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February 2, 2009

## Congressional Research Service <br> Report RS22579

## District of Columbia Representation: Effect on House <br> Apportionment <br> Royce Crocker, Government and Finance Division

November 14, 2007


#### Abstract

A proposal (H.R. 1905/S. 1257) has been introduced in the 110th Congress to provide for voting representation in the U.S. House of Representatives for the residents of the District of Columbia (DC). H.R. 1905/S. 1257, for purposes of voting representation, treats 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 would increase the size of the House to 437 members from 435, and give the additional seat to the state of Utah. This report shows the distribution of House seats based on the 2000 census for 435 seats and for 437 seats as specified in the proposal. The report also examines the impact of using the 2006 estimated population to allocate the 437 seats, including the single seat provided to the District.


# District of Columbia Representation: Effect on House Apportionment 

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November 14, 2007

## Summary

A proposal (H.R. 1905/S. 1257) has been introduced in the $110^{\text {th }}$ Congress to provide for voting representation in the U.S. House of Representatives for the residents of the District of Columbia (DC). H.R. 1905/S. 1257, for purposes of voting representation, treats 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 would increase the size of the House to 437 members from 435, and give the additional seat to the state of Utah. This report shows the distribution of House seats based on the 2000 census for 435 seats and for 437 seats as specified in the proposal. The report also examines the impact of using the 2006 estimated population to allocate the 437 seats, including the single seat provided to the District. This report will be updated as conditions warrant.

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## Background

H.R. 1905/S. 1257, the District of Columbia House Voting Rights Act of 2007, would provide for a permanent increase in the size of the U.S. House of Representatives, from 435 seats to 437 seats. The bills specify that one of the seats is to be allocated to the District of Columbia while the other seat is to be assigned either by using the normal apportionment formula allocation procedure (H.R. 1905) or specifying that the seat would be allocated to Utah, thus adding a fourth seat (S. 1257). While both versions treat the District of Columbia as if it were a state for the purposes of the allocation of House seats, each restricts the District of Columbia to a single congressional seat under any future apportionments.

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. ${ }^{1}$ 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.

## Adding New States and Seats to the House

The 435 seat limit for the size of the House was imposed in 1929 by 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 9,380 representatives based on the 2000 Census). In 2003, a House size of 473 would have resulted in no state losing seats held from the $103^{\text {rd }}$ to the $107^{\text {th }}$ Congresses. However, by retaining seats through an increase in the House size, other state delegations would become larger. At a House size of 473, California's delegation size, for example, would be 57 instead of 53 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 $19^{\text {th }}$ and early $20^{\text {th }}$ 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.

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 $19^{\text {th }}$ and early $20^{\text {th }}$ centuries which provided that new state representatives would be added to the apportionment totals.

[^0]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).

## Reapportionment Impact

Table 1 lists the actual apportionment allocations of Representatives based on the 2000 census for 435 seats and the apportionment that would occur as a result of the provisions of the proposed legislation (i.e., 437 seats, DC allocated a seat and Utah allocated a seat). In addition, the apportionment of 437 seats of the House of Representatives is shown based on the 2006 state population estimates and providing for a seat for the District of Columbia.

If the District of Columbia had been treated as a state in the reapportionment of congressional seats following the 2000 census, and the House size had remained at 435 , North Carolina would have not gained an additional seat in comparison with the 1990s. The state's delegation would have remained at 12 Representatives.

If the District of Columbia were to receive representation as if it were a state and the House size were to be increased to 437, DC would be entitled to one Representative and Utah would be entitled to four Representatives, one more than the state received in the reapportionment following the 2000 census. No other state would be effected by the change. This is the impact that the proponents of the proposed legislation hope to achieve.

If either of the pending bills are enacted and the most recent estimates of population of the states are used as a projection for what might happen in the 2012 apportionment, the District would get its seat and Utah would retain its fourth seat. However, Arizona, Florida, Georgia, and Nevada would each pick up a seat, and Texas would be allocated an additional two seats. Iowa, Louisiana, Massachusetts, New York, Ohio, and Pennsylvania would each lose a single seat. This is primarily due to a change in state populations since the 2000 census.

Table I.Apportionment Impact of Alternative Plans for DC Voting Representation in the House

| Actual 2000 allocation: 435 Representatives |  |  | 437 Representatives |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | DC given own seat |  |  |  | DC given own seat |  |  |  |
| ST | Apportionment pop. | Seats | ST | 2000 Apportion- ment pop. ${ }^{\text {b }}$ | Seats | Seat change from 2000 | ST | $\begin{array}{r} 2006 \\ \text { Estimated } \\ \text { pop.c } \end{array}$ | Seats | Seat change from 2000 |
| AL | 4,461,130 | 7 | AL | 4,461,130 | 7 |  | AL | 4,596,330 | 7 |  |
| AK | 628,933 | 1 | AK | 628,933 | 1 |  | AK | 694,109 | I |  |


| Actual 2000 allocation: 435 Representatives |  |  | 437 Representatives |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | DC given own seat |  |  |  | DC given own seat |  |  |  |
| ST | Apportionment pop. | Seats | ST | 2000 <br> Apportionment pop. ${ }^{\text {b }}$ | Seats | $\begin{array}{r} \text { Seat } \\ \text { change } \\ \text { from } \\ 2000 \end{array}$ | ST | 2006 <br> Estimated pop.c | Seats |  |
| AZ | 5,140,683 | 8 | AZ | 5,140,683 | 8 |  | AZ | 6,637,381 | 9 | + |
| AR | 2,679,733 | 4 | AR | 2,679,733 | 4 |  | AR | 2,875,039 | 4 |  |
| CA | 33,930,798 | 53 | CA | 33,930,798 | 53 |  | CA | 38,067,134 | 53 |  |
| CO | 4,311,882 | 7 | CO | 4,311,882 | 7 |  | CO | 4,831,554 | 7 |  |
| CT | 3,409,535 | 5 | CT | 3,409,535 | 5 |  | CT | 3,577,490 | 5 |  |
| DCa | 574,096 | 0 | DC | 574,096 | 1 | +1 | DC | 884,342 | 1 |  |
| DE | 785,068 | 1 | DE | 785,068 | 1 |  | DE | 529,785 | 1 |  |
| FL | 16,028,890 | 25 | FL | 16,028,890 | 25 |  | FL | 19,251,691 | 26 | +1 |
| GA | 8,206,975 | 13 | GA | 8,206,975 | 13 |  | GA | 9,589,080 | 14 | +1 |
| HI | 1,216,642 | 2 | HI | 1,216,642 | 2 |  | HI | 1,340,674 | 2 |  |
| ID | 1,297,274 | 2 | ID | 1,297,274 | 2 |  | ID | 1,517,291 | 2 |  |
| IL | 12,439,042 | 19 | IL | 12,439,042 | 19 |  | IL | 12,916,894 | 19 |  |
| IN | 6,090,782 | 9 | IN | 6,090,782 | 9 |  | IN | 6,392,139 | 9 |  |
| IA | 2,931,923 | 5 | IA | 2,931,923 | 5 |  | IA | 3,009,907 | 4 | -1 |
| KS | 2,693,824 | 4 | KS | 2,693,824 | 4 |  | KS | 2,805,470 | 4 |  |
| KY | 4,049,431 | 6 | KY | 4,049,431 | 6 |  | KY | 4,265,117 | 6 |  |
| LA | 4,480,27I | 7 | LA | 4,480,27I | 7 |  | LA | 4,612,679 | 6 | -1 |
| ME | 1,277,73। | 2 | ME | 1,277,73। | 2 |  | ME | 1,357,134 | 2 |  |
| MD | 5,307,886 | 8 | MD | 5,307,886 | 8 |  | MD | 5,904,970 | 8 |  |
| MA | 6,355,568 | 10 | MA | 6,355,568 | 10 |  | MA | 6,649,44I | 9 | -1 |
| MI | 9,955,829 | 15 | MI | 9,955,829 | 15 |  | MI | 10,428,683 | 15 |  |
| MN | 4,925,670 | 8 | MN | 4,925,670 | 8 |  | MN | 5,420,636 | 8 |  |
| MS | 2,852,927 | 4 | MS | 2,852,927 | 4 |  | MS | 2,971,412 | 4 |  |
| MO | 5,606,260 | 9 | MO | 5,606,260 | 9 |  | MO | 5,922,078 | 9 |  |
| MT | 905,316 | 1 | MT | 905,316 | 1 |  | MT | 968,598 | 1 |  |
| NE | 1,715,369 | 3 | NE | 1,715,369 | 3 |  | NE | 1,768,997 | 3 |  |
| NV | 2,002,032 | 3 | NV | 2,002,032 | 3 |  | NV | 2,690,531 | 4 | +1 |
| NH | 1,238,415 | 2 | NH | 1,238,415 | 2 |  | NH | 1,385,560 | 2 |  |
| NJ | 8,424,354 | 13 | NJ | 8,424,354 | 13 |  | NJ | 9,018,231 | 13 |  |
| NM | 1,823,821 | 3 | NM | 1,823,82I | 3 |  | NM | 1,980,225 | 3 |  |
| NY | 19,004,973 | 29 | NY | 19,004,973 | 29 |  | NY | 19,443,672 | 28 | -1 |
| $\mathrm{NCa}^{\text {a }}$ | 8,067,673 | 13 | NC | 8,067,673 | 13 |  | NC | 9,345,823 | 13 |  |
| ND | 643,756 | 1 | ND | 643,756 | 1 |  | ND | 636,623 | 1 |  |


| Actual 2000 allocation: 435 Representatives |  |  | 437 Representatives |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | DC given own seat |  |  |  | DC given own seat |  |  |  |
| ST | Apportionment pop. | Seats | ST | $2000$ <br> Apportionment pop. ${ }^{\text {b }}$ | Seats | Seat change from 2000 | ST | 2006 <br> Estimated pop.c | Seats | Seat change from 2000 |
| OH | 11,374,540 | 18 | OH | 11,374,540 | 18 |  | OH | 11,576,181 | 17 | -1 |
| OK | 3,458,819 | 5 | OK | 3,458,819 | 5 |  | OK | 3,591,516 | 5 |  |
| OR | 3,428,543 | 5 | OR | 3,428,543 | 5 |  | OR | 3,790,996 | 5 |  |
| PA | 12,300,670 | 19 | PA | 12,300,670 | 19 |  | PA | 12,584,487 | 18 | -1 |
| RI | 1,049,662 | 2 | RI | 1,049,662 | 2 |  | RI | 1,116,652 | 2 |  |
| SC | 4,025,061 | 6 | SC | 4,025,061 | 6 |  | SC | 4,446,704 | 6 |  |
| SD | 756,874 | 1 | SD | 756,874 | 1 |  | SD | 786,399 | 1 |  |
| TN | 5,700,037 | 9 | TN | 5,700,037 | 9 |  | TN | 6,230,852 | 9 |  |
| TX | 20,903,994 | 32 | TX | 20,903,994 | 32 |  | TX | 24,648,888 | 34 | +2 |
| UT | 2,236,714 | 3 | UT | 2,236,714 | 4 | +1 | UT | 2,595,013 | 4 |  |
| VT | 609,890 | 1 | VT | 609,890 | 1 |  | VT | 652,512 | 1 |  |
| VA | 7,100,702 | 11 | VA | 7,100,702 | 11 |  | VA | 8,010,245 | 11 |  |
| WA | 5,908,684 | 9 | WA | 5,908,684 | 9 |  | WA | 6,541,963 | 9 |  |
| WV | 1,813,077 | 3 | WV | 1,813,077 | 3 |  | WV | 1,829,141 | 3 |  |
| WI | 5,371,210 | 8 | WI | 5,371,210 | 8 |  | WI | 5,727,426 | 8 |  |
| WY | 495,304 | 1 | WY | 495,304 | 1 |  | WY | 519,886 | 1 |  |
|  |  | 435 |  |  | 437 |  |  |  | 437 |  |

Note: All apportionment calculations by CRS using the "method of equal proportions" formula mandated by 2 U.S.C. §2a.(a).
a. If DC had been allocated representatives as if it were a state after the 2000 Census it would have been entitled to one representative, and North Carolina would have received 12 instead of 13.
b. 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.
c. Source: http://www.census.gov/popest/datasets.html, Population Change: April I, 2000 to July I, 2006 (NSTEST2006). Site last visited, September I4, 2007.

The actual apportionment is done through a "priority list" calculated using the equal proportions formula provided in 2 U.S.C. §2a.(a). Table 2 displays the end of the priority list that was used to allocate Representatives based on the 2000 Census. The law only provides for 435 seats in the House, but the tables illustrate not only the last seats assigned by the apportionment formula (ending at 435), but the states that would just miss getting additional representation. ${ }^{2}$

[^1]Table $\mathbf{3}$ 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 2000 Census Apportionment Population and a 435 Seat House

| Priority | State | Seat | apportionment population | Priority value ${ }^{\text {a }}$ | Pop. needed to gain or lose seat |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 425 | PA | 19 | 12,300,670 | 665,144.05 | -359,885 |
| 426 | TX | 32 | 20,903,994 | 663,702.45 | -567,519 |
| 427 | MO | 9 | 5,606,260 | 660,703.78 | -127,450 |
| 428 | CA | 52 | 33,930,798 | 658,881.42 | -679,651 |
| 429 | MN | 8 | 4,925,670 | 658,220.10 | -93,814 |
| 430 | GA | 13 | 8,206,975 | 657,083.72 | -142,386 |
| 431 | IA | 5 | 2,931,923 | 655,597.81 | -44,337 |
| 432 | FL | 25 | 16,028,890 | 654,376.65 | -212,933 |
| 433 | OH | 18 | 1 1,374,540 | 650,239.14 | -79,688 |
| 434 | CA | 53 | 33,930,798 | 646,330.20 | -33,940 |
| 435 | NC | 13 | 8,067,673 | 645,930.64 | -3,084 |
| Last seat assigned by law |  |  |  |  |  |
| 436 | UT | 4 | 2,236,714 | 645,683.70 | +855 |
| 437 | NY | 30 | 19,004,973 | 644,328.90 | +47,245 |
| 438 | TX | 33 | 20,903,994 | 643,275.93 | +86,268 |
| 439 | MI | 16 | 9,955,829 | 642,645.62 | +50,891 |
| 440 | IN | 10 | 6,090,782 | 642,024.48 | +37,057 |
| 441 | MT | 2 | 905,316 | 640, 155.07 | +8,168 |
| 442 | IL | 20 | 12,439,042 | 638,109.37 | +152,465 |
| 443 | MS | 5 | 2,852,927 | 637,933.77 | +35,763 |
| 444 | CA | 54 | 33,930,798 | 634,248.18 | +624,984 |
| 445 | WI | 9 | 5,371,210 | 633,002.89 | +109,696 |
| 446 | OK | 6 | 3,458,819 | 631,490.94 | +79,090 |
| 447 | PA | 20 | 12,300,670 | 631,01 I. 04 | +290,837 |
| 448 | FL | 26 | 16,028,890 | 628,704.74 | +439,176 |
| 449 | OR | 6 | 3,428,543 | 625,963.33 | +109,365 |
| 450 | MD | 9 | 5,307,886 | 625,540.08 | +173,020 |

Source: Computations of priority values and populations needed to gain or lose a seat by CRS. See CRS Report RL307I I, The House Apportionment Formula in Theory and Practice, by Royce Crocker, for an explanation of formula for allocating House seats.
a. Each state's claim to representation in the House is based on a "priority value" determined by the following formula: $\mathrm{PV}=\mathrm{P} /[\mathrm{n}(\mathrm{n}-\mathrm{I})]^{1 / 2}$; where $\mathrm{PV}=$ the state's priority value, $\mathrm{P}=$ the state's population, and $\mathrm{n}=$ the state's $\mathrm{n}^{\text {th }}$ seat in the House. For example, the priority value of Wisconsin's 9 th seat is:

$$
\begin{aligned}
P V_{\mathrm{WI}} & =5,371,210 /[9(9-1)]^{1 / 2} \\
& =5,371,210 /[72]^{1 / 2} \\
& =5,371,210 / 8.485281374238570 \\
& =633,002.89
\end{aligned}
$$

The actual seat assignments are made by ranking all of the states' priority values from highest to lowest until 435 seats are allocated.
b. These figures represent the population a state would either need to lose in order to drop below the 435th seat cutoff, or to gain to rise above the cutoff. If, in the case of Wisconsin, 109,696 more persons had been counted in the Census, the state's priority value would have been increased to $645,930.77$ which would have resulted in a new sequence number of 435 because North Carolina's 13th seat would have occupied the $436^{\text {th }}$ position in the priority list.

Table 3. Population Needed to Gain or Lose a Seat Using the 2000 Census Apportionment Population and a 437 Seat House

| Priority | State | Seat | 2000 <br> apportionment population | Priority value | Pop. needed to gain or lose seat |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 425 | CO | 7 | 4,311,882 | 665,337.67 | -136,152 |
| 426 | PA | 19 | 12,300,670 | 665,144.05 | -384,940 |
| 427 | TX | 32 | 20,903,994 | 663,702.45 | -610,190 |
| 428 | MO | 9 | 5,606,260 | 660,703.78 | -138,946 |
| 429 | CA | 52 | 33,930,798 | 658,881. 42 | -749,420 |
| 430 | MN | 8 | 4,925,670 | 658,220.10 | -103,952 |
| 431 | GA | 13 | 8,206,975 | 657,083.72 | -159,308 |
| 432 | IA | 5 | 2,931,923 | 655,597.81 | -50,396 |
| 433 | FL | 25 | 16,028,890 | 654,376.65 | -246, 119 |
| 434 | OH | 18 | I 1,374,540 | 650,239.14 | -103,387 |
| 435 | CA | 53 | 33,930,798 | 646,330.20 | -105,063 |
| 436 | NC | 13 | 8,067,673 | 645,930.64 | -20,006 |
| 437 | UT | 4 | 2,236,714 | 645,683.70 | -4,693 |
| Last seat assigned |  |  |  |  |  |
| 438 | NY | 30 | 19,004,973 | 644,328.90 | +39,961 |
| 439 | TX | 33 | 20,903,994 | 643,275.93 | +78,243 |
| 440 | MI | 16 | 9,955,829 | 642,645.62 | +47,066 |
| 441 | IN | 10 | 6,090,782 | 642,024.48 | +34,714 |
| 442 | MT | 2 | 905,316 | 640,155.07 | +7,819 |
| 443 | IL | 20 | 12,439,042 | 638,109.37 | +147,65 |
| 444 | MS | 5 | 2,852,927 | 637,933.77 | +34,659 |
| 445 | CA | 54 | 33,930,798 | 634,248.18 | +611,774 |


| Priority | State | Seat | 2000 <br> apportionment <br> population | Priority value | Pop. needed to <br> gain or lose seat |
| :--- | :--- | ---: | ---: | ---: | ---: |
| 446 | WI | 9 | $5,371,210$ | $633,002.89$ | $+107,600$ |
| 447 | OK | 6 | $3,458,819$ | $631,490.94$ | $+77,737$ |
| 448 | PA | 20 | $12,300,670$ | $631,011.04$ | $+286,023$ |
| 449 | FL | 26 | $16,028,890$ | $628,704.74$ | $+432,880$ |
| 450 | OR | 6 | $3,428,543$ | $625,963.33$ | $+108,013$ |

See notes end of Table 2.

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[^0]:    ${ }^{1}$ See CRS Report RL33830, District of Columbia Voting Representation in Congress: An Analysis of Legislative Proposals, by Eugene Boyd, esp. pp. 19-20., for a complete discussion.

[^1]:    ${ }^{2}$ The figures in Table $\mathbf{2}$ 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."

