October 15, 2021

Janet Roberson
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Delaware General Assembly
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Dear Ms. Roberson:

Enclosed please find our final report for the Delaware 2020 Census Prisoner Adjustment project.

Sincerely yours,

Robert Freimer, Ph.D.
Director, Database Development

DELAWARE 2020 CENSUS PRISONER ADJUSTMENT

FINAL REPORT

Prepared for the Delaware General Assembly

October 15, 2021

Prepared by:

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This document constitutes the final report for the work performed by Caliper Corporation for the Delaware 2020 Census Prison Adjustment. The goal of this project was to adjust the 2020 Census PL 94-171 data for Delaware to account for the prison population as required by Delaware State Law.

This adjustment was made for the inmates housed by the Delaware Department of Correction (DOC). In-state prisoners with good home addresses were moved from the Census Block containing their prison to their home Census Block. In-state prisoners with unusable home addresses were left at their prison Census Block. Out of state prisoners were dropped from their prison Census Block.

Inputs

The following inputs were used for this project:
- *Redistricting Data TIGER/Line 2020PL with 2020 PL 94-171 Data* from Caliper – This contains the boundaries for various levels of Census geography in a format compatible with Maptitude for Redistricting. Each boundary file contains all the 2020 PL data comprised of the following tables:
    - P1: *Race*
    - P2: *Hispanic or Latino, and Not Hispanic or Latino by Race*
    - P3: *Race for the Population 18 Years and Over*
    - P4: *Hispanic or Latino, and Not Hispanic or Latino by Race for the Population 18 Years and Over*
    - P5: *Group Quarters Population by Major Group Quarters Type*
    - H1: *Occupancy Status*
- *DeptOfElections-SB171-IncarceratedData-Final(Additional Columns).xlsx* from DOC and DOE – Address, geocoded coordinates, race, age, and out of state status for the 4,748 DOC inmates. The locations of in-state prisoners were geocoded by the Delaware Department of Elections (DOE) with Maptitude for Redistricting.

Outputs

PL 94-171 Tables P1: *Race* and P3: *Race for the Population 18 Years and Over* were adjusted for Delaware. The data were created as an updated version of *Redistricting Data TIGER/Line 2020PL with 2020 PL 94-171 Data* with additional data fields containing the adjusted P1 and P3 counts. These new fields are added to the following Census geographic layers:
    - American Indian Reservations
    - Census Blocks
    - Census Block Groups
    - Census Places
    - Census Tracts
    - Combined Statistical Areas
    - Congressional District
    - Core Based Statistical Areas
    - Core Based Statistical Area Divisions
    - Counties
    - County Subdivisions
    - State
    - State House Districts

- State Senate Districts
- Unified School Districts
- Voting Districts

DOC Inmates

Caliper received a list of DOC prisoners that had been processed by the Department of Elections, including the addition of geographic locations. The list originated from a file provided by DOC as of April 1, 2020.

It was necessary to handle in-state and out of state prisoners separately for this project. The goal was to adjust the PL 94-171 counts, so that in-state prisoners are counted at their last known home address and out of state prisoners are excluded so that they are not counted at all. It was only possible to reassign in-state prisoners when a good home address was provided that could be geocoded to a location. The remaining in-state prisoners were left at their DOC facility.

The file provided by DOE had the information needed to separate the prisoners into three categories for this project:
1. In-state prisoners with good geocoded home addresses: These could be identified with a "Inmate Previous Address" value in the GeocodedAddressType field. There were 3,761 such prisoners to be moved, after 4 prisoners (RowNo: 670, 2055, 3055, 3400) were reassigned by Caliper to category 2, since their previous address was another DOC facility.
2. In-state prisoners without a good geocoded home address: These were geocoded to the DOC facility and cannot be moved. They can be identified with a "Correctional Facility" value in the GeocodedAddressType field. They will be excluded from our adjustment process. There were 637 such prisoners to be left at their DOC facility.
3. Out of state prisoners: These could be identified with an "Out-of-State" value in the GeocodedAddressType field and will be removed from their assigned facility and from the population totals. There were 350 out of state prisoners to be dropped.

All category 1 prisoners were assigned a home Census Block by tagging their home location with the Census Block that contains the point. This was performed by using Maptitude for Redistricting with the 2020 Census TIGER/Line files. All coordinates are in longitude-latitude (NAD83), as provided by DOE and the Census Bureau. One prisoner (RowNo: 187)'s home block was adjusted across the road by Caliper, since it should not be in a prison facility block (100050505051048) and further research showed that was the correct location.

Both category 1 and 3 prisoners were assigned a facility Census Block. The next sections details how that block was assigned to each active DOC facility.

In order to adjust the racial components in the PL 94-171 tables, each prisoner was assigned to one of four races:
- Black
- White
- Asian
- Other Race

The DOC file uses the following categories for race:
- BLACK
- WHITE
- ASIAN OR PACIFIC ISLANDER
- UNKNOWN

ASIAN OR PACIFIC ISLANDER (6 inmates) was mapped to Asian, since there are very few Pacific Islanders in Delaware compared with Asians. Two facility blocks (100030169041048, 100030152005020) had neither Asian nor Hawaiians/Pacific Islander population; instead the mixed-race categories: Asian-Hawaiian and White-Asian were used for the excess (3 & 1 inmates respectively).

UNKNOWN (1 inmate) and the one record without any race were mapped to Other Race. One facility block (100050505051048) had insufficient Other Race population for the adjustment; the mixed-race White-Other Race category was used for the excess (1 inmate).

Whether each prisoner was of voting age (18+) was determined as of April 1, 2020 based on their birthdate by DOE.
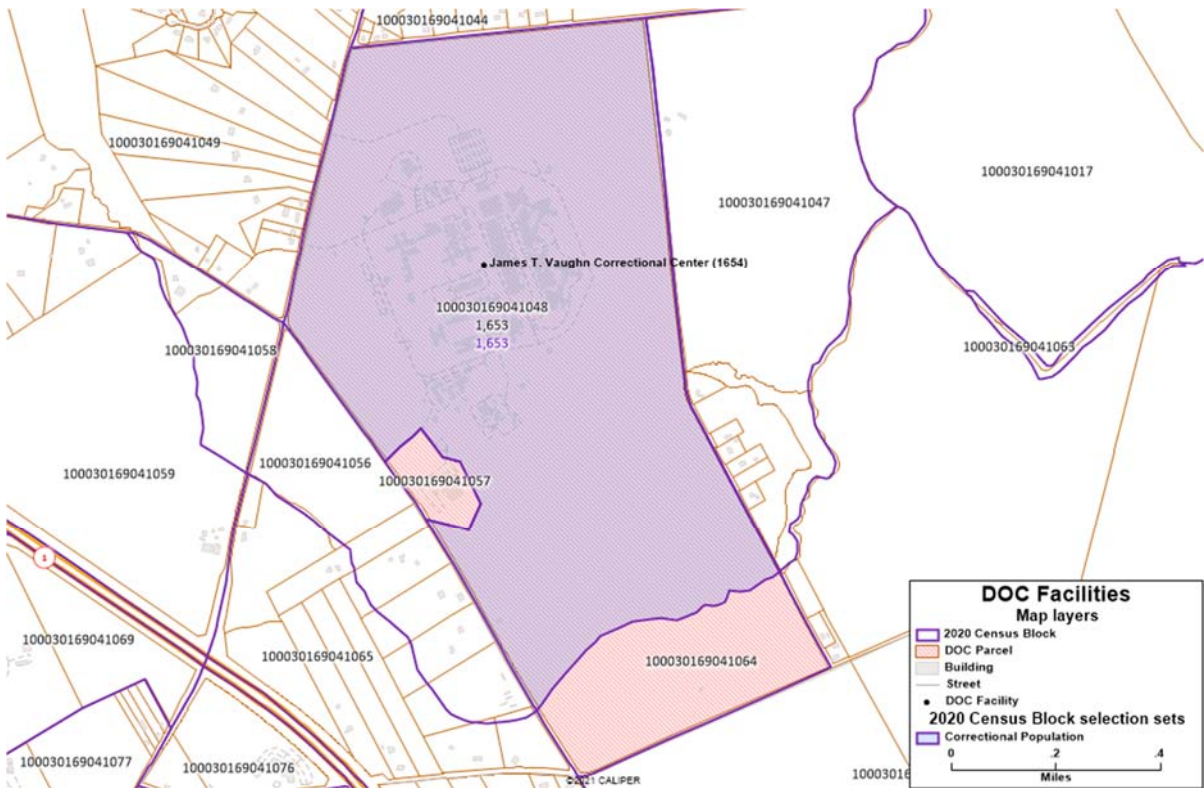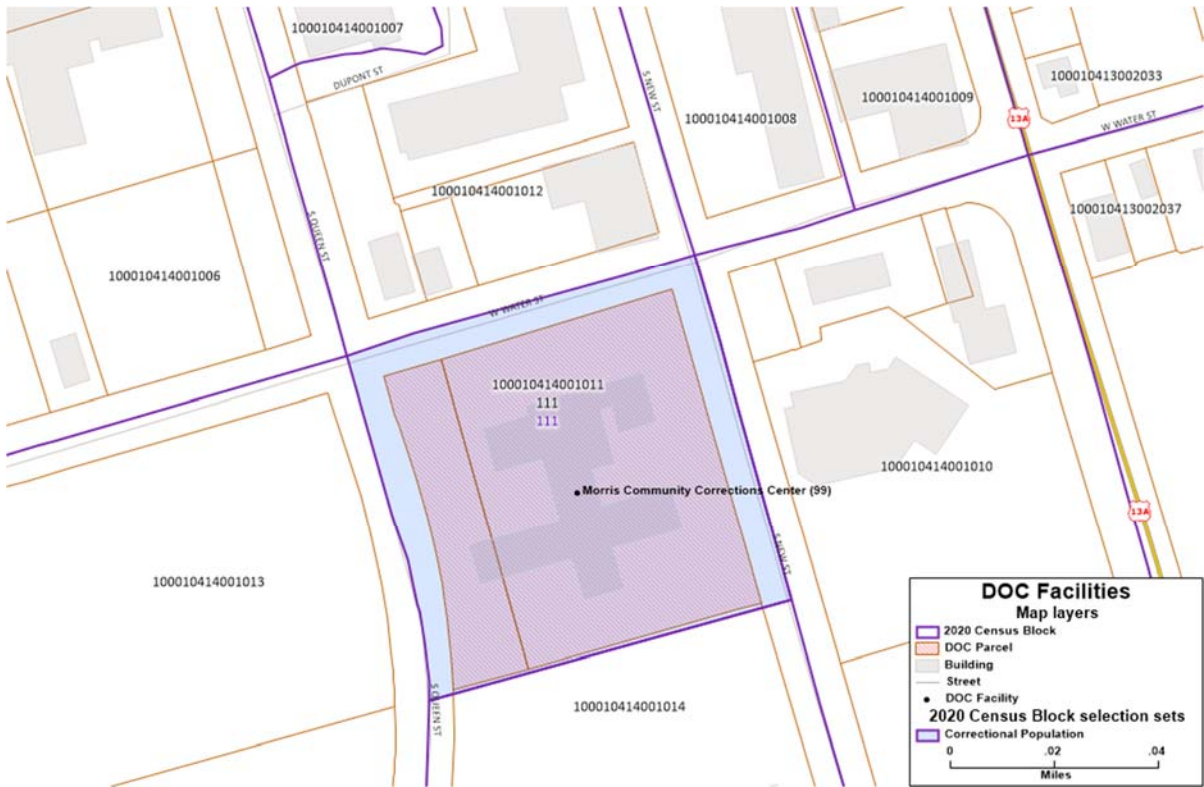
DOC Facilities

The inmate file contained 8 DOC facilities and included their locations for the In-State Remaining prisoners. Each geographic location was verified by Caliper using the best available public sources; no changes were required to any location.

The number of DOC prisoners assigned to each facility was tallied, using the Facility field in the prisoner file.

The following table lists the active DOC facilities with their prisoner populations. The following maps show their locations. Their prison Census Blocks are shown in a pale blue with both their overall and correctional populations for 2020. The state owned parcels are shown with red hatching. Processing notes are also included where appropriate.

Table 1: Active DOC Facilities

Facility	Facility Name	Block	Adjacent Block	Inmates	In-State Moved	In-State Remaining	Out of State
BWCI	Baylor Women's Correctional Institution	100030152005020		235	204	15	16
HDP	Hazel D. Plant Women's Treatment Facility	100030152005020		72	10	62	0
HRYCI	Howard R. Young Correctional Institution	100030030021024		1,281	1,096	86	99
JTVCC	James T. Vaughn Correctional Center	100030169041048		1,654	1,277	234	143
MCCC	Morris Community Corrections Center	100010414001011		99	82	14	3
PCCC	Plummer Community Corrections Center	100030006011011		147	49	98	0
SCCC	Sussex Community Corrections Center	100050505051053	100050505051051	223	175	39	9
SCI	Sussex Correctional Institution	100050505051048		1,037	868	89	80
	Total			**4,748**	**3,761**	**637**	**350**

Map 1 — DOC Facilities (Morris Community Corrections Center)

100010414001007

DUPONT ST

100010414001008

100010414001009

100010413002033

13A

W WATER ST

100010414001012

100010413002037

100010414001006

S NEW ST

S QUEEN ST

W DIVER ST

100010414001011
111
111

100010414001010

Morris Community Corrections Center (99)

100010414001013

100010414001014

DOC Facilities
Map layers
2020 Census Block
DOC Parcel
Building
Street
DOC Facility
2020 Census Block selection sets
Correctional Population
0   .02   .04
Miles

Map 2 — DOC Facilities (James T. Vaughn Correctional Center)

100030169041044

100030169041049

100030169041047

100030169041017

James T. Vaughn Correctional Center (1654)

100030169041048
1,653
1,653

100030169041058

100030169041063

100030169041059

100030169041056

100030169041057

1

100030169041069

100030169041065

100030169041064

100030169041077

100030169041076

10003016

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DOC Facilities
Map layers
2020 Census Block
DOC Parcel
Building
Street
DOC Facility
2020 Census Block selection sets
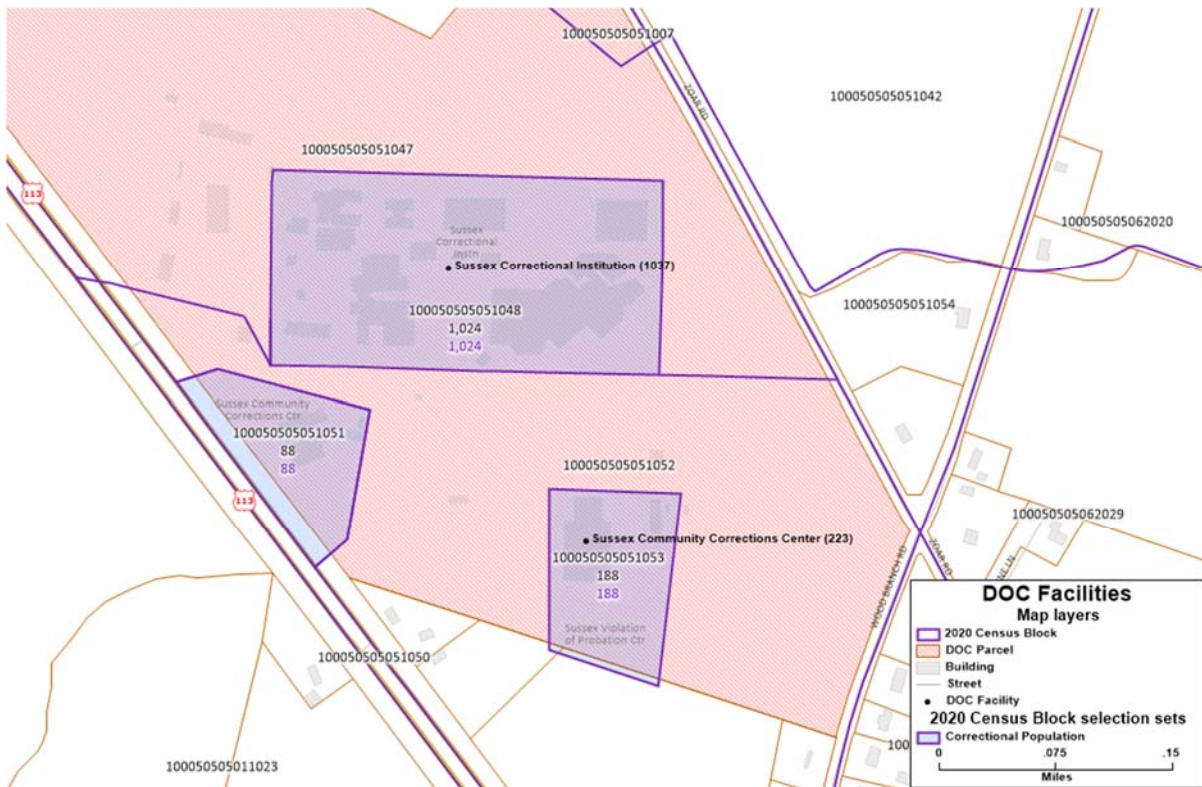Correctional Population
0   .2   .4
Miles

Hazel D. Plant Women's Treatment Facility was assigned to Census Block 100030152005020, since its own Census Block 100030152005015 had zero correctional population.
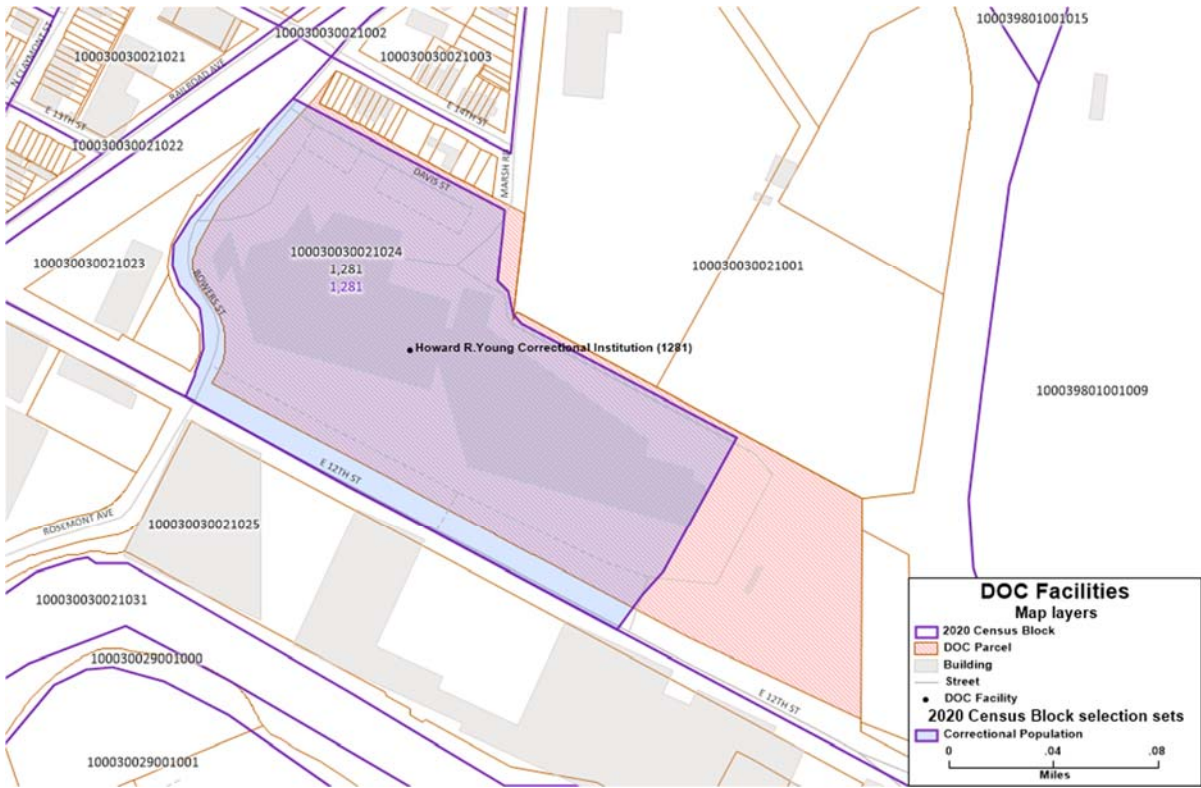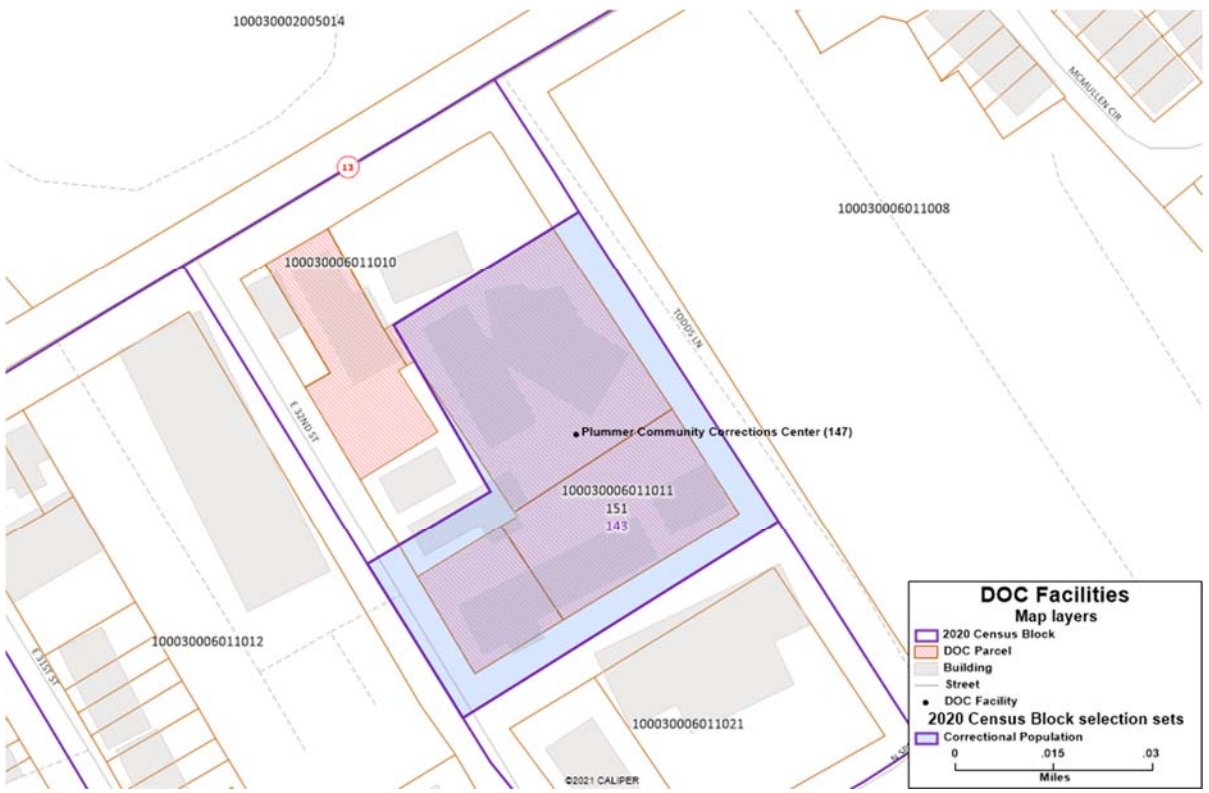
Sussex Community Corrections Center was assigned to two blocks: 100050505051053 (Primary) & 100050505051051, since both have a correctional population and TIGER/Line indicates they are both divisions of that center (Sussex Violation of Probation Ctr & Sussex Community Corrections Ctr). The population was combined into the primary block, with block 100050505051051 zeroed out.

Adjusting the PL 94-171 Counts

The following procedure was used to adjust the 2020 PL 94-171 data. Only Tables P1: *Race* and P3: *Race for the Population 18 Years and Over* were adjusted for Delaware. No Hispanic origin information was provided for prisoners, so it is impossible to update Tables P2 and P4 accurately. Table H1 contains housing unit details and P5 contains Group Quarter populations and neither are impacted by this project.

1. Tabulate the number of category 1 and 3 prisoners by race for each of the 7 Census Blocks associated with the active DOC facilities. These prisoners will be removed from the blocks listed in Table 2.
2. Tabulate the number of category 1 prisoners by race for each of the 2,336 Census Blocks associated with prisoner home addresses. The prisoners will be added to these Census Blocks.
3. Using the tabulation from step 2, add the additional population to the 2,336 Census Blocks. This adjusts the racial components in each table along with any fields that depend on them, such as the overall population and the number of people identifying themselves as having a single race.

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Table 2: Census Blocks with DOC Facilities and the Inmates to be moved

Census Block	Facility	In-State Moved	Out of State	Total Moved	White	Black	Asian	Other Race	White Asian	White Other Race	Asian Hawaiian
100010414001011	MCCC	82	3	85	40	45	0	0	0	0	0
100030006011011	PCCC	49	0	49	12	37	0	0	0	0	0
100030030021024	HRYCI	1,096	99	1,195	384	810	0	1	0	0	0
100030152005020	BWCI, HDP	214	16	230	138	91	0	0	0	0	1
100030169041048	JTVCC	1,277	143	1,420	476	941	0	0	1	0	2
100050505051048	SCI	868	80	948	447	500	0	0	0	1	0
100050505051053	SCCC	175	9	184	65	119	0	0	0	0	0

4. Using the tabulation from step 1, remove the population from the 7 Census Blocks. This adjusts the racial components in each table along with any fields that depend on them.
5. SCCC is associated with two Census Blocks. Combine the adjusted PL 94-171 counts from block 100050505051051into that of block 100050505051053, zeroing out block 100050505051051.
6. For each block adjusted by steps 3-5, mark an indicator field (Adjusted) as follows:
   - C – All population combined into a nearby block with a DOC facility. This block has been zeroed. This only applies to one block in Sussex County (step 5)
   - F – Prisoners moved from a DOC facility in the Census Block (step 4)
   - H – Prisoners added to their home address in the Census Block (step 3)
7. Add all the fields for the adjusted PL 94171 Tables P1 and P3 to the Delaware Census Block layer, prepending the adjusted fields with "Adj_".
8. Aggregated these new fields to all the higher levels of Census geography listed in the Outputs section.

No Census Blocks ended up with a negative overall population. Three initially had negative Asian or Other racial components in their adjusted data before they were assigned to a biracial category instead. They are listed in the Table 3; the yellow shaded cells initially were negative. The negative racial components arise from both differential privacy and the different classifications of race used by Census and DOC.

Starting with the 2020 Census, the US Census Bureau is using differential privacy in their disclosure avoidance system to prevent the reidentification of individuals. It adds noise to counts and only holds invariant: the total population by state, and the number of housing units and number of group quarters facilities by type at the Census Block level. Everything else, including the correctional population and the racial components have some uncertainty at every geographic summary level.

Since the 2000 Census, the US Census Bureau has allowed people to check one or more categories. DOC only reports four categories and collects this information independently of the Census. This creates a mismatch since only single race fields are primarily used by our adjustment.

Table 3: Census Blocks with an Initial Negative Adjusted Racial Components

Census Block	Adjusted Population	Adjusted White	Adjusted Black	Adjusted American Indian	Adjusted Asian	Adjusted Hawaiian	Adjusted Other Race	Adjusted White Black	Adjusted White Asian	Adjusted White Other Race	Adjusted Black Other Race	Adjusted Asian Hawaiian	Adjusted White American Indian Other Race
100030152005020	75	41	25	0	0	0	0	2	0	0	2	4	1
100030169041048	233	84	130	2	0	0	0	4	3	9	0	0	1

Summary

Caliper adjusted the 2020 PL 94-171 Tables P1 and P3 for Delaware to account for the prisoner population as required by Delaware State Law. 2,344 Census Blocks were adjusted. The adjusted data are available in a format compatible with Maptitude for Redistricting 2021.