District of Columbia Representation: Effect on House Apportionment

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March 31, 2011

Congressional Research Service
7-....
www.crs.gov
RS22579

CRS Report for Congress
Prepared for Members and Committees of Congress

Summary

Two proposals (H.R. 157/S. 160, District of Columbia House Voting Rights Act of 2009) were introduced in the 111th Congress to provide for voting representation in the U.S. House of Representatives for the residents of the District of Columbia (DC). H.R. 157/S. 160, for purposes of voting representation, treated the District of Columbia as if it were a state, giving a House seat to the District, but restricting it to a single seat under any future apportionments. The bills also increased the size of the House to 437 members from 435, and gave the additional seat to the state that would have received the 436th seat under the 2000 apportionment, Utah.

This report shows the distribution of House seats based on the 2010 Census for 435 seats and for 437 seats as specified in the proposal. North Carolina, which would receive the 436th seat in the 2010 apportionment is substituted for Utah, assuming that any new, similar legislation would adopt the same language as H.R. 157.

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Background

H.R. 157/S. 160, the District of Columbia House Voting Rights Act of 2009 introduced in the 111th Congress, provided for a permanent increase in the size of the U.S. House of Representatives, from 435 seats to 437 seats.[1] The bills specified that one of the additional seats was to be allocated to the District of Columbia while the other seat was to be assigned either by using the normal apportionment formula allocation procedure (H.R. 157) or specifying that the seat would be allocated to Utah, the state which would have received the 436th seat under the 2000 apportionment process. Thus, this would add a fourth seat to Utah's three (S. 160). While both versions treated the District of Columbia as if it were a state for the purposes of the allocation of House seats, each bill restricted the District of Columbia to a single congressional seat under any future apportionments.

Similar bills had been introduced in the 110th Congress. On April 19, 2007, the House approved H.R. 1905 (a revised version of H.R. 1433) by a vote of 241 to 177 (Roll Call vote 231) and sent it to the Senate for consideration. On June 28, 2007, S. 1257 was reported out of the Senate Committee on Homeland Security and Governmental Affairs with amendments. On September 18, 2007, cloture on the motion to proceed to consideration of the measure was not invoked in the Senate on a Yea-Nay vote, 57 - 42, leaving the measure pending. No further action occurred on the legislation.

Adding New States and Seats to the House

The 435 seat limit for the size of the House was imposed in 1929 by statute (46 Stat. 21, 26-27). Altering the size of the House would require a new law setting a different limit. Article I, §2 of the Constitution establishes a minimum House size (one Representative for each state), and a maximum House size (one for every 30,000 persons, or 10,306 representatives based on the 2010 Census). For the 2010 apportionment, a House size of 468 would have resulted in no state losing seats held from the 112th to the 116th Congresses. However, by retaining seats through such an increase in the House size, other state delegations would become larger. At a House size of 468, California's delegation size, for example, would be 56 instead of 53 seats, Texas's delegation size would be 38 instead of 36 seats, and Florida's delegation size would be 29 instead of 27 seats.

Congressional Precedent

General congressional practice when admitting new states to the Union has been to increase the size of the House, either permanently or temporarily, to accommodate the new states. New states usually resulted in *additions* to the size of the House in the 19th and early 20th centuries. The exceptions to this general rule occurred when states were formed from other states (Maine, Kentucky, and West Virginia). These states' Representatives came from the allocations of Representatives of the states from which the new ones had been formed.

[1] See CRS Report RL33830, *District of Columbia Voting Representation in Congress: An Analysis of Legislative Proposals*, by (name redacted) for a complete discussion.

When Alaska and Hawaii were admitted in 1959 and 1960 the House size was *temporarily* increased to 437. This modern precedent differed from the state admission acts passed following the censuses in the 19th and early 20th centuries which provided that new state representatives would be added to the apportionment totals.

The apportionment act of 1911 anticipated the admission of Arizona and New Mexico by providing for an increase in the House size from 433 to 435 if the states were admitted.

As noted above, the House size was temporarily increased to 437 to accommodate Alaska and Hawaii in 1960. In 1961, when the President reported the 1960 census results and the resulting reapportionment of seats in the reestablished 435-seat House, Alaska was entitled to one seat, and Hawaii to two seats. Massachusetts, Pennsylvania and Missouri each received one less seat than they would have if the House size had been increased to 438 (as was proposed by H.R. 10264, in 1962).

Apportionment Impact

Apportionment of the House of Representatives

Table 1, below displays the apportionment of the seats in the House of Representatives based on the 2000 Census apportionment population (the current House apportionment) and the apportionment of seats in the House based on the 2010 Census apportionment population (the distribution of seats among the states for the 113th Congress). In addition, **Table 1** also shows the impact on the distribution of seats in the House if the District of Columbia were to be treated as if it were a state for apportionment purposes for both a House size of 435 seats and a House size of 437 seats.

First, due to population changes between the 2000 Census and the 2010 Census, **Table 1** shows a shift of 12 seats among 18 states for the 113th Congress (beginning in January 2013). Illinois, Iowa, Louisiana, Massachusetts, Michigan, Missouri, New Jersey, and Pennsylvania will each lose one seat; New York and Ohio will each lose two seats. Arizona, Georgia, Nevada, South Carolina, Utah, and Washington will each gain one seat; Florida will gain two seats; and Texas will gain four seats. These are the actual seats to be allocated based on the results of the 2010 Census.[2]

Second, if the District of Columbia were to be given a vote in the House of Representatives and treated as if it were a state in the reapportionment of congressional seats following the 2010 census, and the House size remained at 435, Minnesota would lose a seat relative to what it is scheduled to get as a result of the 2010 Census. Thus, Minnesota's delegation would fall to seven Representatives if the District of Columbia were to given a vote and the House size remained at 435 Representatives.

Third, if, on the other hand, the District of Columbia were to be given a vote in the House of Representatives and treated as if it were a state and the House size were to be increased to 437, the District of Columbia would receive one Representative and North Carolina would be entitled

[2] CRS Report R41584, *House Apportionment 2010: States Gaining, Losing, and on the Margin*, by (name redacted).

to fourteen Representatives, one more than the state is scheduled to receive in the apportionment following the 2010 census. Also, Minnesota would retain its eighth seat and no other state would be affected by the change.[3]

[3] This assumes that the House version of the bill proposed in the 111th Congress is passed rather than the Senate version, as it would not specify the name of the state that would benefit from such an increase in seats.

Table 1. Apportionment Impact of Alternative Plans for D.C. Voting Representation in the House of Representatives

2010 Census Apportionment Population

State	2000 Apportionment Population (Current House)[a]	2003-2012 House Seats	2010 Apportionment Population (2013 Congress)[b]	2013 House Seats	Seat Gains & Losses: 2002 vs. 2012	2010 Apportionment Population Including D.C.[b]	House Seats	Seat Gains & Losses: DC vs. No DC	2010 Apportionment Population Including D.C.[b]	House Seats	Seat Gains & Losses: 435 vs. 437
AL	4,461,130	7	4,802,982	7	0	4,802,982	7	0	4,802,982	7	0
AK	628,933	1	721,523	1	0	721,523	1	0	721,523	1	0
AZ	5,140,683	8	6,412,700	9	1	6,412,700	9	0	6,412,700	9	0
AR	2,679,733	4	2,926,229	4	0	2,926,229	4	0	2,926,229	4	0
CA	33,930,798	53	37,341,989	53	0	37,341,989	53	0	37,341,989	53	0
CO	4,311,882	7	5,044,930	7	0	5,044,930	7	0	5,044,930	7	0
CN	3,409,535	5	3,581,628	5	0	3,581,628	5	0	3,581,628	5	0
DE	785,068	1	900,877	1	0	900,877	1	0	900,877	1	0
DC						604,598	1	1	604,598	1	0
FL	16,028,890	25	18,900,773	27	2	18,900,773	27	0	18,900,773	27	0
GA	8,206,975	13	9,727,566	14	1	9,727,566	14	0	9,727,566	14	0
HI	1,216,642	2	1,366,862	2	0	1,366,862	2	0	1,366,862	2	0
ID	1,297,274	2	1,573,499	2	0	1,573,499	2	0	1,573,499	2	0
IL	12,439,042	19	12,864,380	18	-1	12,864,380	18	0	12,864,380	18	0
IN	6,090,782	9	6,501,582	9	0	6,501,582	9	0	6,501,582	9	0
IA	2,931,923	5	3,053,787	4	-1	3,053,787	4	0	3,053,787	4	0
KS	2,693,824	4	2,863,813	4	0	2,863,813	4	0	2,863,813	4	0
KY	4,049,431	6	4,350,606	6	0	4,350,606	6	0	4,350,606	6	0
LA	4,480,271	7	4,553,962	6	-1	4,553,962	6	0	4,553,962	6	0
ME	1,277,731	2	1,333,074	2	0	1,333,074	2	0	1,333,074	2	0
MD	5,307,886	8	5,789,929	8	0	5,789,929	8	0	5,789,929	8	0
MA	6,355,568	10	6,559,644	9	-1	6,559,644	9	0	6,559,644	9	0

State	2000 Apportionment Population (Current House)[a]	2003-2012 House Seats	2010 Apportionment Population (2013 Congress)[b]	2013 House Seats	Seat Gains & Losses: 2002 vs. 2012	2010 Apportionment Population Including D.C.[b]	House Seats	Seat Gains & Losses: DC vs. No DC	2010 Apportionment Population Including D.C.[b]	House Seats	Seat Gains & Losses: 435 vs. 437
MI	9,955,829	15	9,911,626	14	-1	9,911,626	14	0	9,911,626	14	0
MN	4,925,670	8	5,314,879	8	0	5,314,879	7	-1	5,314,879	8	1
MS	2,852,927	4	2,978,240	4	0	2,978,240	4	0	2,978,240	4	0
MO	5,606,260	9	6,011,478	8	-1	6,011,478	8	0	6,011,478	8	0
MT	905,316	1	994,416	1	0	994,416	1	0	994,416	1	0
NB	1,715,369	3	1,831,825	3	0	1,831,825	3	0	1,831,825	3	0
NV	2,002,032	3	2,709,432	4	1	2,709,432	4	0	2,709,432	4	0
NH	1,238,415	2	1,321,445	2	0	1,321,445	2	0	1,321,445	2	0
NJ	8,424,354	13	8,807,501	12	-1	8,807,501	12	0	8,807,501	12	0
NM	1,823,821	3	2,067,273	3	0	2,067,273	3	0	2,067,273	3	0
NY	19,004,973	29	19,421,055	27	-2	19,421,055	27	0	19,421,055	27	0
NC	8,067,673	13	9,565,781	13	0	9,565,781	13	0	9,565,781	14	1
ND	643,756	1	675,905	1	0	675,905	1	0	675,905	1	0
OH	11,374,540	18	11,568,495	16	-2	11,568,495	16	0	11,568,495	16	0
OK	3,458,819	5	3,764,882	5	0	3,764,882	5	0	3,764,882	5	0
OR	3,428,543	5	3,848,606	5	0	3,848,606	5	0	3,848,606	5	0
PA	12,300,670	19	12,734,905	18	-1	12,734,905	18	0	12,734,905	18	0
RI	1,049,662	2	1,055,247	2	0	1,055,247	2	0	1,055,247	2	0
SC	4,025,061	6	4,645,975	7	1	4,645,975	7	0	4,645,975	7	0
SD	756,874	1	819,761	1	0	819,761	1	0	819,761	1	0
TN	5,700,037	9	6,375,431	9	0	6,375,431	9	0	6,375,431	9	0
TX	20,903,994	32	25,268,418	36	4	25,268,418	36	0	25,268,418	36	0
UT	2,236,714	3	2,770,765	4	1	2,770,765	4	0	2,770,765	4	0
VT	609,890	1	630,337	1	0	630,337	1	0	630,337	1	0

State	2000 Apportionment Population (Current House)[a]	2003-2012 House Seats	2010 Apportionment Population (2013 Congress)[b]	2013 House Seats	Seat Gains & Losses: 2002 vs. 2012	2010 Apportionment Population Including D.C.[b]	House Seats	Seat Gains & Losses: DC vs. No DC	2010 Apportionment Population Including D.C.[b]	House Seats	Seat Gains & Losses: 435 vs. 437
VA	7,100,702	11	8,037,736	11	0	8,037,736	11	0	8,037,736	11	0
WA	5,908,684	9	6,753,369	10	1	6,753,369	10	0	6,753,369	10	0
WV	1,813,077	3	1,859,815	3	0	1,859,815	3	0	1,859,815	3	0
WI	5,371,210	8	5,698,230	8	0	5,698,230	8	0	5,698,230	8	0
WY	495,304	1	568,300	1	0	568,300	1	0	568,300	1	0
TOTALS	281,424,177	435	309,183,463	435		309,788,061	435		309,788,061	437	
Average Pop. Per Seat	646,952		710,767			712,156			708,897		

Source: All apportionment calculations by CRS using the "method of equal proportions" formula mandated by 2 U.S.C. §2a.(a).

Notes: The apportionment population is different from the actual resident population of each state because the Census Bureau adds to each state's resident population the foreign-based military and other federal employees and their dependents who are from the state but not residing therein at the time of the census. Source for apportionment populations:

a. http://www.census.gov/population/apportionment/data/2000_apportionment_results.html.

b. The apportionment figures for all the states are provided by the U.S. Census Bureau. Apportionment population for the District of Columbia were constructed by adding the District of Columbia'For apportionment figures and overseas population, see http://www.census.gov/population/apportionment/data//2010_apportionment_results.html. For the 2010 District of Columbia resident population, see http://2010.census.gov/2010census/data/apportionment-pop-text.php.

Winners and Losers

Another way to see the impact is to examine the allocation of the last seats assigned to the states when the District of Columbia is allocated a seat (presumably the 51st seat). The actual apportionment is done through a "priority list" calculated using the equal proportions formula provided in 2 U.S.C. §2a.(a).[4] **Table 2**, below, displays the end of the priority list that was used to allocate Representatives based on the 2010 Census, including the District of Columbia. The law only provides for 435 seats in the House, but the table illustrates not only the last seats assigned by the apportionment formula (ending at 435), but the states that would just miss getting additional representation.[5]

Table 3 is similar to **Table 2**, in that it displays the end of the priority list, but the last seat is 437 instead of 435. The priority values and the population needed to gain or lose a seat do not change if DC is treated like state, as DC is entitled the constitutional minimum of one Representative.

Table 2. Population Needed to Gain or Lose a Seat Using the 2010 Census Apportionment Population with the District of Columbia

435 House Seats

Seat	Last Seat Allocated	State	2010 Population	Priority Value[a]	Pop. Needed to Gain or Lose Seat[b]
2	420	Rhode Island	1,055,247	746,172.310	-50,829
26	421	Florida	18,900,773	741,349.310	-793,375
7	422	Alabama	4,802,982	741,116.212	-200,162
51	423	California	37,341,989	739,481.573	-1,477,103
18	424	Illinois	12,864,380	735,407.656	-440,419
14	425	Michigan	9,911,626	734,698.600	-330,092
27	426	New York	19,421,055	733,000.485	-603,295
35	427	Texas	25,268,418	732,494.844	-768,036
18	428	Pennsylvania	12,734,905	728,006.063	-310,944
52	429	California	37,341,989	725,121.341	-766,838
14	430	Georgia	9,727,566	721,055.165	-146,032
7	431	South Carolina	4,645,975	716,889.506	-43,155
27	432	Florida	18,900,773	713,363.707	-83,013
10	433	Washington	6,753,369	711,867.597	-15,530
36	434	Texas	25,268,418	711,857.033	-57,733

[4] For a relatively thorough review of the apportionment formula, see CRS Report R41357, *The U.S. House of Representatives Apportionment Formula in Theory and Practice*, by (name redacted)

[5] The values in **Table 2** and **Table 3** for the "population needed to gain or lose a seat" are misleading because it is unlikely that one state's population total would be adjusted without others changing as well. Since the method of equal proportions used to allocate seats in the House uses all state populations simultaneously, changes in several state populations may also result in changes to the "populations needed to gain or lose a seat."

Seat	Last Seat Allocated	State	2010 Population	Priority Value[a]	Pop. Needed to Gain or Lose Seat[b]
53	435	California	37,341,989	711,308.241	-56,575
Last seat assigned if the House size were set to 435					
8	436	Minnesota	5,314,879	710,230.581	8,064
14	437	North Carolina	9,565,781	709,062.863	30,292
9	438	Missouri	6,011,478	708,459.476	24,173
28	439	New York	19,421,055	706,336.941	136,688
13	440	New Jersey	8,807,501	705,164.437	76,736
2	441	Montana	994,416	703,158.297	11,526
7	442	Louisiana	4,553,962	702,691.592	55,842
6	443	Oregon	3,848,606	702,656.107	47,390
17	444	Ohio	11,568,495	701,443.041	162,701
12	445	Virginia	8,037,736	699,595.121	134,573
54	446	California	37,341,989	698,011.587	711,340
19	447	Illinois	12,864,380	695,626.002	290,015
37	448	Texas	25,268,418	692,350.388	691,897
10	449	Massachusetts	6,559,644	691,447.189	188,418
19	450	Pennsylvania	12,734,905	688,624.796	419,490

Source: Computations of priority values and populations needed to gain or lose a seat by CRS. See CRS Report R41357, *The U.S. House of Representatives Apportionment Formula in Theory and Practice*, by (name redacted).

Notes:

a. Each state's claim to representation in the House is based on a "priority value" determined by the following formula: $PV = P / [n(n - 1)]^{½}$; where PV = the state's priority value, P = the state's population, and n = the state's n^{th} seat in the House. For example, the priority value of Minnesota's 8^{th} seat is:

$PV_{MO9} = 5,314,879 / [8(8 - 1)]^{1/2}$

$= 5,314,879 / [56]^{½1/2}$

$= 5,314,879 / 7.483314774$

$= 710,230.581$

The actual seat assignments are made by ranking all of the states' priority values from highest to lowest until 435 seats/437 seats are allocated.

b. These figures represent the population a state would either need to lose in order to drop below the 435^{th} seat cutoff, or to gain to rise above the cutoff. If, in the case of Minnesota, 8,064 more persons had been counted in the state in 2010 (all other states being the same), the state's priority value would have been increased to 711,308.178, which would have resulted in a new sequence number of 435 because California's 53^{rd} seat would have occupied the 436^{th} position in the priority list.

Table 3. Population Needed to Gain or Lose a Seat Using the 2010 Census Apportionment Population with the District of Columbia

437 House Seats

Seat	Last Seat Allocated	State	2010 Population	Priority Value[a]	Pop. Needed to Gain or Lose Seat[b]
2	420	Rhode Island	1,055,247	746,172.310	-53,334
26	421	Florida	18,900,773	741,349.310	-838,530
7	422	Alabama	4,802,982	741,116.212	-211,640
51	423	California	37,341,989	739,481.573	-1,566,539
18	424	Illinois	12,864,380	735,407.656	-471,401
14	425	Michigan	9,911,626	734,698.600	-353,985
27	426	New York	19,421,055	733,000.485	-650,221
35	427	Texas	25,268,418	732,494.844	-829,133
18	428	Pennsylvania	12,734,905	728,006.063	-341,926
52	429	California	37,341,989	725,121.341	-858,046
14	430	Georgia	9,727,566	721,055.165	-169,925
7	431	South Carolina	4,645,975	716,889.506	-54,633
27	432	Florida	18,900,773	713,363.707	-129,939
10	433	Washington	6,753,369	711,867.597	-32,332
36	434	Texas	25,268,418	711,857.033	-120,601
53	435	California	37,341,989	711,308.241	-149,553
8	436	Minnesota	5,314,879	710,230.581	-13,254
14	437	North Carolina	9,565,781	709,062.863	-8,140
Last seat assigned if the House size were set to 437					
9	438	Missouri	6,011,478	708,459.476	5,120
28	439	New York	19,421,055	706,336.941	74,950
13	440	New Jersey	8,807,501	705,164.437	48,691
2	441	Montana	994,416	703,158.297	8,350
7	442	Louisiana	4,553,962	702,691.592	41,291
6	443	Oregon	3,848,606	702,656.107	35,091
17	444	Ohio	11,568,495	701,443.041	125,669
12	445	Virginia	8,037,736	699,595.121	108,776
54	446	California	37,341,989	698,011.587	591,217
19	447	Illinois	12,864,380	695,626.002	248,491
37	448	Texas	25,268,418	692,350.388	609,948
10	449	Massachusetts	6,559,644	691,447.189	167,117
19	450	Pennsylvania	12,734,905	688,624.796	377,966

Source: Computations of priority values and populations needed to gain or lose a seat by CRS. See CRS Report R41357, *The U.S. House of Representatives Apportionment Formula in Theory and Practice*, by (name redacted).

Notes:

a. Each state's claim to representation in the House is based on a "priority value" determined by the following formula: $PV = P / [n(n - 1)]^{½}$; where PV = the state's priority value, P = the state's population, and n = the state's n^{th} seat in the House. For example, the priority value of Missouri's 9^{th} seat is:

$PV_{MO9} = 6,011,478 / [9(9 - 1)]^{1/2}$

$= 6,011,478 / [72]^{1/2}$

$= 6,011,478 / 8.485281374238570$

$= 708459.476$

The actual seat assignments are made by ranking all of the states' priority values from highest to lowest until 435 seats/437 seats are allocated.

b. These figures represent the population a state would either need to lose in order to drop below the 437^{th} seat cutoff, or to gain to rise above the cutoff. If, in the case of Missouri, 5,120 more persons had been counted in the state in 2010 (all other states being the same), the state's priority value would have been increased to 709,062.874 which would have resulted in a new sequence number of 437 because North Carolina's 13^{th} seat would have occupied the 438^{th} position in the priority list.

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