## DEPARTMENT OF COMMERCE Bureau of the Census Washington

# CENSUS TRACTS IN AMERICAN CITIES (Census Tract Manual)

A Brief History of the Census Tract Movement, with an Outline of Procedure and Suggested Modifications

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Revised Edition

Origin and history of the census tract. --More than 30 years ago Dr. Welter Laidlaw, working with population statistics in New York, became convinced that in order to study neigh-borhoods it was absolutely necessary to have population data for local areas smaller than boroughs or wards, and to establish these ensus to census. To him, therefore, goes the credit for initiating the idea of the census tract, or, as he called it, the "sanitary dis-trict." became convinced that in order to study neigh-

In current practice the census tracts are small areas, having a population usually between 3,000 and 6,000, into which a city is subdivided, more or less arbitrarily, for statistical and local administrative purposes. The tracts are permanently established, so that comparisons may be made from year to year and from sensus to census; they are laid out lation and with some regard for uniformity in size; and each is designed to include an area fairly homogeneous in population characteristics. In cities where the word later of the cities where istics. In cities where the ward lines are infrequently changed, the tracts form subdivisions of the wards; in other cities they are laid out without regard to the ward boundaries,

Prior to the census of 1910, Dr. Laidlaw divided the city of New York into 40-acre tracts, arranged for the tabulation of census data for these areas, and persuaded the Bureau of the Census to extend the plan of tract tabof the Census to extend the plan of tract tab-ulations to the 7 other cities having at that time a population of 500,000 or more. These cities were Chicago, Philadelphia, Cleveland, St. Louis, Baltimore, Boston and Pittsburgh, While the tabulation was made by tracts for these 7 cities, no immediate use was made of the figures except for New York City.

The 1920 census data were likewise tabulated by tracts for the same list of cities. The figures for New York were taken off shortly after the completion of the tabulation, and were published by Dr. Laidlaw. In 1925. Dr. Ernest W. Burgess became interested in the chicago tract tabulations and made arrangements for taking off the figures for both 1920 and 1910. These figures were published in 1931. In 1926, Mr. Howard Whipple Green made arrangements to obtain the tract tabulations for Cleveland, obtaining the data likewise for both 1920 and 1910, and supplementing the tract figures for the city of Cleveland with certain data for adjacent areas. These fig-ures were published in 1927. Between 1927 and 1930 several other cities became interested in the census tract idea to the extent of laying out tentative tracts and obtaining the approval of these tracts from the Director of the Cansus.

The census tracts were laid out in each of these cities by a committee representing local organizations and working in cooperation with the Bureau of the Census. These committees also undertook to provide funds for paytees also undertook to provide funds for paying the cost of the extra work involved imaking the tabulation of the data by tracts, rather than by wards or for the city as a whole, and in compiling the tract data for publication. The new cities added to the list were Los Angeles, Buffalo, Washington, Cincinnati, Indianapolis, Columbus, Nashville, Berkeley, Syracuse, and Yonkers, the last two being added at the solicitation of Dr. Laidaw exther then through the interest of any local rather than through the interest of any local organization.

Selected items from the 1930 population census were therefore tabulated by tracts for 18 cities. In a few of the cities the local organizations lost interest in the data or found themselves unable to raise the funds necessary to pay the cost of making up the fi-nal tables; but organizations or individuals ned tables; but organizations or individuals in most of the cities obtained from the Bureau of the Census all or a considerable part of the statistics covered by the special tract tabulations. In many of these cities arrangements were made to publish the tract statistics; and in the others copies have been made tics; and in the others copies have been made available to local organizations having need

Since 1930 36 cities have been laid out Since 1950 to civies have been that the intracts, and a few more are under consideration. The statement on the next page indicates what data have been furnished to those ation. The statement on the next page indi-cates what data have been furnished to those cities which were on the tract list in 1930, and to a few which have received limited 1930 data through special tabulations for tracts laid out since that date; and gives certain information about the cities whose tracts have been approved more recently.

City	No. of Average		Year tracts	1930 co data by tra	census	Street by tr	ects street		Name and address
	census tracts			Tables obtained	Copies made	Avail- able	Form	pub- lished	of key person
Akron, Ohio	57	4,474	1935	12	-	Yes	-	Yes	Dr. H. O. DeGraff University of Akron
itlanta, Ga	75	3,605	1936	-	-	Yes	Print-	Yes	Frank K. Shaw Chamber of Commerce
tlantic City, N.J.	23	2,878	Pending approval	-	_	Yes	On cards	-	V. H. Paulsen State Housing Authority, Eswark
Saltimore, Md	157	5,127	1910 Rev.1926 and 1935	1 & 2 %	2	Yes	Mimeo	In proc-	W. Thurber Fales City Health Department
Berkeley, Calif	6	13,685	Prior to	1-11			-	-	Carl L. Alaberg Stanford University
irmingham, Ala	52	4,994	Pending approval		_	In proc- ess	-	In proc- ess	Judson D. Dowling City and County Health Department
Boston, Mass	128	6,103	1910 Rev. be- fore 1930	1-11	15	Yes	Print-	Yes	Mary A. Clapp Council of Social Agencies
Buffalo, N. Y	72	7,959	Before 1930	1-11	18	Yes	Mineo	Yes	Sara Kerr Buffalo Foundation
amden, N. J	24	4,946	Pending approval	-	-	<b></b>	-		V. H. Paulsen State Housing Authority, Newark
hicago, Ill	935	3,611	1910 Rev. be- fore 1930	1-11	300	Yes	Print- ed	_	Ernest W. Burgess # Univ. of Chicago
incinnati, Ohio	107	4,216	1929	1-11	4	Yes	Mimeo	-	Earle Eubank Univ. of Cincinnati
leveland, Ohio	206	4,371	1910	1-11*	1,000	Yes	Print- ed	Yes	Howard Whipple Green Cleveland Health Council
olumbus, Ohio	55	5,283	Before 1930	1-11	700	Yes	Mimeo	-	Mary Louise Mark Ohio State Univ.
illas, Tex	57	4,570	1935		-	Yes	Mimeo	-	Walter T. Watson Southern Methodist University
ayton, Ohio	53	3,792	1936	-	-	Yes	Mimeo	-	Harold E. Winey Dayton Bureau of Community Service
enver, Colo,	44	6,542	1935	-	-	Yes	Type- writ- ten	-	F. L. Carmichael Univ. of Denver
etroit, Mich	369	4,251	1935	(#)	-	Yes	Print- ed	-	Lent D. Upson Detroit Bu. of Governmental Res.
uluth, Minn,	38	2,670	1935	(#)	_	Yes	Type- writ- ten	Yes	Calvin F. Schmid Univ. of Minnesota, Minneapolis
Clizebeth, N. J	21	5,457	Pending approval	-	_	-	-	-	V. H. Paulsen State Housing Authority, Newark
lint, Mich	41	3,817	1936	-	_	Yes	Mimeo	-	E. S. Guckert Flint Community Fund, Inc.
Hartford, Conn	41	4,002	Pending approval	-	-	-	-	-	Russell E. Davis Council of Social Agencies
Indianapolis, Ind.	107	3,403	Before 1930	1-11	200	Tes	Print-	Yes	Raymond Clapp Indianapolis Com- munity Fund

		1		1930 c	ensus	T		1	
	No of	f Average s popula- s tion per tract	Year tracts laid out		census		t index	Tract	Name and address
City	census				Copies	<del> </del>	-	map pub- lished	of key person
Jersey City, N. J	63	5,027	Pending approval	-		ca	-	-	V. H. Paulsen State Housing Authority, Newark
Kenses City, Mo	92	4,345	1934		-	Yes	Type- writ- ten	-	Edward W. Harding Civic Research Institute
Long Beach, Calif	26	5,463	Pending approval		-	-		data	Guy E. Marion Chamber of Commerce Los Angeles, Calif.
Los Angeles, Calif.	115	10,765	Before 1930	9-11**	-		-	-	Guy E. Marion Chamber of Commerce
Louisville, Ky	69	3,458	1935		-	Yes	Mimeo	Yes	H. W. Alexander City Planning & Zoning Commission
Macon, Ga	.18	2,991	Pending approval	-	ALL	**	-	-	Frank K. Shaw Chamber of Commerce Atlanta, Ga.
Memphis, Tenn	50	5,063	Since 1930	(***)	_	-	-	_	-
Milwankee, Wis	158	3,779	1935	<b>Cab</b>	-	In proc- ess	-	-	Richard E. Krug Municipal Reference Library
Minneapolis, Minn	121	3,838	1934	(#)	-	Yes	Print-	Yes	Calvin F. Schmid Univ. of Minnesota
Mashville, Tenn	167	921	Before 1930	1,6,7,9,	3	Yes	Mimeo	-	E. T. Krueger Vanderbilt Univ.
Newark, N. J	98	4,514	Pending approval	-	-	-	-	-	V. H. Paulsen State Housing Authority
New Haven, Comm	33	4,929	Since 1930	(***)		Yes	Mimeo	Yes	J. H. Watkins Yale School of Medicine
New Orleans, La	1.33	5,449	1935	-	**	Yes	Card index	No	Harlan W. Gilmore Tulane University
Hew York City	<b>34</b> 31.	8,020	1910	1-4,7,9, 10 & pt. of 11	1,000	Yes	Print-	Health areas	Neva R. Deardorff Welfare Council of MS haw York City
Oakland, Calif	72	3,945	1935	-	-	Yes	-	Yes	Raynor E. Anderson Chamber of Commerce
Paterson, S. J	38	4,529	Pending approval	_	-	-	-		V. H. Paulsen State Housing Authority, Newark
Philadelphia, Pa	404	4,829	1910 Rev. be- fore 1930	1-3,8-11	10	Yes	Print- ed	No.	Merrill A. Kercher Bell Telephone Co. of Pennsylvania
Pittsburgh, Pa	198	3,477	1910 Rev. be- fore 1950	1-11	500	Yes	Print-	Yes	Ralph Carr Fletcher Bureau of Social Research
Providence, R. I	49	5,163	1935	11/2	-	Yes	Mimeo		Robert E. Faris Brown University
Richmond, Va	47	5,892	1935	-	-	Yes	Not print- ed	Yes	Miriam H.Dettelbach Richmond Council of Soc. Agencies
Rochester, N. Y	86	3,729	1935	-	-	Yes	Mimeo	-	C. Luther Fry Univ. of Rochester
St. Louis, Mo	128	6,422	1910 Rev.1926	1-11	50	Yes	Print-	-	Roy Wenzlick Real Estate
# 10664	•	•		1	ı	,	. 1	ļ	Analysts, Inc.

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	No. of Average			1930 census data by census tracts		Street index by tracts		Tract street	Name and address	
		tion per tract	tracts laid out	Tables obtained	Copies made	Avail- able	Form	map pub- lished	of key person	
St. Paul, Minn	76	3,574	1934	(#)	-	Yes	Print- ed	Yes	Calvin F. Schmid Univ. of Minnesota Minneapolis, Minn.	
San Francisco, Calif.	118	5,376	1935	•	-	Yes	Print- ed	***	R. B. Koeber Chamber of Commerce	
Savannah, Ga	31	2,743	Pending approval	-		-	-	-	Frank K. Shaw Chember of Commerce Atlanta, Ga.	
Seattle, Wash	79	4,628	1935	mrò .	-	Yes	Type- writ- ten	•	Norman S. Hayner Univ. of Washington	
Syracuse, N. Y	61	3,432	Before 1930 Rev.1936	1,2(pt) 3,7,9,10	140	Yes	Mimeo	-	W. C. Lehmann Syracuse University	
Toledo, Ohio	55	5,286	1935	-	-	Yes	Type- writ- ten	Yes	Charles E. Hatch City Planning Com- mission	
Trenton, N. J	. 22	. 5,607	1936		_	en.	-	-	V. H. Paulsen State Housing Authority, Newark	
Washington, D. C	96	5,072	Rev. in 1935 and 1937	(##)	-	Yes	Mimeo	Yes	Grete Falk Wash. Council of (130) Social Agencies 2003	
Yonkers, N. Y	79	1,704	Before 1930	-	-	-	-	-		

 <sup>%</sup> Also special table - size of family, children under 10 years, value and rental of non-farm homes by color and nativity of head - all for the 78 tracts of the 1926 revision.
 \* Tables 9, 10, and 11 published for entire Metropolitan District and Cuyahoga county.
 # No tract tabulations, but table 1½ for 1930 enumeration districts.
 \*\*\* Special compilation of family data only, made for M. L. Applegate of Hearst Newspapers,
 Seattle, Washington.
 \*\*\* Tracts same as wards. Table 1½ printed in Vol. III of 15th Census Reports on Population.
 ## Table 1½ for new tracts. Data for old tracts (30) published in Vol. III of 15th Census Reports on Population.

Possible additions to tract city list. There are still 2 cities of more than 250,000
population - Houston, Texas, and Portland,
Oregon - for which definite arrangements for
tract subdivisions have not yet been made.
Such arrangements, however, may be perfected
before the 1940 Census. Another city, Augusta,
Georgia, is also considering tract subdivisions.

Census tracts in suburban areas. - Except in the case of Cleveland where the regular series of census tracts was extended to cover several adjacent suburban cities, the tract tabulations have been confined to the corporate limits of the city concerned, though supplemental data for the available political subdivisions in certain adjacent territory were furnished in the cases of St. Louis, Indianapolis, Pittsburgh, and Columbus. Unless the use of census tracts is thoroughly established in the current statistical work of the city, it seems hardly fitting that the Eureau of the Census be requested to expend the additional effort necessary to prepare the special tabulations even at the expense of the local community.

Enumeration districts. - Incidentally, it may be said that certain fundamental population characteristics were tabulated in 1930 for enumeration districts, that is, for the relatively small areas (population 1,500 to 2,000), into which every city or county is subdivided for the purpose of making the census count. In cutlining the enumeration districts every political unit, whether incorporated place, township, or election district, is kept separate, each being made up of one or more enumeration districts. From this tabulation, which shows sex, color and nativity, age, and number of families, it is possible to furnish these statistics at any time for any of the areas referred to above or for the enumeration districts themselves. Much use has been made of the results of this tabulation, especially for cities not laid out in tracts, and it is quite probable that the tabulation by enumeration districts may be expanded at the next census to include more population characteristics. These figures cannot be used for comparisons between one census and the next, however, as no attempt is made by the Census Bureau to keep the enumeration districts constant from one census to another, changes being made at each census in order that the new enumeration districts may be as nearly uniform in population as possible.

Method of laying out tracts. - The census tracts should represent areas of a convenient size and conformation for the presentation of statistics, for the compilation of local records, and for administrative purposes. The size of the tracts will necessarily vary in different parts of the city, but the areas should be laid out so that no tract in the built-up part of the city will ever have a population appreciably greater than 8,000. On the other hand, no tract should ordinarily have a population less than 3,000, since the various classifications cannot be well shown for numbers that are too small, nor can satisfactory rates be computed for unduly small aggregations of population. In sparsely settled sections of the city which are expected ultimately to increase considerably in population, the tracts may include relatively large areas, even though it may be necessary to subdivide these areas at some future time, after the population increase has materialized.

In shape the tracts should be compact, with some regard for consistency and uniformi-

ty. The length should ordinarily not be more than three times the width.

It is important that the boundary lines of the tracts which are established should be definite. These boundary lines should crdinarily be the centers of streets, though rivers, and possibly railroad tracks, where the latter form a definite and permanent dividing line between one section of the city and enother, may be used where occasion requires. So far as practicable, each tract should contain a population reasonably homogeneous both as to racial characteristics and as to economic status or type of living accommodations, though it is recognized that such homogeneity may not be maintained as decades go by. In any case, one tract should not contain areas widely dissimilar. It would be unfortunate, for example, to have a part of a census tract located on a high hill and the remainder in a valley, since this would render needlessly difficult the use of the tract as an administrative district by the health department, the board of education, or others.

The physical starting point for laying out tracts in a given city is a map of the city drawn on a fairly large scale, say 400 feet to the inch, showing, of course, the names of all the streets, and preferably, the numbers in each block. A copy of the map of the city showing enumeration districts used in 1930, which may be obtained from the Census Bureau, will be of service in many respects. It may be possible to lay out some of the tracts so that they will be made up of groups of the 1930 enumeration districts, in which case it will be possible to obtain a limited amount of 1930 data which will be useful for comparison with the figures obtained at the next census. No attempt should be made, however, to have the census tracts conform to existing enumeration districts at a sacrifice to well formed census tracts. The figures available for the 1930 enumeration districts include the number of families and the population classified by sex, by color and nativity, and by age.

It will be desirable to study copies of all recent city maps, on whatever scale they may be drawn, especially maps showing the characteristics of different parts of the city area, such as property values, and the location of parks, cemeteries, railroad property, industrial establishments, retail stores, and apartment houses. City maps may often be secured not only from the city engineer's office or the official planning commission, but also from social agencies, academic research departments, and commercial sources.

Cooperation. - The work of establishing tracts in a city and making provision for their use in the compilation of local data includes three more or less distinct processes. The first, which is the most important and usually the most arduous, consists in getting together representatives of the different organizations which are likely to find the tract data useful and reaching some agreement as to the actual subdivisions which will serve the various purposes represented. If active perticipation of a number of organizations in this part of the work can be secured, it will doubtless be necessary to effect a good many compromises as between the needs of one organization and those of another. This work should be assigned to some person with a considerable degree of tact and diplomacy and one who has himself a rather wide knowledge of conditions in the city and of the work of the various interested organizations. The satis-

ractory working out of this process is likely to consume a considerable amount of time, and under ordinary circumstances no attempt should be made to hasten it unduly, since such haste may result in tract subdivisions that will later prove to be unsatisfactory. Of the 18 cities on the tract city list in 1930, 5 have been obliged to revise their tracts because they proved unsatisfactory.

Preparation of tract map. - The second stage of the work is the actual preparation of the map showing the proposed tract boundaries, for submission to the Eureau of the Census. This map should show also all streets, parks, cemeteries, railroads, etc. The city engineer's office or the city planning commission will frequently be in a position to render valuable assistance in the preparation of the map.

Street index. - The third stage of the work, to be undertaken only after the tract map has been approved by the Census Bureau, is the preparation of a street index. This index shows the tract in which any street number is located and is used for allocating by tracts such items as births, deaths, cases of contagious disease, cases of juvenile delinquency, and various kinds of business data, which are available by street address.

As the first step in constructing this index, a card should be made up for each street, avenue, boulevard, or other thoroughfare, and the range of the numbers within each consus tract listed on the card against the census tract designation. In the case of a street which forms the boundary between two tracts, it should be clearly indicated in which tract the even numbers fall and in which tract the odd numbers. The street index is made up from these cards arranged in alphabetical order. A suggested form, indicating the method of distinguishing between the odd end even numbers for the boundary streets, is as follows:

This material can be printed in narrow columns, 4 or 5 columns to the page. In using the index it will be assumed that where there is no designation as "Even" or "Odd", all the numbers within the range indicated go into the specified tract.

Uses of census tract data. - The census figures as presented for a city divided into tracts provide material in themselves for a social or sociological analysis of the population which would be impossible without this detailed geographic presentation. These figures are also used directly in many ways both by city departments and welfare organizations and by commercial concerns, such as newspapers, utility companies, and selling organizations. Their greatest value, however, is probably brought out when they are made to serve as a background for material collected locally, such as the records of deaths, contagious diseases, juvenile delinquency, etc. When it is shown, for example, that the death rate from tuberculosis in a given tract or group of tracts is four or five times as high

as in other parts of the city, this fact can be related to physical conditions existing in the high-rate area. The treats are also invaluable under present conditions in compiling statistics of unemployment, relief, and other emergency activities.

The wide range of usefulness of the trace data is indicated by the following statement which lists the different organizations and concerns which have made actual use of tract data in one or more of the existing tract cities:

## State, county, and city government:

Child welfare boards; city councils; city planning commissions; committees on unemployment; county tax assessor's offices; fire departments; housing commissions; juvenile courts; police departments; recreation commissions; safety departments; public welfare departments; State commissions on probation; State commissions on unemployment insurance.

#### Educational:

Art museums; boards of education; bureaus of business and social research; theological schools: universities.

#### Social Welfare:

Associated charities and other relief organizations; big brothers and sisters organizations; boy scouts; councils of social agencies and welfare federations; community funds and chests; girl scouts; humans societies; settlements; Y.M.C.A's; Y.W.C.A's.

#### Health:

City health departments; health councils, federations, and leagues; hospitals; tuberculosis associations; visiting nurse associations.

### Miscellaneous, private and civic:

Chembers of commerce; federations of churches and local churches; foundations; housing associations; institutes for juvenile research; national council of religious research; public libraries; real estate boards; real property inventories; regional planning associations.

#### Commercial:

Advertising companies; banks; chain drug and grocery stores; concerns selling Real estate, automobiles, tires, radios, gasoline and cil, vacuum cleaners, refrigerators, washing machines, milk; house-to-house sales organizations; insurance companies; newspapers; utility companies, including electric, gas, telephone, and street railway.

Census data furnished by tracts. - From the 1930 census, eleven standard tract tables were furnished. The content of these tables to the titles, which are as

- 1. Population by color, nativity, sex, and
- la.Population by color and nativity, by sex, and by age (not in correlation)

  2. Foreign-born white population by country of birth and sex
- 5. Native white population of foreign or mixed parentage, by country of birth of parents and by sex

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- 4. Population 21 years of age and over by color, nativity, and sex
  5. Foreign-born white population 21 years
- of age and over by citizenship and
- 6. Population 10 years of age and over by color, nativity, and illiteracy
  7. Population 15 years of age and over by
- color, nativity, sex, and marital condition
- 8. Gainful workers 10 years of age and over, by industry groups and sex 9. Families by color and nativity of head,
- and by size
- 10. Homes by tenure and value or monthly rental
- 11. Families, radios, dwellings, and quasi-family groups

Simpler tabulations recommended. - It is believed, however, that a much briefer presentation than this will serve the outstanding requirements in most cities, and it is proposed to adopt for the next census a much simpler tract tabulation - preferably one which will require only one run of the cards by tracts in place of the four runs which were made for most of the cities in 1930. Four tables, for which outlines are given below, are submitted for consideration, as follows:

- 1. Age (17 periods) by sex, color, and
- nativity
  2. Foreign-born white by country of birth
  3. Families by tenure of home, color, and
- nativity
  4. Families by equivalent rental of home, color, and nativity

These tables are made on the assumption that the family data in 1940 will be on the same punch card with the population data.

Table 1. - FOPULATION BY COLOR, NATIVITY, SEX, AND AGE, FOR CENSUS TRACTS

	All	olas	888	Native white			
Census tract and age	Total	Male	Fe- male				
Tract C-1							
Under 1 yr 1 to 4 yrs 5 to 9 yrs 10 to 14 yrs 15 to 17 yrs 18 & 19 yrs 20 to 24 yrs 25 to 29 yrs Etc. to 65 and over Unknown	be whital rac tal exc sho	shown te, les, ! les, !	n for Negro This to of the that is nati	foreig and of table in te 1930 t does ve whi	gn-bon ther is lil seri	rn ce Les,	

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Table 2. - FOREIGN-BORN WHITE BY COUNTRY OF BIRTH

Country of Birth	Tract 1	Tract 2	ote
All countries			
England			
Germany Poland Russia Italy Canada			
Mexico	,		

Table 3. - FAMILIES BY TENURE OF HOME, COLOR, AND NATIVITY

Tenure of home				Negro	Other races					
	Tract 1									
All families	Tracts 2 and 3 will follow on the same									
Owners Tenants Tenure unknown .	Tracts 4, 5, and 6									

Table 4. - FAMILIES BY EQUIVALENT RENTAL OF HOME, COLOR, AND NATIVITY

Equivalent monthly rental*	All clas- ses		For. born white	Negro	Other races
		Tra	ct:	L	
All families	va. fo: bi: rej al th: "E	lue \$3 r examed wi portin \$30 t e grou quival	3000 to nple, a lth ren ng mond to \$49, np des	s with \$4999 are conted hotely retailed to me ignate conthly \$49.	n- omes ent- ake

