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

Plaintiffs,

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

CITY OF NEW YORK,

Defendant.
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Declaration of Professor Andrew A. Beveridge

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

A. Introduction

1. As I have explained in previous declarations, a comparison of net desegregation achieved (or sought) with outsider moves versus that achieved (or sought) with insider moves is the most illuminating way to capture the relative contribution (or potential contribution) to desegregation of each group and demonstrates how much less desegregation is generated by moves made or sought by insiders. A comparison of an entire system not using preference with an entire system using 50 percent preference, by contrast, conceals and dilutes the difference because it does not exclusively focus on the subset of moves that deny equal access.

2. Nevertheless, in my October 29, 2020 declaration (ECF 914), I showed how, even using Dr. Siskin's comparison of the results of 1,000 simulations of the system without preference with 1,000 simulations of the system with preference, and despite the misleading dilution effect, there is materially less desegregation under the whole system with 50 community preference than there is under the whole system without any preference. *See* ECF 914, at 39-42, ¶¶ 137-44. This

was true when examining Whites and African Americans, Whites and Asians, Whites and Hispanics, African Americans and Hispanics, African Americans and Asians, and Hispanics and Asians (the "six racial/ethnic pairs"). *See* ECF 914, at 41-42, ¶¶ 140-44, and Table 26.

3. Here I show that this same pattern – materially less desegregation under the whole system with 50 percent community preference than there is under the whole system without any preference – also manifests itself when examining moves sought by those apparently eligible and when examining actual awards.

4. How many comparisons of relative net desegregation (also referred to as relative net integration) do we now have? When each of six pairs are examined both from the perspective of insiders versus outsiders (what I view as the more illuminating comparison because it isolates where most of the net desegregation is coming from) and from the perspective of an entire system with preference versus an entire system without preference (what I view as a method that conceals and dilutes what preference is doing in relation to the moves subject to preference), and when all those comparisons are done on three dimensions (simulated moves, moves sought by the apparently eligible, and actual awards), there are a total of 36 comparisons.

5. In 32 of 36 comparisons, materially more desegregation was achieved without preference (or, put the other way, materially less desegregation was achieved with preference). This is true as a matter of the 80 percent rule-of-thumb, as a matter of statistical significance, and as a matter of practical effect. <u>These include all 18 comparisons involving African Americans.</u>

B. Moves desired by apparently eligible applicants and the 80 percent rule-of-thumb

6. Exhibit 17 of my March 4, 2020 declaration (ECF 883-17), annexed hereto, was a table that disaggregated moves desired by apparently eligible "outsiders" from those of apparently eligible "insiders," and demonstrated that the desired outsider moves were significantly more

desegregating than the desired insider moves. This was true across all six racial/ethnic pairs and was true as a matter of a difference that satisfied the 80 percent rule-of-thumb, had ample statistical significance, and had practical effect as well.

7. Those data from Exhibit 17 are replicated here in Exhibit 40, annexed hereto. *See* Exhibit 40, Columns C-F and I-J (J is the mirror image of I). Note that Exhibit 17 also reported the results for all desired moves with outsiders and insiders combined (the "equal-access" system). These results are replicated by Columns G and H of Exhibit 40. I also make explicit the total of segregating, no-effect, and integrating moves (for example, Row 10 as a sum of Rows 7-9).[1] I also show what percentage of the total desired moves are in the outsider and insider buckets (for example, cells C11 and E11, respectively).

8. For Exhibit 40, I estimated the results of there being an equal number of apparently eligible outsiders and insiders by splitting the whole number of desired moves in two. (Using Whites and African Americans as an example, the total number shown in cell G10, is split into equal-sized buckets of insiders and outsiders in cells K10 and L10). The distribution of moves within each bucket is controlled by the distribution that was found to exist among all apparently eligible applications (Columns D and F, for outsiders and insiders, respectively).

9. Once again using the examination of Whites and African Americans as an example net desegregating effect for the no-preference system is shown in Columns G and H (number and percentage, respectively). Net desegregating effect for the estimated system with 50 percent preference is shown in Columns M and N (number and percentage, respectively).

[1] I do not show the irrelevant not-in-group moves (for example, moves involving Asians and/or Hispanics when examining perpetuation of segregation as it relates to Whites and African Americans).

10. The results demonstrate that, once more, despite the diluting effect of looking at the systems as a whole and despite the loss of focus on the part that treats New Yorkers differently based on where they are living, the desired moves sought under the whole system with equal access system were materially more desegregating (*i.e.*, more integrating) than the desired moves sought under the preference system taken as a whole. The specific results are summarized in Table 28, below.

Table 28
Application of 80 Percent Rule-of-Thumb for moves sought by apparently eligible applicants, comparing the results of a full equal-access system with that obtained by estimating a full system with 50 percent community preference (Exhibit 40)

Pairs of racial/ethnic groups being compared	System with 50% preference as percentage of system without preference (Ex. 40, Column O)	System without preference as percentage of system with 50% preference (Ex. 40 Column P)
White and African American	67.14	148.94
White and Asian	61.15	163.52
White and Hispanic	76.61	130.53
African American and Hispanic	58.06	172.25
African American and Asian	59.01	169.46
Hispanic and Asian	82.14	121.74

11. Five of the six pairs (all except Hispanic/Asian) have differences substantial enough to satisfy the 80 percent rule-of-thumb (shown with yellow highlighting).

C. Actual awards and the 80 percent rule-of-thumb

12. Exhibit 16 to my March 4, 2020 declaration (ECF 883-16), annexed hereto, performed the analogous task for awarded moves as Exhibit 17 to that declaration did for desired moves of the apparently eligible. Exhibit 41, annexed hereto, transports those data from Exhibit 16 as Exhibit 40 did with Exhibit 17. The difference is that, where Exhibit 17 had originally shown outsiders and insiders disaggregated under an equal-access system (as well as the results of that entire no-preference system;), Exhibit 16 had originally shown outsiders and

insiders disaggregated under the 50-percent preference system (as well as the results of the entire system with the 50-percent preference component).

13. As such, I had to estimate the awards that would have resulted under an equal-access system. To split the moves for the equal-access estimation, I used the distribution of total desired moves in a pair as reported in Exhibit 40. These are replicated in Exhibit 41 in Column K.

14. In terms of the different types of moves (segregating, no-effect, and integrating), however, I used the distribution that was found to exist for the actual awards (*See* Exhibit 41, Column D and F, as applied to the total number of moves in the pair for outsiders and insiders respectively.

15. The specific results are summarized in Table 29, below.

Table 29
Application of 80 Percent Rule-of-Thumb for actual awards, comparing the results of a full equal-access system with that obtained by estimating a full system with 50 percent community preference (Exhibit 41)

Pairs of racial/ethnic groups being compared	System with 50% preference as percentage of system without preference (Ex. 41, Column R)	System without preference as percentage of system with 50% preference (Ex. 41 Column S)
White and African American	71.33	140.19
White and Asian	73.84	135.42
White and Hispanic	84.89	117.79
African American and Hispanic	63.42	157.68
African American and Asian	69.67	143.54
Hispanic and Asian	95.55	104.66

16. Despite the diluting effect of looking at the systems as a whole and despite the loss of focus on the part that treats New Yorkers differently based on where they are living, for four of the six pairs examined (White and African American, White and Asian, African American and Hispanic, and African American and Asian), the equal-access system was materially more desegregating (*i.e.*, materially more integrating), with the differences in each of those pairs

sufficient to meet the 80 percent rule-of-thumb (shown with yellow highlighting).

D. Statistical significance

17. I again ran the RISKDIFF procedure[2] so that I could determine the statistical significance of the difference between the net desegregative effect of the entire system with a 50 percent preference against an entire system without preference. I did this separately for moves sought by apparently eligible applicants and for awards.

18. As previously noted, courts typically treat a standard deviation (estimated for samples by computing the standard error) greater than 1.96 as statistically significant, although no standard-deviation test is necessarily required, and standard deviations of less than 1.96 would not necessarily preclude a finding of substantial deviation, ECF 883, at 27, ¶ 83, or practical effect.[3]

19. For applicants who are apparently eligible, the standard deviations – estimated using the asymptotic standard error (ASE) – are summarized in Table 30, on the following page.

[2] According to SAS Documentation, "The RISKDIFF option in the TABLES statement provides estimates of risks (binomial proportions) and risk differences for 2X2 tables." See page 2727 SAS/STAT 13.1 User's Guide (Chapter 40). Using this approach, it was possible to estimate standard deviations for the difference in proportion for each of the tables. As before with perpetuation of segregation, the row proportions are the relevant proportions.

[3] One should note that significance tests report the likelihood or chance that a particular pattern could have occurred by chance. The accepted standard of 1.96 is adopted because it implies that whatever results are found could only have occurred by chance 5 percent of the time. The higher the level of the measure of the estimate of the standard deviation, the less likely the result could have occurred by chance. Many of the measures of standard error or standard deviation in effect mean that there is essentially no way that such a value could have occurred by chance; indeed, a value of approximately 3.2 or higher implies that the likelihood of occurring by chance is less than one time in 10,000; a value of approximately 4.5 or higher implies that the likelihood of occurring by chance is less than one time in 100,000. Many of the levels reported here in fact have no real likelihood of occurring by chance.

Table 30 Measure of standard deviation for apparently eligible, comparing the results of a full equal-access system with that obtained by estimating a full system with 50 percent community preference (Exhibit 40)	
Pairs of racial/ethnic groups being compared	Measure of standard deviation
White and African American	164.50
White and Asian	84.63
White and Hispanic	121.60
African American and Hispanic	191.50
African American and Asian	208.17
Hispanic and Asian	83.80

20. In all six cases the measure of standard deviation vastly exceeds 1.96.

21. For awards, the standard deviations are summarized in Table 31, below.

Table 31 Measure of standard deviation for awards, comparing the results of a whole system with 50 percent community preference with that obtained by estimating a whole equal-access system (Exhibit 41)	
Pairs of racial/ethnic groups being compared	Measure of standard deviation
White and African American	5.39
White and Asian	3.23
White and Hispanic	2.77
African American and Hispanic	8.00
African American and Asian	5.87
Hispanic and Asian	0.70

22. In five of six cases (all but Hispanic and Asian), the measure of standard deviation exceeds 1.96. Standard deviation is especially large in the three comparisons involving African Americans.

E. Practical effect

23. In looking at practical effect for the nine pairs where there was a sufficient difference in net desegregation to satisfy the 80 percent rule-of-thumb *and* there was statistical significance, the numerical difference has practical effect in each case.

24. There are multiple factors that all work in the direction of underlying the practical

effect evident in the numerical differences. First, each move involving a racial or ethnic group (for example, African Americans) has relevance to *three* pairings of groups and how much net desegregation occurs in each of those pairs. That is, one move (or desired move) by an African American applicant potentially affects net desegregation as between African Americans and Whites, as between African Americans and Hispanics, and as between African Americans and Asians. As such, in addition to the practical effect conveyed by the numerical difference in each pairing, there is practical effect conveyed by the sum of the numerical differences in the three relevant pairings per racial group.

25. Second – and this is true both for awards and for the scaled-down simulated results – the practical effect is not just what is shown in the relevant tables, it is multiplied many times by the fact that the difference would – if the preference system were allowed to remain in effect – be replicated over and over again as more apartments are developed. (I understand from news reports, for example, that the current Mayor's "moonshot" goal is the development of 500,000 apartments.)

26. In the non-scaled-down case of moves sought by apparently eligible applicants (where, to estimate a preference of 50 percent, more than 500,000 applications had to be shifted from the "outsider" side of the ledger to the "insider" side of the ledger), there was still greater than 100,000 more net desegregative moves under an equal access system than under a preference system for each of the three pairings involving African Americans: African Americans and Whites, African Americans and Hispanics, and African Americans and Asians. *See* Exhibit 40, Column G (net desegregating moves in the equal access system) versus Column M (net desegregating moves in the 50-percent preference system).

27. To underline a point made in previous declarations, the outsider versus insider comparisons that were discussed provide great insight into where net desegregation is and is not

coming from. In examining African Americans and Whites, the net desegregation potential of the moves sought by apparently eligible outsiders was 358,187; for insiders, only 5,609. For African Americans and Hispanics: net desegregation potential of the moves sought by apparently eligible outsiders was 358,681; for insiders, only 2,033. For African Americans and Asians: net desegregation potential of the moves sought by apparently eligible outsiders was 349,939; for insiders, only 2,273. *See* Columns C and E in Exhibit 40, Rows 12, 33, and 40.

28. These are extraordinary differences and show how powerfully the twin effects of the challenged policy – throttling the participation of outsiders and effectively steering applicants on the basis of race – plays out. (By steering, I mean steering applicants who share the dominant race of the community district typology where the housing is located towards that housing and steering applicants not sharing the dominant race of the community district typology where the housing is located away from that housing.)

29. In the "whole systems" comparisons, too, it is instructive to see where the net desegregation is and is not coming from. Look, for example, at the net desegregation under an estimated equal-access system for awards shown in Exhibit 41 (Column P). Virtually all the net desegregation (*i.e.*, net integration) comes for outsiders (Column L), not insiders (Column N), as summarized in Table 32, below. The challenged policy is designed to reduce substantially the

Table 32
For actual awards in the estimated full equal-access system, comparing net desegregation of outsiders and insiders (Exhibit 41)

Pairs of racial/ethnic groups being compared	Net desegregation from outsiders (Ex. 41, Column L)	Net desegregation from insiders (Ex. 41 Column N)
White and African American	528	9
White and Asian	226	6
White and Hispanic	528	19
African American and Hispanic	691	5
African American and Asian	537	7
Hispanic and Asian	412	18

volume of the much more desegregating outsider moves.

F. Conclusion

30. In paragraph 4, above, I described the 36 different comparisons that are made when considering the six racial pairs, in three types of settings (apparently eligible, simulation, and actual awards), using two different methods (insider versus outsider, for one, and whole system with preference versus whole system without preference, for the other).

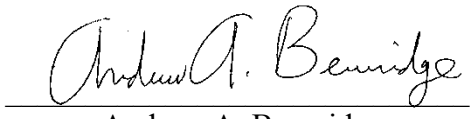
31. Exhibit 42 summarizes the results. In 32 of 36 cases, no-preference (equal access) was materially more desegregating than the with-preference alternative. The differences in each of those 32 cases were sufficient to satisfy the 80 percent rule-of-thumb, have statistical significance, and have practical effect.

32. A subset of those 36 comparisons were the 18 comparisons that involved African Americans (African American and White; African American and Hispanic; and African American and Asian). In all 18 of those cases, the greater desegregation of not having preference (expressed differently, the lesser desegregation of having preference) was sufficient to satisfy the 80 percent rule-of-thumb, have statistical significance, and have practical effect.

33. As a final note, the summary in Exhibit 42 highlights an important point: the results in different settings and by different methods are powerfully confirmatory of one another.

34. I respectfully submit that the evidence of the challenged policy perpetuating segregation (that is, significantly slowing down the integration that would occur in the absence of the policy) is clear and overwhelming.

Executed in Westchester County, New York on December 11, 2023.



Andrew A. Beveridge

Exhibit 16 - Actual Awardees by Demographic Group Pairings, Net-Integrative Effect Disaggregated as between Insiders and Outsiders

(Counts)

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

Exhibit 16 - Actual Awardees by Demographic Group Pairings, Net-Integrative Effect Disaggregated as between Insiders and Outsiders

(Percentages)

Groups	Effect*	Percentage	all_cb	Net		Groups	Effect*	Percentage	all_cb	Net		Groups	Effect*	Percentage	all_cb	Net		Relative percentage**
W vs. AA	Segregate	7.28%	0	-14.41%		W vs. AA	Segregate	2.92%	1	-4.71%		W vs. AA	Segregate	5.26%	Any	-9.93%		32.71%
W vs. AA	No Effect	71.04%	0			W vs. AA	No Effect	89.45%	1			W vs. AA	No Effect	79.54%	Any			
W vs. AA	Integrate	21.69%	0			W vs. AA	Integrate	7.63%	1			W vs. AA	Integrate	15.19%	Any			
W vs. AA	Not In Group	N/A	0			W vs. AA	Not In Group	N/A	1			W vs. AA	Not In Group	N/A	Any			
W vs. A	Segregate	17.78%	0	-14.07%		W vs. A	Segregate	9.40%	1	-6.46%		W vs. A	Segregate	13.41%	Any	-10.10%		45.87%
W vs. A	No Effect	50.37%	0			W vs. A	No Effect	74.75%	1			W vs. A	No Effect	63.08%	Any			
W vs. A	Integrate	31.85%	0			W vs. A	Integrate	15.86%	1			W vs. A	Integrate	23.51%	Any			
W vs. A	Not In Group	N/A	0			W vs. A	Not In Group	N/A	1			W vs. A	Not In Group	N/A	Any			
W vs. H	Segregate	9.40%	0	-13.06%		W vs. H	Segregate	5.15%	1	-8.62%		W vs. H	Segregate	7.33%	Any	-10.89%		65.98%
W vs. H	No Effect	68.15%	0			W vs. H	No Effect	81.08%	1			W vs. H	No Effect	74.45%	Any			
W vs. H	Integrate	22.46%	0			W vs. H	Integrate	13.77%	1			W vs. H	Integrate	18.22%	Any			
W vs. H	Not In Group	N/A	0			W vs. H	Not In Group	N/A	1			W vs. H	Not In Group	N/A	Any			
AA vs. H	Segregate	14.71%	0	-12.10%		AA vs. H	Segregate	7.84%	1	-1.55%		AA vs. H	Segregate	11.62%	Any	-7.35%		12.84%
AA vs. H	No Effect	58.48%	0			AA vs. H	No Effect	82.76%	1			AA vs. H	No Effect	69.42%	Any			
AA vs. H	Integrate	26.81%	0			AA vs. H	Integrate	9.40%	1			AA vs. H	Integrate	18.97%	Any			
AA vs. H	Not In Group	N/A	0			AA vs. H	Not In Group	N/A	1			AA vs. H	Not In Group	N/A	Any			
AA vs. A	Segregate	6.86%	0	-16.42%		AA vs. A	Segregate	2.92%	1	-4.17%		AA vs. A	Segregate	5.13%	Any	-11.04%		25.43%
AA vs. A	No Effect	69.87%	0			AA vs. A	No Effect	89.99%	1			AA vs. A	No Effect	78.71%	Any			
AA vs. A	Integrate	23.27%	0			AA vs. A	Integrate	7.09%	1			AA vs. A	Integrate	16.16%	Any			
AA vs. A	Not In Group	N/A	0			AA vs. A	Not In Group	N/A	1			AA vs. A	Not In Group	N/A	Any			
H vs. A	Segregate	8.96%	0	-11.27%		H vs. A	Segregate	3.05%	1	-10.09%		H vs. A	Segregate	6.18%	Any	-10.71%		89.52%
H vs. A	No Effect	70.82%	0			H vs. A	No Effect	83.81%	1			H vs. A	No Effect	76.93%	Any			
H vs. A	Integrate	20.23%	0			H vs. A	Integrate	13.14%	1			H vs. A	Integrate	16.89%	Any			
H vs. A	Not In Group	N/A	0			H vs. A	Not In Group	N/A	1			H vs. A	Not In Group	N/A	Any			
* "Not in group" not included in calculation																		
**CP beneficiary net percentage as percentage of non-beneficiary net percentage																		

Exhibit 17 - Moves Sought by Apparently Eligible Applicants (by Demographic Group Pairings), Net-Integrative Effect Disaggregated as between Insiders and Outsiders

(Counts)

NOT SCALED																
Groups	Effect	Number	cd_pref	Net		Groups	Effect	Number	cd_pref	Net		Groups	Effect	Number	cd_pref	Net
W vs. AA Section 3	Segregate	72797	0	-358187		W vs. AA Section 3	Segregate	1618	1	-5609		W vs. AA Section 3	Segregate	74415	Any	-363796
W vs. AA Section 3	No Effect	645987	0			W vs. AA Section 3	No Effect	52171	1			W vs. AA Section 3	No Effect	698158	Any	
W vs. AA Section 3	Integrate	430984	0			W vs. AA Section 3	Integrate	7227	1			W vs. AA Section 3	Integrate	438211	Any	
W vs. AA Section 3	Not In Group	1240841	0			W vs. AA Section 3	Not In Group	61975	1			W vs. AA Section 3	Not In Group	1302816	Any	
W vs. A Section 3	Segregate	53278	0	-64058		W vs. A Section 3	Segregate	1838	1	-598		W vs. A Section 3	Segregate	55116	Any	-64656
W vs. A Section 3	No Effect	180866	0			W vs. A Section 3	No Effect	14988	1			W vs. A Section 3	No Effect	195854	Any	
W vs. A Section 3	Integrate	117336	0			W vs. A Section 3	Integrate	2436	1			W vs. A Section 3	Integrate	119772	Any	
W vs. A Section 3	Not In Group	2039129				W vs. A Section 3	Not In Group	103729	1			W vs. A Section 3	Not In Group	2142858	Any	
W vs. H Section 3	Segregate	108002	0	-301581		W vs. H Section 3	Segregate	3329	1	-8041		W vs. H Section 3	Segregate	111331	Any	-309622
W vs. H Section 3	No Effect	612327	0			W vs. H Section 3	No Effect	46498	1			W vs. H Section 3	No Effect	658825	Any	
W vs. H Section 3	Integrate	409583	0			W vs. H Section 3	Integrate	11370	1			W vs. H Section 3	Integrate	420953	Any	
W vs. H Section 3	Not In Group	1260697	0			W vs. H Section 3	Not In Group	61794	1			W vs. H Section 3	Not In Group	1322491	Any	
AA vs. H Section 3	Segregate	265344	0	-358681		AA vs. H Section 3	Segregate	5476	1	-2033		AA vs. H Section 3	Segregate	270820	Any	-360714
AA vs. H Section 3	No Effect	990859	0			AA vs. H Section 3	No Effect	83068	1			AA vs. H Section 3	No Effect	1073927	Any	
AA vs. H Section 3	Integrate	624025	0			AA vs. H Section 3	Integrate	7509	1			AA vs. H Section 3	Integrate	631534	Any	
AA vs. H Section 3	Not In Group	510381	0			AA vs. H Section 3	Not In Group	26938	1			AA vs. H Section 3	Not In Group	537319	Any	
AA vs. A Section 3	Segregate	63270	0	-349939		AA vs. A Section 3	Segregate	1148	1	-2273		AA vs. A Section 3	Segregate	64418	Any	-352212
AA vs. A Section 3	No Effect	625317	0			AA vs. A Section 3	No Effect	49549	1			AA vs. A Section 3	No Effect	674866	Any	
AA vs. A Section 3	Integrate	413209	0			AA vs. A Section 3	Integrate	3421	1			AA vs. A Section 3	Integrate	416630	Any	
AA vs. A Section 3	Not In Group	1288813	0			AA vs. A Section 3	Not In Group	68873	1			AA vs. A Section 3	Not In Group	1357686	Any	
H vs. A Section 3	Segregate	100362	0	-258359		H vs. A Section 3	Segregate	2002	1	-7941		H vs. A Section 3	Segregate	102364	Any	-266300
H vs. A Section 3	No Effect	622857	0			H vs. A Section 3	No Effect	42354	1			H vs. A Section 3	No Effect	665211	Any	
H vs. A Section 3	Integrate	358721	0			H vs. A Section 3	Integrate	9943	1			H vs. A Section 3	Integrate	368664	Any	
H vs. A Section 3	Not In Group	1308669	0			H vs. A Section 3	Not In Group	68692	1			H vs. A Section 3	Not In Group	1377361	Any	

Exhibit 17 - Moves Sought by Apparently Eligible Applicants (by Demographic Group Pairings), Net-Integrative Effect Disaggregated as between Insiders and Outsiders

(Percentages)

NOT-SCALED RESULTS TRANSLATED TO PERCENTAGES																
Groups	Effect*	Percentage	cd_pref	Net	Groups	Effect	Percentage	cd_pref	Net	Groups	Effect	Percentage	cd_pref	Net		Relative percentage**
W vs. AA Section 3	Segregate	6.33%	0	-31.15%	W vs. AA Section 3	Segregate	2.65%	1	-9.19%	W vs. AA Section 3	Segregate	6.15%	Any	-30.05%		29.51%
W vs. AA Section 3	No Effect	56.18%	0		W vs. AA Section 3	No Effect	85.50%	1		W vs. AA Section 3	No Effect	57.66%	Any			
W vs. AA Section 3	Integrate	37.48%	0		W vs. AA Section 3	Integrate	11.84%	1		W vs. AA Section 3	Integrate	36.19%	Any			
W vs. AA Section 3	Not In Group	N/A	0		W vs. AA Section 3	Not In Group	N/A	1		W vs. AA Section 3	Not In Group	N/A	Any			
W vs. A Section 3	Segregate	15.16%	0	-18.23%	W vs. A Section 3	Segregate	9.54%	1	-3.10%	W vs. A Section 3	Segregate	14.87%	Any	-17.44%		17.03%
W vs. A Section 3	No Effect	51.46%	0		W vs. A Section 3	No Effect	77.81%	1		W vs. A Section 3	No Effect	52.83%	Any			
W vs. A Section 3	Integrate	33.38%	0		W vs. A Section 3	Integrate	12.65%	1		W vs. A Section 3	Integrate	32.31%	Any			
W vs. A Section 3	Not In Group	N/A			W vs. A Section 3	Not In Group	N/A	1		W vs. A Section 3	Not In Group	N/A	Any			
W vs. H Section 3	Segregate	9.56%	0	-26.69%	W vs. H Section 3	Segregate	5.44%	1	-13.14%	W vs. H Section 3	Segregate	9.35%	Any	-25.99%		49.23%
W vs. H Section 3	No Effect	54.19%	0		W vs. H Section 3	No Effect	75.98%	1		W vs. H Section 3	No Effect	55.31%	Any			
W vs. H Section 3	Integrate	36.25%	0		W vs. H Section 3	Integrate	18.58%	1		W vs. H Section 3	Integrate	35.34%	Any			
W vs. H Section 3	Not In Group	N/A	0		W vs. H Section 3	Not In Group	N/A	1		W vs. H Section 3	Not In Group	N/A	Any			
AA vs. H Section 3	Segregate	14.11%	0	-19.08%	AA vs. H Section 3	Segregate	5.70%	1	-2.12%	AA vs. H Section 3	Segregate	13.70%	Any	-18.25%		11.10%
AA vs. H Section 3	No Effect	52.70%	0		AA vs. H Section 3	No Effect	86.48%	1		AA vs. H Section 3	No Effect	54.34%	Any			
AA vs. H Section 3	Integrate	33.19%	0		AA vs. H Section 3	Integrate	7.82%	1		AA vs. H Section 3	Integrate	31.96%	Any			
AA vs. H Section 3	Not In Group	N/A	0		AA vs. H Section 3	Not In Group	N/A	1		AA vs. H Section 3	Not In Group	N/A	Any			
AA vs. A Section 3	Segregate	5.74%	0	-31.76%	AA vs. A Section 3	Segregate	2.12%	1	-4.20%	AA vs. A Section 3	Segregate	5.57%	Any	-30.47%		13.22%
AA vs. A Section 3	No Effect	56.75%	0		AA vs. A Section 3	No Effect	91.56%	1		AA vs. A Section 3	No Effect	58.38%	Any			
AA vs. A Section 3	Integrate	37.50%	0		AA vs. A Section 3	Integrate	6.32%	1		AA vs. A Section 3	Integrate	36.04%	Any			
AA vs. A Section 3	Not In Group	N/A	0		AA vs. A Section 3	Not In Group	N/A	1		AA vs. A Section 3	Not In Group	N/A	Any			
H vs. A Section 3	Segregate	9.28%	0	-23.88%	H vs. A Section 3	Segregate	3.69%	1	-14.62%	H vs. A Section 3	Segregate	9.01%	Any	-23.44%		61.24%
H vs. A Section 3	No Effect	57.57%	0		H vs. A Section 3	No Effect	78.00%	1		H vs. A Section 3	No Effect	58.54%	Any			
H vs. A Section 3	Integrate	33.16%	0		H vs. A Section 3	Integrate	18.31%	1		H vs. A Section 3	Integrate	32.45%	Any			
H vs. A Section 3	Not In Group	N/A	0		H vs. A Section 3	Not In Group	N/A	1		H vs. A Section 3	Not In Group	N/A	Any			
* "Not in group" not included in calculation																
**CP beneficiary net percentage as percentage of non-beneficiary net percentage																

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	**Exhibit 40 - Moves Sought by Apparently Eligible Applicants (by Demographic Group Pairings), Net-Integrative Effect, No-Preference (Equal Access) System versus 50-Preference System**															
2																
3	**COMPARING OUTSIDERS AND INSIDERS (EQUAL-ACCESS SYSTEM)**										**COMPARING EQUAL ACCESS SYSTEM WITH 50-PERCENT CP SYSTEM**					
4	**Pairs of racial/ethnic groups being examined**	**Effect**	**Non-beneficiary (outsider) desired moves under equal-access system**		**CP beneficiary (insider) desired moves under equal-access system**		**Total desired moves under equal-access system**		**Relative percentage: CP beneficiary net percentage as percentage of non-beneficiary net percentage**	**Relative percentage: non-beneficiary net percentage as percentage of CP beneficiary net percentage**	**Non-beneficiary (outsider) If 50% of total desired moves**	**CP beneficiary (insider) if 50% of total desired moves**	**Total for estimated 50% insider and 50% outsider desired moves**	**Percent of each type of move under estimated CP system**	**Relative percentage: CP system net percentage as percentage of no-preference (equal access) system net percentage**	**Relative percentage: No-preference (equal access) system net percentage as percentage of CP system net percentage)**
5			**Number**	**%**	**Number**	**%**	**Number**	**%**								
6																
7	W and AA	Segregate	72,797	6.33%	1,618	2.65%	74,415	6.15%			38,330	16,054	54,384	4.49%		
8		No Effect	645,987	56.18%	52,171	85.50%	698,158	57.66%			340,134	517,633	857,767	70.84%		
9		Integrate	430,984	37.48%	7,227	11.84%	438,211	36.19%			226,928	71,705	298,633	24.66%		
10		Total*	1,149,768	100.00%	61,016	100.00%	1,210,784	100.00%			605,392	605,392	1,210,784	100.00%		
11		% of total desired moves	94.96%		5.04%											
12		**Net Segregative Effect**	**-358,187**	**-31.15%**	**-5,609**	**-9.19%**	**-363,796**	**-30.05%**	**29.51%**	**338.89%**	**-188,598**	**-55,652**	**-244,249**	**-20.17%**	**67.14%**	**148.94%**
13																
14	W and A	Segregate	53,278	15.16%	1,838	9.54%	55,116	14.87%			28,099	17,688	45,787	12.35%		
15		No Effect	180,866	51.46%	14,988	77.81%	195,854	52.83%			95,389	144,239	239,628	64.63%		
16		Integrate	117,336	33.38%	2,436	12.65%	119,772	32.31%			61,883	23,443	85,326	23.02%		
17		Total*	351,480	100.00%	19,262	100.00%	370,742	100.00%			185,371	185,371	370,742	100.00%		
18		% of total desired moves	94.80%		5.20%											
19		**Net Segregative Effect**	**-64,058**	**-18.23%**	**-598**	**-3.10%**	**-64,656**	**-17.44%**	**17.03%**	**587.05%**	**-33,784**	**-5,755**	**-39,539**	**-10.66%**	**61.15%**	**163.52%**
20																
21	W and H	Segregate	108,002	9.56%	3,329	5.44%	111,331	9.35%			56,926	32,397	89,323	7.50%		
22		No Effect	612,327	54.19%	46,498	75.98%	658,825	55.31%			322,746	452,507	775,253	65.09%		
23		Integrate	409,583	36.25%	11,370	18.58%	420,953	35.34%			215,883	110,650	326,533	27.41%		
24		Total*	1,129,912	100.00%	61,197	100.00%	1,191,109	100.00%			595,555	595,555	1,191,109	100.00%		
25		% of total desired moves	94.86%		5.14%											
26		**Net Segregative Effect**	**-301,581**	**-26.69%**	**-8,041**	**-13.14%**	**-309,622**	**-25.99%**	**49.23%**	**203.13%**	**-158,957**	**-78,253**	**-237,211**	**-19.92%**	**76.61%**	**130.53%**
27																
28	AA and H	Segregate	265,344	14.11%	5,476	5.70%	270,820	13.70%			139,450	56,334	195,784	9.91%		
29		No Effect	990,859	52.70%	83,068	86.48%	1,073,927	54.34%			520,739	854,558	1,375,297	69.59%		
30		Integrate	624,025	33.19%	7,509	7.82%	631,534	31.96%			327,952	77,248	405,200	20.50%		
31		Total	1,880,228	100.00%	96,053	100.00%	1,976,281	100.00%			988,141	988,141	1,976,281	100.00%		
32		% of total desired moves	95.14%		4.86%											
33		**Net Segregative Effect**	**-358,681**	**-19.08%**	**-2,033**	**-2.12%**	**-360,714**	**-18.25%**	**11.10%**	**901.30%**	**-188,502**	**-20,914**	**-209,417**	**-10.60%**	**58.06%**	**172.25%**
34																
35	AA and A	Segregate	63,270	5.74%	1,148	2.12%	64,418	5.57%			33,189	12,260	45,449	3.93%		
36		No Effect	625,317	56.75%	49,549	91.56%	674,866	58.38%			328,016	529,162	857,178	74.16%		
37		Integrate	413,209	37.50%	3,421	6.32%	416,630	36.04%			216,752	36,535	253,287	21.91%		
38		Total*	1,101,796	100.00%	54,118	100.00%	1,155,914	100.00%			577,957	577,957	1,155,914	100.00%		
39		% of total desired moves	95.32%		4.68%											
40		**Net Segregative Effect**	**-349,939**	**-31.76%**	**-2,273**	**-4.20%**	**-352,212**	**-30.47%**	**13.22%**	**756.19%**	**-183,564**	**-24,275**	**-207,838**	**-17.98%**	**59.01%**	**169.46%**
41																
42	H and A	Segregate	100,362	9.28%	2,002	3.69%	102,364	9.01%			52,699	20,947	73,646	6.48%		
43		No Effect	622,857	57.57%	42,354	78.00%	665,211	58.54%			327,058	443,141	770,199	67.78%		
44		Integrate	358,721	33.16%	9,943	18.31%	368,664	32.45%			188,362	104,032	292,394	25.73%		
45		Total*	1,081,940	100.00%	54,299	100.00%	1,136,239	100.00%			568,120	568,120	1,136,239	100.00%		
46		% of total desired moves	95.22%		4.78%											
47		**Net Segregative Effect**	**-258,359**	**-23.88%**	**-7,941**	**-14.62%**	**-266,300**	**-23.44%**	**61.24%**	**163.28%**	**-135,663**	**-83,085**	**-218,748**	**-19.25%**	**82.14%**	**121.74%**
48	*Excluding not-in-group															

Exhibit 41 - Actual Awardees by Demographic Group Pairings, Net-Integrative Effect, 50-Percent Preference System versus No-Preference (Equal Access) System

			COMPARING OUTSIDERS AND INSIDERS									COMPARING EQUAL ACCESS SYSTEM WITH 50-PERCENT CP SYSTEM							
	Pairs of racial/ethnic groups being examined	Effect	Non-beneficiary (outsider) actual moves (preference system)		CP beneficiary (insider) actual moves (preference system)		Total actual moves (preference system)		Relative percentage: CP beneficiary net percentage as percentage of non-beneficiary net percentage	Relative percentage: non-beneficiary net percentage as percentage of CP beneficiary net percentage	Apparently Eligible Percent of Desired Moves	Equal access: Non-beneficiary (outsiders) account for same percentage of outsider moves as in entire universe of apparently eligible desired moves		Equal access: CP beneficiaries (insiders) account for same percentage of insider moves as in entire universe of apparently eligible desired moves		Total for estimated equal access system		Relative percentage: CP system net percentage as percentage of no-preference (equal access) system net percentage	Relative percentage: No-preference (equal access) system net percentage as percentage of CP system net percentage)
			Number	Percent	Number	Percent	Number	Percent				Number	Percent	Number	Percent	Number	Percent		
	W and AA	Segregative	151	7.28%	52	2.92%	203	5.26%			"Insider"	267	7.28%	6	2.92%	272	7.06%		
		No Effect	1,474	71.04%	1,594	89.45%	3,068	79.54%			5.04%	2,602	71.04%	174	89.45%	2,776	71.96%		
		Integrative	450	21.69%	136	7.63%	586	15.19%			"Outsider"	794	21.69%	15	7.63%	809	20.98%		
		Total*	2,075	100.00%	1,782	100.00%	3,857	100.00%			94.96%	3,663	100.00%	194	100.00%	3,857	100.00%		
		Net Segregative Effect	**-299**	**-14.41%**	**-84**	**-4.71%**	**-383**	**-9.93%**	**32.71%**	**305.69%**		**-528**	**-14.41%**	**-9**	**-4.71%**	**-537**	**-13.92%**	**71.33%**	**140.19%**
	W and A	Segregative	144	17.78%	83	9.40%	227	13.41%			"Insider"	285	17.78%	8	9.40%	294	17.34%		
		No Effect	408	50.37%	660	74.75%	1,068	63.08%			5.20%	808	50.37%	66	74.75%	874	51.64%		
		Integrative	258	31.85%	140	15.86%	398	23.51%			"Outsider"	511	31.85%	14	15.86%	525	31.02%		
		Total*	810	100.00%	883	100.00%	1,693	100.00%			94.80%	1,605	100.00%	88	100.00%	1,693	100.00%		
		Net Segregative Effect	**-114**	**-14.07%**	**-57**	**-6.46%**	**-171**	**-10.10%**	**45.87%**	**218.02%**		**-226**	**-14.07%**	**-6**	**-6.46%**	**-232**	**-13.68%**	**73.84%**	**135.42%**
	W and H	Segregative	205	9.40%	107	5.15%	312	7.33%			"Insider"	380	9.40%	11	5.15%	391	9.18%		
		No Effect	1,487	68.15%	1,684	81.08%	3,171	74.45%			5.14%	2,753	68.15%	177	81.08%	2,931	68.81%		
		Integrative	490	22.46%	286	13.77%	776	18.22%			"Outsider"	907	22.46%	30	13.77%	937	22.01%		
		Total*	2,182	100.00%	2,077	100.00%	4,259	100.00%			94.86%	4,040	100.00%	219	100.00%	4,259	100.00%		
		Net Segregative Effect	**-285**	**-13.06%**	**-179**	**-8.62%**	**-464**	**-10.89%**	**65.98%**	**151.56%**		**-528**	**-13.06%**	**-19**	**-8.62%**	**-547**	**-12.83%**	**84.89%**	**117.79%**
	AA and H	Segregative	485	14.71%	212	7.84%	697	11.62%			"Insider"	840	14.71%	23	7.84%	863	14.38%		
		No Effect	1,928	58.48%	2,237	82.76%	4,165	69.42%			4.86%	3,338	58.48%	241	82.76%	3,579	59.66%		
		Integrative	884	26.81%	254	9.40%	1,138	18.97%			"Outsider"	1,531	26.81%	27	9.40%	1,558	25.97%		
		Total*	3,297	100.00%	2,703	100.00%	6,000	100.00%			95.14%	5,708	100.00%	292	100.00%	6,000	100.00%		
		Net Segregative Effect	**-399**	**-12.10%**	**-42**	**-1.55%**	**-441**	**-7.35%**	**12.84%**	**778.84%**		**-691**	**-12.10%**	**-5**	**-1.55%**	**-695**	**-11.59%**	**63.42%**	**157.68%**
	AA and A	Segregative	132	6.86%	44	2.92%	176	5.13%			"Insider"	224	6.86%	5	2.92%	229	6.67%		
		No Effect	1,345	69.87%	1,358	89.99%	2,703	78.71%			4.68%	2,287	69.87%	145	89.99%	2,432	70.81%		
		Integrative	448	23.27%	107	7.09%	555	16.16%			"Outsider"	762	23.27%	11	7.09%	773	22.52%		
		Total*	1,925	100.00%	1,509	100.00%	3,434	100.00%			95.32%	3,273	100.00%	161	100.00%	3,434	100.00%		
		Net Segregative Effect	**-316**	**-16.42%**	**-63**	**-4.17%**	**-379**	**-11.04%**	**25.43%**	**393.19%**		**-537**	**-16.42%**	**-7**	**-4.17%**	**-544**	**-15.84%**	**69.67%**	**143.54%**
	H and A	Segregative	182	8.96%	55	3.05%	237	6.18%			"Insider"	327	8.96%	6	3.05%	333	8.67%		
		No Effect	1,439	70.82%	1,512	83.81%	2,951	76.93%			4.78%	2,587	70.82%	154	83.81%	2,740	71.44%		
		Integrative	411	20.23%	237	13.14%	648	16.89%			"Outsider"	739	20.23%	24	13.14%	763	19.89%		
		Total*	2,032	100.00%	1,804	100.00%	3,836	100.00%			95.22%	3,653	100.00%	183	100.00%	3,836	100.00%		
		Net Segregative Effect	**-229**	**-11.27%**	**-182**	**-10.09%**	**-411**	**-10.71%**	**89.52%**	**111.71%**		**-412**	**-11.27%**	**-18**	**-10.09%**	**-430**	**-11.21%**	**95.55%**	**104.66%**

* Excluding not-in-group

Exhibit 42

Summary of 36 comparisons: 6 racial/ethnic pairs x 2 methods x 3 categories of applicant/award
(check mark indicates differential sufficient to meet 80 percent rule-of-thumb AND statistical significance AND practical effect)

		Outsiders vs. insiders			Equal access system vs. preference system		
Pairs of racial/ethnic groups being examined		**Apparently eligible**	**Siskin simulations**	**Awarded**	**Apparently eligible**	**Siskin simulations**	**Awarded**
W and AA		✓	✓	✓	✓	✓	✓
W and A		✓	✓	✓	✓	✓	✓
W and H		✓	✓	✓	✓	✓	*
AA and H		✓	✓	✓	✓	✓	✓
AA and A		✓	✓	✓	✓	✓	✓
H and A		✓	✓			✓	

*** Statistically significant and practical effect**