow from that, including the regression and other tables, is developer regularity, right?

MS. SADOK: Objection.

Q That the developer actually

SISKIN

does evaluate each person on the list with a lottery number better than the last person awarded in the preference bucket with the exception of the fully closed out?

A Correct. Otherwise, they wouldn't be following the rules, correct.

MS. SADOK: Objection.

Q Otherwise?

A They wouldn't be following the rules.

Q Do you know if doing so, following the rules for all the applicants conforms to developer practice?

MS. SADOK: Objection.

A No.

Q Longer ago than I had thought, I started saying that there were two cutoff points that were important and talked a little bit about the preference buckets cutoff, but there's also the unit type cutoff.

SISKIN

Correct?

A Correct.

Q And so let me just try to see if I get that one correct in terms of what you intended to do.

If you don't have the correct unit type cutoff, then you might accidentally treat some applicants as bypassed who at the moment of consideration were apparently eligible only for unit types that were apparently filled, correct?

MS. SADOK: Objection.

A You mean if the database was incorrect in terms of the number of units -- types of units that were available?

Q Right. Or the way -- I mean, the way your program did it, or in any event, if you have, let's just keep it within -- within one bucket. The unit type was actually closed out, the three bedroom was actually closed out at number a thousand, but you're still

going through that bucket until 20,000.

If you haven't gotten that unit type cutoff correct, people with numbers worse than a thousand, who were only apparently eligible for the three bedroom, are going to be treated as bypassed as opposed -- erroneously treated as bypassed and not properly put into the not considered pile, right?

MS. SADOK: Objection.

A No, the program is supposed to take the person whose unit is not available and move them into the not considered group.

Q I understand.

A Of course it's based on knowing what, you know, the unit -- how many units you have available and whether it's filled or not.

Q And knowing the last person who took the unit type, that is the person who by taking the unit type exhausted the availability of the unit

type?

A Correct.

Q I wanted to show you something that we're going to -- HV differences which is Electronic 328.

(HV differences, was marked Plaintiff's Exhibit 328, for identification, as of this date.)

Q And what this does, and it's done here for Lottery 133, just for Lottery 133, and what it does in those first four Columns A to D, it takes information from the beveridge_apar_base household 168 file.

And it only does so in those cases where visually impaired is no and hearing impaired is yes.

Do you see that in Columns A to D?

A Yes.

Q And there are, this mouse works opposite of the way my mouse works. Sorry. In fact, the whole laptop works different from mine.

SISKIN

So there are -- there are 600 and change of these from this one lottery. Now, Columns E, F and G merges in the same candidates from your population query. That is the output of the population query.

That population query generates the list of unit type eligibilities, right?

MS. SADOK: Objection.

Q Dr. Siskin?

A Yes, I'm looking.

Q So that population query generates the list of unit type eligibilities. Now, you'll notice that for each and all of them the HV field, which says is this person a hearing or visually disabled person is a zero, no.

Now, in other words, the hearing impairment is not picked up in the HV column. So if I'm right about that, doesn't that, by definition, skew the information that's used in your regression?

SISKIN

MS. SADOK: Objection.

Q In considering -- the regression relies on consideration, right?

A Correct.

Q What else relies on consideration? What other tables or analyses rely on consideration?

A Table 4. I can't -- I understand what your question is. I can't answer that, sitting here, whether or not that has a impact and what could -- if it's an error. It could be an error. If it's an error it's going to change the result somewhat. How much it changes the results, the significance, I don't know. I can't answer.

Q Well, if it's an error, it's an error for more than 600 applicants in more than one lottery.

Do you know the source of the error?

MS. SADOK: Objection. And

SISKIN

can we just clarify for the record what is the source of this document?

MR. GURIAN: I'll need a couple more minutes before we stop, but A to D comes from beveridge_apar_base_HH 168. And Columns E to G is the output of the population query in terms of lottery project number, lottery project app, random sequence number and whether there are HVs.

So what I would like is for this document to be marked Exhibit 339.

(description , was marked name number , for identification, as of this date.)

Q And I don't know if this is going to jump to mind or whether it would be a good thing or a bad thing if it did jump to mind, but this is the code for the create considered flag PY.

SISKIN

So is this something that you're able to read or know?

A No, this sequel -- this is Brian's work. I would have to walk him through. We can -- I can't answer the question as to what the bug -- if this is a problem.

Q I think we can. Can I direct your attention to Lines 127 to 136.

The problem is that -- sorry, strike that.

Isn't the problem that there is not a line --

A For hearing.

Q -- that says hearing impaired equals yes as HV?

MS. SADOK: Objection.

A It with appear to be.

Q So what I'd like to do now is ask for this document to be marked as Exhibit 330.

(Advertisement for Lottery 133 (The Frontier) NYC_0011232, was marked Plaintiff's Exhibit

SISKIN

330, for identification, as of this date.)

Q You can hold onto that. We can get back to it.

Can we look at Exhibit 330?

A Yes.

Q And what that document is is the ad for -- this is -- this is Lottery 133. And you'll see that there are only three, two-bedroom apartments.

Do you see that?

A Yes.

Q Could I have this document?

A Three, two-bedroom apartments.

Q Three, two-bedroom apartments.

MR. GURIAN: Could I have that document marked as 331.

(Status sheet for Lottery 133 (The Frontier), was marked Plaintiff's Exhibit 331, for identification, as of this date.)

Q So 331 is the status sheet.

SISKIN

You're familiar with status sheets?

A Vaguely.

Q That they report the apartments that were given and to whom.

So looking at 331, you'll see that the top three lines reflect the three people who got the 2BRs. The bedroom size is sort of right in the middle of the table.

A Yep.

Q And you see that one's hearing impaired, one's listed as mobility impaired and one's listed a CB.

Do you see that? Three columns to the left of bedroom size is pref.

A Oh, here it is. One is hearing impaired, one is mobility impaired, one is CB. Okay.

Q So those are the three, two-bedrooms? Dr. Siskin?

A Yes.

SISKIN

Q You see from the ad that there are no more two-bedrooms, correct?

A Right.

Q So whatever -- whatever the unit type cutoff number is, there's at least one thing we know, that this unit type was not available to any no preference candidate, correct?

A Correct.

Q Okay.

So what I'd like to do is I'd like to show you the output from the population eligibility query for Lottery 133. And it's merged with the BRN considered flag, that's the AQ and AR.

Do you see the outcomes there?

A Yes.

Q So first what I'm going to do is I'm just going to look at bypassed.

MS. SADOK: Could we mark this as an exhibit. This is

SISKIN

electronic --

MR. GURIAN: Yeah. This is Electronic 332.

(Output table from population query, excerpted for Lottery 133 and merged with brn_considered_flag, was marked Plaintiff's Exhibit 332, for identification, as of this date.)

Q So what I've done is I've gotten the bypasses, and now I'm going to start getting rid of anybody who is municipal employee or community board?

A Why are you getting rid of community board people?

Q Because we're just going to look at bypasses for no preference.

A Okay.

MS. SADOK: This is an electronic document that Plaintiff's counsel created based upon various outputs; is that correct?

MR. GURIAN: I'm sorry,

SISKIN

Melanie, I -- I described that already that it's output from the population query table, and it's merged with the BRN considered flag.

Q So I just want to make sure that we don't have anybody that we shouldn't have here. And we don't.

So it's very small, but do you see that -- down at the bottom left, do you see the Excel count that shows that there are 225 down here? I don't know if you could see my arrow moving?

A Yes.

Q There are 225. But now what we want to do is we want to find, Dr. Siskin, we want to find only those people who were only eligible for the two-bedrooms, which is unit type three.

A Um-hum.

Q So I'm only going to take those who are eligible for unit type three. And I'm going to get rid of

SISKIN

people who were eligible for unit type two. And there's nobody eligible for unit type one.

We have 74 bypassed. About a third of all of the no preference bypasses, I'm not including municipal employee bypasses. There's pure no preferences bypasses that we know can't properly be bypassed.

MS. SADOK: Objection.

Is there a question?

Q Do you see that these appear to be erroneous bypasses?

MS. SADOK: Objection.

A Yeah, if that's correct, they should have been in the not considered category.

Q Okay. And having an inaccurate number of bypasses would affect the accuracy of considered, correct?

A Yes, to the extent that this program is missing a proper line of code, it should be rerun with the

SISKIN

proper line of code in it.

Q And if considered -- if considered has been corrupted, then the accuracy of the regression would have been corrupted?

MS. SADOK: Objection.

A Correct.

Q If you have an erroneously high number of bypasses that has an impact on the likelihood of following through and being found actually qualified, correct?

MS. SADOK: Objection.

Q Your calculation of it?

A Yes. I don't know what the answer is going to be if the corrected data -- if the program is incorrect, you correct the program, and then you will know what the impact is on the analysis.

Q Right. But it's not like we're talking about one or two of 225, we're talking about 74 of 225.

Could you take a look again

SISKIN

--

A It's hard to say what the effect is going to be. It will change something possibly, but the answer is: You should run it and find out.

Q Well, it will definitely change things, right?

A It will change the numbers. Whether it's going to change the conclusions, it's not clear. You have to rerun it.

Q If it turned out -- if it were to turn out that there were consistently -- as a matter of fact, sorry.

Now I've shifted it to community preference. And the last community board applicant who got it was 13972. So all four of these are accurate bypasses.

So in this example there was zero inaccurate community preference bypasses and 74 out of 225 other bypasses.

SISKIN

Do you know, Dr. Siskin, where in the code it's supposed to -- let me ask you this way: Is the code supposed to say if a unit type has been closed out, let's say in community preference, although conceivably it could be earlier but so it's -- if it's been closed out in a preference type, then automatically the worst unit type -- the worst number for the unit type in the following sequence -- the following preference buckets should be zero?

MS. SADOK: Objection.

A Not necessarily, because I believe the way it was written -- because my understanding of the way it is written is when somebody's bypassed you look down, subsequently was anybody with a lower lottery number or lower thing who got that apartment, was awarded an apartment. If anybody was awarded that apartment, their three-bedroom apartment then is taken

SISKIN

out -- it's supposed to be taken out. See, it doesn't matter where you put the cut because you're always looking forward, and you're never going to find one forward. So they're all -- they all should fall out.

Q Well, they should all fall out unless you -- unless you treat a -- a 1100 in gen pop as a better number than a 10,000 in community preference. 1,000 in gen pop is a worse number than 10,000?

A But it doesn't matter because you're looking -- going from this point, if you're looking at each of the lists going forward and was there -- anybody ever filled that apartment. If that apartment was never filled subsequently, then it was already expired. You know how may units there are and they're already filled. So once then already forward, from then forward, everybody with that unit should be knocked down.

SISKIN

Q But you have to be able to accurately identify the point of closure of the unit type?

MS. SADOK: Objection.

Q Don't you?

MS. SADOK: Objection.

A Yes.

Q So just looking back at this -- just looking back at this code, we --

A I take that back. You do not need to know the point, because the way the program is -- the way the program is supposed to be written was to look forward in the sequence, and see if you can find anything.

So if the apartment is filled, let's say there's two, three, three bedrooms and once the three-bedroom is filled, you look forward from each of the units going from down the list, you never find another one available, then everybody subsequently looking down is going to

SISKIN

never -- everyone subsequently, because we're going in order of the preference list, and then the lottery number, will also never find a unit. And, therefore, they will always be considered as -- should have been considered as non-considered.

Q Well, you -- you do have an award list program that generates these cut -- that generates these cut points, cutoff points. One for unit type and the other for preference type?

A Right.

Q Now the problem is that, or one of the problems is that, for example, from Line 77 to 97 that didn't -- that didn't work right. That is, it wasn't able to be run.

So do you see on Line 89 -- are you at Line 89?

A Um-hum.

Q Join Beveridge award unit type, and then it gives you a couple of parameters that you have to have.

SISKIN

MR. GURIAN: Now I've opened Beveridge award unit type which we should mark as Electronic Exhibit 333.

(beveridge_awd_unit_type table, was marked Plaintiff's Exhibit 333, for identification, as of this date.)

Q And you see it's trying to pull -- it's trying to pull lottery project at random sequence number. And there -- there isn't one.

So the one thing we know is, or we think we know, is this wasn't the code that was actually run.

MS. SADOK: Objection.

Q So we're requesting the code that was actually run, and we're requesting the intermediate tables so that we can see what actually happened.

Because, for example, at Line 113, which is supposed to distinguish between the unit type cutoff as opposed to the preference cutoff, that doesn't

SISKIN

work either. So obviously we need that looked at as quickly as possible.

MS. SADOK: Please put that in writing and we'll take it under advisement.

Q Were the scripts that were provided exactly what you actually ran?

A Supposed to be. I can't -- I agree that it should be. You should be able to run this against the data and get the result.

Q So I'm now going to show you --

MR. GURIAN: Would it be better if we take a break now?

MS. SADOK: It's up to you. I think -- and the witness if you need another few minutes or --

MR. GURIAN: I don't think this will take more than ten minutes, it would be useful but I'm at the time that I said so.

MS. SADOK: Would you like to proceed for ten minutes?

SISKIN

THE WITNESS: Yeah, let's finish the ten minutes on this.

Is that on this topic?

MR. GURIAN: Yes, this -- right. This kind of thing.

MS. SADOK: If that's okay with Judy and the rest of team?

MR. GURIAN: Okay. Thank you.

So I'd like this to be marked 334.

(Advertised for Lottery 230 (Williamsburg Apartments) NYC_0011345, was marked Plaintiff's Exhibit 334, for identification, as of this date.)

MR. GURIAN: And shown to the witness.

Q And Dr. Siskin, you see that here the one-bedroom that's for 532, the less expensive one-bedroom?

A Um-hum.

Q There are only two of those. That's unit type one.

SISKIN

MR. GURIAN: I'm asking that this document, Williamsburg apartment status sheet be marked as Electronic 335.

(Status sheet for 230 (Williamsburg Apartments), was marked Plaintiff's Exhibit 335, for identification, as of this date.)

Q And I will note both for the witness and for counsel there are two markings on this document that are my markings. And those are the yellow highlighting in Rows 46 and 56. They correspond to those two, one-bedroom apartments that we were talking about. The one-bedrooms for 532.

Do you see that, Dr. Siskin?

A No, I don't actually. Yeah. Okay. This one and this one (indicating).

Got you.

Q If you slide back to the left for preference code, which I belatedly

SISKIN

realized that I can gesture and also say Column H, that you see that they're both community board?

A Correct.

Q So 336 is that same table that we did last time but this time we're marking population eligibility 230 as 336.

(Output table from population query, excerpted for Lottery 230 and merged with brn_considered_flag, was marked Plaintiff's Exhibit 336, for identification, as of this date.)

Q And here, again, we're going to go just to bypassed. And we're going to get rid of mobility, hearing, vision, community board, and municipal employee.

And so we have, as you can see at the bottom, 621 bypasses for gen pop or no preference. So again what we have to do is we have to only look at people who were eligible for unit type

SISKIN

one, which was that less expensive two-bedroom but not eligible for anything else. There are four unit types.

So here there are another 254. There's exactly a higher proportion, 254 bypassed improperly by definition since there weren't any of these units that were available.

That was out of a total, I think, of 621. Now let's compare that to community board and we see that there are 16 bypasses.

So would you agree, Dr. Siskin? Dr. Siskin?

A Yeah, I'm listening.

Q Would you agree that even of if these bypasses were erroneous, 16 erroneous community preference bypasses is very different from 254 erroneous non-community preference bypasses?

MS. SADOK: Objection.

Q Right.

A There's obviously a

programming error.

Q Okay.

A If this is correct. I don't know whether this is correct or whether you're just reading the data wrong. I can't answer that. But I can tell you that it will have to be explored, no question about it. And it will change -- change the results, but I don't know whether it will change conclusions. But it will change the results.

Q Let's just look -- let's look at one other thing if we can. Going back to that status sheet.

It turns out that the worst number for that unit type is 4683.

Do you see that?

A Um-hum.

Q Of the two. It's 4683.

MS. SADOK: This is status sheet 230, Williamsburg apartment?

MR. GURIAN: Correct.

Q So then when you look at the

SISKIN

bypasses for community preference they're actually all correct. That is, Dr. Siskin, this matches how you describe the process because these people were eligible for that unit type, but they had a better number, they are appropriately bypassed in your scheme. So it's actually 254 to none.

MR. GURIAN: So we're going to have to do this after today. So now I'm saying this to counsel, but please listen. We have to find out whether this was a programming error, whether these were -- we believe this is not intended to connote anything negative or malicious or anything like that. We believe it's simply impossible given the files and discrepancies in code where code is asking for stuff that's just not in a file, we don't believe actually that this was exactly what was run. So we need to get

SISKIN

MS. SADOK: Objection.

A The eligibility index has a separate category for every combination, unique combination of unit types that the person was eligible for.

Q Did you try -- did you try groupings of apartments by -- that included area median income in any way?

MS. SADOK: Objection.

A No, we didn't try that.

Q In your report -- I think that's all you need for the balance of today. So I'll take back the other ones you have. Keep your report. Keep your report.

And you were volunteering this a lot earlier today, the data tended to show that people tend to prefer to remain close to where they currently reside.

A Pages?

Q 61 to 62.

A If you look at whether they're going to apply to a project,

what we found is there is a pretty consistent significant correlation, not -- between how close the project is to where they live, to whether or not they're going to bid for the project.

Q How strong is the correlation?

A Small but significant.

Q It's what?

A Statistically significant but not large.

Q I think you said it was small?

A Small, but statistically significant.

Q I understand that.

How small?

A I don't recall.

Q The reason I was doing this is I said something and then you said it was something else. And I was -- in fact, I was quoting you again. It says -- you say -- this is at Page 64. The data, I guess that's meant to be

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_____ day of_____, _____.

_____

Notary Public

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

Ex 3 - Dr. Siskin's 1,000 Simulations with Community Preference Policy in Effect, by CD Typology

Table 1 of pref by nracehisp
Controlling for neigh_class=Maj hispanic

pref	nracehisp						
	Asian nh	Black nh	Hispanic	Other nh	Race Refused	White nh	Total
CB	13,849	503,379	741,971	63,604	64,015	12,099	1,398,917
Non-CB	49,445	544,231	627,447	87,775	77,541	46,644	1,433,083

Table 1 of pref by nracehisp
Controlling for neigh_class=Maj hispanic

pref	nracehisp						
	Asian nh	Black nh	Hispanic	Other nh	Race Refused	White nh	Total
CB	0.99%	35.98%	53.04%	4.55%	4.58%	0.86%	100.00%
Non-CB	3.45%	37.98%	43.78%	6.12%	5.41%	3.25%	100.00%

Table 2 of pref by nracehisp
Controlling for neigh_class=Maj nh_White

pref	nracehisp						
	Asian nh	Black nh	Hispanic	Other nh	Race Refused	White nh	Total
CB	54,320	243,560	377,743	70,351	63,744	196,292	1,006,010
Non-CB	80,980	335,582	343,810	80,070	64,497	120,051	1,024,990

Table 2 of pref by nracehisp
Controlling for neigh_class=Maj nh_White

pref	nracehisp						
	Asian nh	Black nh	Hispanic	Other nh	Race Refused	White nh	Total
CB	5.40%	24.21%	37.55%	6.99%	6.34%	19.51%	100.00%
Non-CB	7.90%	32.74%	33.54%	7.81%	6.29%	11.71%	100.00%

Table 3 of pref by nracehisp
Controlling for neigh_class=Maj nh_asian

pref	nracehisp						
	Asian nh	Black nh	Hispanic	Other nh	Race Refused	White nh	Total
CB	38,001	7,736	11,701	4,814	4,823	1,504	68,579
Non-CB	12,968	23,152	23,990	4,427	5,400	3,484	73,421

Table 3 of pref by nracehisp
Controlling for neigh_class=Maj nh_asian

pref	nracehisp						
	Asian nh	Black nh	Hispanic	Other nh	Race Refused	White nh	Total
CB	55.41%	11.28%	17.06%	7.02%	7.03%	2.19%	100.00%
Non-CB	17.66%	31.53%	32.67%	6.03%	7.35%	4.75%	100.00%

Table 4 of pref by nracehisp
Controlling for neigh_class=Maj nh_black

pref	nracehisp						
	Asian nh	Black nh	Hispanic	Other nh	Race Refused	White nh	Total
CB	27,441	633,980	303,862	77,531	69,544	27,405	1,139,763
Non-CB	57,468	487,999	419,650	83,853	68,626	50,641	1,168,237

Table 4 of pref by nracehisp
Controlling for neigh_class=Maj nh_black

pref	nracehisp						
	Asian nh	Black nh	Hispanic	Other nh	Race Refused	White nh	Total
CB	2.41%	55.62%	26.66%	6.80%	6.10%	2.40%	100.00%
Non-CB	4.92%	41.77%	35.92%	7.18%	5.87%	4.33%	100.00%

Ex 3 - Dr. Siskin's 1,000 Simulations with Community Preference Policy in Effect, by CD Typology

Table 5 of pref by nracehisp							
Controlling for neigh_class=Plur hispanic							
pref	nracehisp						
	Asian nh	Black nh	Hispanic	Other nh	Race Refused	White nh	Total
CB	97,274	195,590	314,848	79,034	82,869	148,995	918,610
Non-CB	56,593	306,856	320,062	74,829	72,227	110,823	941,390

Table 5 of pref by nracehisp							
Controlling for neigh_class=Plur hispanic							
pref	nracehisp						
	Asian nh	Black nh	Hispanic	Other nh	Race Refused	White nh	Total
CB	10.59%	21.29%	34.27%	8.60%	9.02%	16.22%	100.00%
Non-CB	6.01%	32.60%	34.00%	7.95%	7.67%	11.77%	100.00%

Table 6 of pref by nracehisp							
Controlling for neigh_class=Plur nh_White							
pref	nracehisp						
	Asian nh	Black nh	Hispanic	Other nh	Race Refused	White nh	Total
CB	24,011	147,891	86,119	37,469	31,850	68,079	395,419
Non-CB	29,542	131,910	110,443	37,218	31,841	61,627	402,581

Table 6 of pref by nracehisp							
Controlling for neigh_class=Plur nh_White							
pref	nracehisp						
	Asian nh	Black nh	Hispanic	Other nh	Race Refused	White nh	Total
CB	6.07%	37.40%	21.78%	9.48%	8.05%	17.22%	100.00%
Non-CB	7.34%	32.77%	27.43%	9.24%	7.91%	15.31%	100.00%

Table 7 of pref by nracehisp							
Controlling for neigh_class=Plur nh_black							
pref	nracehisp						
	Asian nh	Black nh	Hispanic	Other nh	Race Refused	White nh	Total
CB	6012	64,553	37,845	11,306	8,276	7,060	135,052
Non-CB	7,289	52,515	50,271	10,945	7,869	10,059	138,948

Table 7 of pref by nracehisp							
Controlling for neigh_class=Plur nh_black							
pref	nracehisp						
	Asian nh	Black nh	Hispanic	Other nh	Race Refused	White nh	Total
CB	4.45%	47.80%	28.02%	8.37%	6.13%	5.23%	100.00%
Non-CB	5.25%	37.79%	36.18%	7.88%	5.66%	7.24%	100.00%

Ex 4 - Dr. Siskin's 1,000 Simulations with Community Preference Policy Not in Effect, by CD Typology

Table 1 of pref by nracehisp							
Controlling for neigh_class=Maj hispanic							
pref	nracehisp						
	Asian nh	Black nh	Hispanic	Other nh	Race Refused	White nh	Total
None	92,155	1,072,059	1,262,869	164,068	152,866	87,983	2,832,000

Table 1 of pref by nracehisp							
Controlling for neigh_class=Maj hispanic							
pref	nracehisp						
	Asian nh	Black nh	Hispanic	Other nh	Race Refused	White nh	Total
None	3.25%	37.86%	44.59%	5.79%	5.40%	3.11%	100.00%

Table 2 of pref by nracehisp							
Controlling for neigh_class=Maj nh_White							
pref	nracehisp						
	Asian nh	Black nh	Hispanic	Other nh	Race Refused	White nh	Total
None	156,981	652,911	687,987	151,497	129,221	252,404	2,031,001

Table 2 of pref by nracehisp							
Controlling for neigh_class=Maj nh_White							
pref	nracehisp						
	Asian nh	Black nh	Hispanic	Other nh	Race Refused	White nh	Total
None	7.73%	32.15%	33.87%	7.46%	6.36%	12.43%	100.00%

Table 3 of pref by nracehisp							
Controlling for neigh_class=Maj nh_asian							
pref	nracehisp						
	Asian nh	Black nh	Hispanic	Other nh	Race Refused	White nh	Total
None	34,148	40,248	42,976	8,642	10,246	5,740	142,000

Table 3 of pref by nracehisp							
Controlling for neigh_class=Maj nh_asian							
pref	nracehisp						
	Asian nh	Black nh	Hispanic	Other nh	Race Refused	White nh	Total
None	24.05%	28.34%	30.26%	6.09%	7.22%	4.04%	100.00%

Table 4 of pref by nracehisp							
Controlling for neigh_class=Maj nh_black							
pref	nracehisp						
	Asian nh	Black nh	Hispanic	Other nh	Race Refused	White nh	Total
None	107,088	1,000,302	801,100	159,914	137,008	102,588	2,308,000

Table 4 of pref by nracehisp							
Controlling for neigh_class=Maj nh_black							
pref	nracehisp						
	Asian nh	Black nh	Hispanic	Other nh	Race Refused	White nh	Total
None	4.64%	43.34%	34.71%	6.93%	5.94%	4.44%	100.00%

Ex 4 - Dr. Siskin's 1,000 Simulations with Community Preference Policy Not in Effect, by CD Typology

Table 5 of pref by nracehisp							
Controlling for neigh_class=Plur hispanic							
pref	nracehisp						
	Asian nh	Black nh	Hispanic	Other nh	Race Refused	White nh	Total
None	129,159	566,317	625,007	145,699	150,880	242,938	1,860,000

Table 5 of pref by nracehisp							
Controlling for neigh_class=Plur hispanic							
pref	nracehisp						
	Asian nh	Black nh	Hispanic	Other nh	Race Refused	White nh	Total
None	6.94%	30.45%	33.60%	7.83%	8.11%	13.06%	100.00%

Table 6 of pref by nracehisp							
Controlling for neigh_class=Plur nh_White							
pref	nracehisp						
	Asian nh	Black nh	Hispanic	Other nh	Race Refused	White nh	Total
None	59,625	263,668	216,606	73,619	62,314	122,168	798,000

Table 6 of pref by nracehisp							
Controlling for neigh_class=Plur nh_White							
pref	nracehisp						
	Asian nh	Black nh	Hispanic	Other nh	Race Refused	White nh	Total
None	7.47%	33.04%	27.14%	9.23%	7.81%	15.31%	100.00%

Table 7 of pref by nracehisp							
Controlling for neigh_class=Plur nh_black							
pref	nracehisp						
	Asian nh	Black nh	Hispanic	Other nh	Race Refused	White nh	Total
None	14,164	107,319	97,119	20,753	15,694	18,951	274,000

Table 7 of pref by nracehisp							
Controlling for neigh_class=Plur nh_black							
pref	nracehisp						
	Asian nh	Black nh	Hispanic	Other nh	Race Refused	White nh	Total
None	5.17%	39.17%	35.44%	7.57%	5.73%	6.92%	100.00%