

~~MM~~ - General Housing Plan Program.

1972

Working Paper # 4-5 - 06/30/1972

pgs 16 (incl. tables)

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Paper # 8-9 and addendum to # 8
pgs 15

Paper # 12-25

pgs 72.

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Sub-county housing allocation
Plans - Municipal allocation.

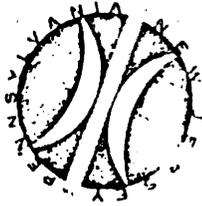
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Recomm. of housing allocat. plan.

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DELAWARE VALLEY REGIONAL PLANNING COMMISSION
Penn Square Building, 1317 Filbert Street, Philadelphia, Pennsylvania 19107

LOCust 8-3211

MEMORANDUM

Subject HOUSING PLAN PROGRAM
WORKING PAPER NO. 4, EQUAL SHARE HOUSING ALLOCATION;
CRITERIA, ASSUMPTIONS AND METHODOLOGY

To The Record Date June 30, 1972

From Thomas J. Dyckman

The "Equal Share" Housing Allocation track (#40) of the Housing Plan Program requires the investigation of multiple variables based on selection of alternative criteria and assumptions. While the criteria and assumptions need not be necessarily mutually exclusive, the selection should attempt to ascertain which are salient and which may be tested with available data.

The criteria, with their attendant assumptions, which have been selected by the staff represent the conclusion of an extensive review of alternative methods employed by other Regional agencies plus the suggestions offered by the members of the Housing TAC. The selection process itself had to be guided by important underlying assumptions relative to the program requirements in this phase of the Housing Plan, and they include the following:

1. These Equal Share Criteria refer to County Housing Allocation only and not to sub-county Allocation. It is recognized that the sub-county Allocation criteria may include these selection here, but also need to include additional criteria. The additional sub-county Allocation Criteria are intended to apply to local MCD's or groupings, and will be the subject of a separate paper.
2. The term "Equal Share" has been employed since the early Plan Program outlines and is continued here as distinct from "Fair Share". "Fair Share" as used by some Regional programs involves a disproportionate allocation of selected income groups at a given point in time. Equal Share as used in A, B, C below represents an equalization trend of additional housing units (Need)

supplementing the 1970 base over a continuous time sequence. Criteria D attempts to examine the requirements for achieving equal distribution of all income groups by the year 2000.

3. Incremental housing requirements (Need) equals the additional households + vacancies + replacement units + obsolescence/deterioration during five (5) year intervals.
4. The availability of data is critical to both the criteria and methodology selected. As noted below, adjustments will be made within the time constraints of the programs target objectives. In addition the proposed methodology must be tested in order to judge its validity.

EQUAL SHARE CRITERIA, ASSUMPTIONS AND METHODOLOGY

A. RELATIVE WEALTH CRITERIA (FISCAL RESOURCES) -

1. CRITERIA:

Allocation of housing based on relative per capita wealth as measured by the market value of all taxable real estate plus household income, as of 1970.

2. ASSUMPTIONS:

- a. The Regional increase in housing requirements will be allocated to the counties and cities on the basis of relative per capita wealth; as such factor represents potential fiscal resource.
- b. Each county's and city's allocation of incremental housing required will contain an equal proportion of all income groups. The provision of housing in such ratios, by each county and city will facilitate equality of opportunity.

3. METHODOLOGY:

- a. Total Market Value of all Taxable Real Estate + Total Household Income = Wealth, each county (1970)
- b. County Wealth ÷ County Household Population = Per Capita Wealth, each county (1970)
- c. Sum of Counties Per Capita Wealth = Regional Per Capita Index

- d. County Per Capita Wealth as a % of Regional Per Capita Index = County Allocation Factor
- e. Allocation Factor x Incremental Regional Household Requirement (Need) = county and city allocation.
- f. Each county's and city's allocation will include all income groups distributed in equal proportion to the Region's.

B. HOUSING VALUE AND CONDITION CRITERIA

1. CRITERIA

Housing allocation according to the inverse proportion of county and city 1970 stock of substandard and overcrowded units + low rent or value units. Low value/rent units are proxies for excessive housing expenses and value/income, rent/income will be substituted when available.

2. ASSUMPTIONS

- a. There is a correlation between value and condition of housing.
- b. Concentration housing in poor condition and of excessive cost to occupants results in extraordinary demand on local fiscal resources and service capabilities, upon residents ability to afford the full range of necessary private and public services.
- c. High replacement demand for these factors may result in continuance of locational concentrations of low income groups.
- d. Allocation in inverse proportion to the low value and poor condition index will alleviate undue concentrations and facilitate mobility opportunities.

3. METHODOLOGY

- a. Percent Lacking One or More Plumbing Facilities:
Regional % = index number ÷ County and City %.
- b. Percent with 1.01 Persons per Room or More:
Regional % = index number ÷ County and City %.

- c. Percent of Owner Occupied Value \$15,000 or less:
Regional % = index number ÷ County and City %
(NOTE: \$15,000 owner occupied value = Regional median, 1970)
 - d. Percent Renter Occupied \$100 per Month Rent or less:
Regional % = index number ÷ County and City %
(NOTE: \$100 per month rent = Regional median, 1970)
- N.B. c and d above may actually be combined in computations
- e. Sum of Index Numbers a + b + c + d, = county and city index number.
 - f. Sum of county indices = Regional Index Total.
 - g. County and City Index Number % of Regional Index Total = allocation factor.
 - h. Allocation Factor x Incremental Regional Household Requirements (Need) = county and city allocation.
 - i. Each county's and city's allocation will include all income groups distributed in equal proportion to the Region's.

C. VALUE AND CONDITION ALTERNATIVE

Method B may be revised to substitute Value/Income and Rent/Income indices for the \$15,000 and \$100 categories if the data is obtained within the time allowance for this phase of the plan.

D. EQUAL INCOME DISTRIBUTION

1. CRITERIA

Allocation of housing by income groups in equal proportion to the Region's distribution.

2. ASSUMPTIONS

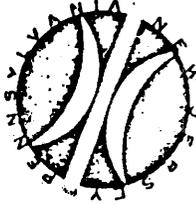
The simulation by each county and city of the Region's distribution of household income groups would represent a target objective against which other equalization proposals could be compared.

3. METHODOLOGY

- a. The year 2000 will be the target date for county and city simulation of the Region's household income distribution.
- b. County and city household totals will be trended from 1970 as a share of the Region's.
- c. The Region's income distribution for 2000 will be projected.
- d. The county and city distribution requirements for 2000 are then calculated.
- e. The incremental changes will be derived pro rate from the 2000 targets.

The results of all of the above examinations will be evaluated in terms of analytical objectives. Criteria for evaluated the Equal Share track versus employment track, etc. will be the subject of another paper.

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DELAWARE VALLEY REGIONAL PLANNING COMMISSION

Penn Square Building, 1317 Filbert Street, Philadelphia, Pennsylvania 19107

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MEMORANDUM

Subject Housing Plan Program, Working Paper No. 5
"Status Quo" Household Distribution, 1970-2000
NOTE: This supercedes working paper No. 2

To The Record

Date June 30, 1972

From Thomas J. Dyckman

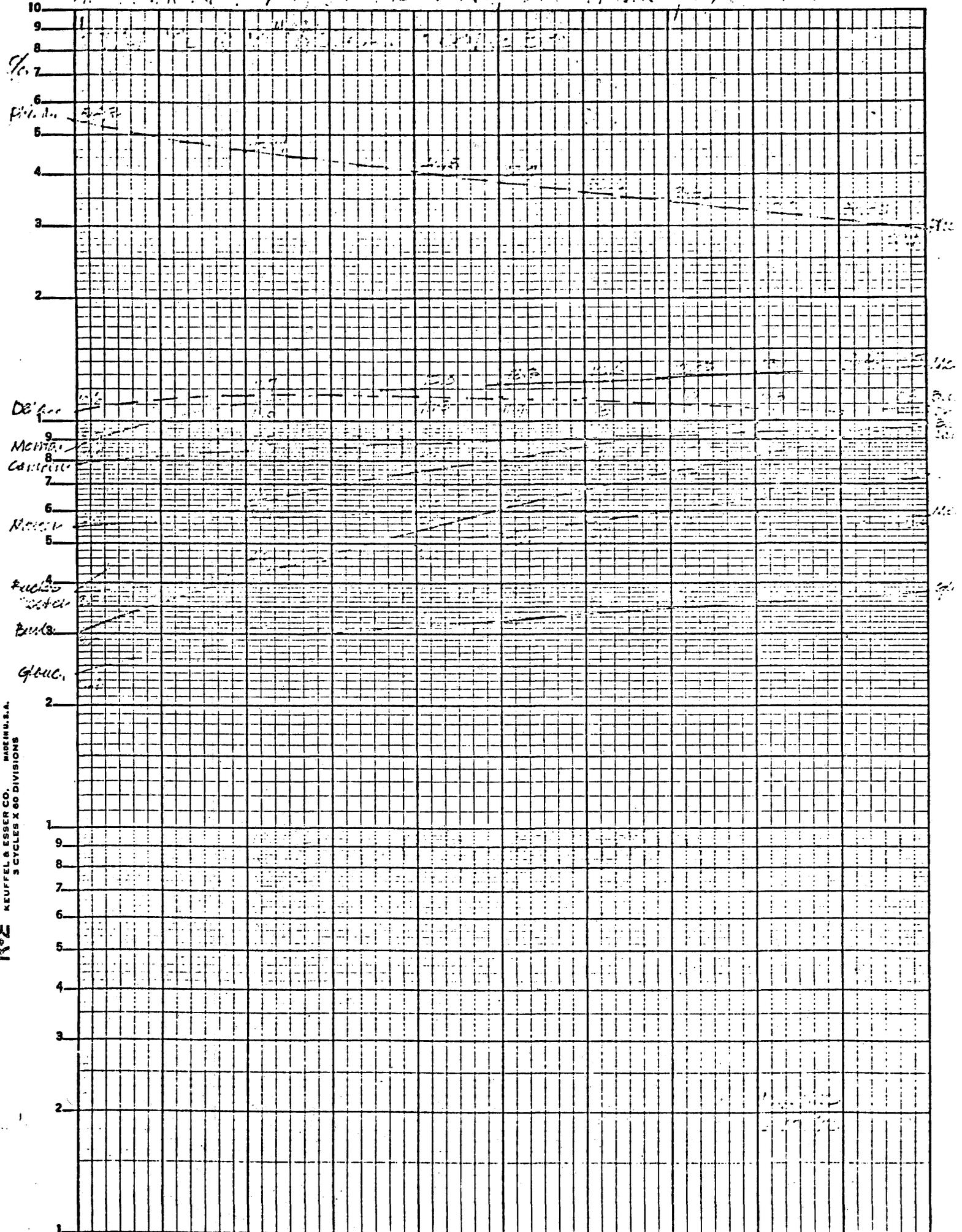
The distribution of households contained in this paper is derived from a series of assumptions describing what has been labeled as the "STATUS QUO" ALLOCATION TRACK. These assumptions include the following:

1. "STATUS QUO" is defined as trends in the recent history of the regional distribution of households.
2. The household (household equals occupied housing unit) distribution in this series does not constitute projections of households by county and city, but a proportion distribution of aggregate households in the region according to a trend curve.
3. The household distribution curve is based on the 1950-70 trend, compensated to leveling in 1990-2000.
4. The regional aggregate of households is based on projections of June 21, 1972 Working Paper No. 3, Persons Per Household Ratios & Household Projections 1975-2000.
5. As the distribution for counties and cities, 1975-2000, is based on a trend curve, these figures are PRELIMINARY, AND NOT FOR PUBLICATION.

TABLE 1: HOUSEHOLD (OCCUPIED HOUSING) CHANGE 1950-70

MUNICIPALITY	1970			1960			1950
	UNITS	DIFF.	% CHANGE	UNITS	DIFF.	% CHANGE	UNITS
Bucks	117,612	34,235	41.0605	83,377	42,663	104.7871	40,714
Chester	78,401	22,130	39.3275	56,271	15,885	39.3329	40,386
Delaware	162,800	25,258	18.3638	137,542	41,343	42.9765	96,199
Chester City	17,869	- 1,088	-5.7393	18,957	1,154	6.4821	17,803
Montgomery	188,475	41,515	28.2492	146,960	52,989	56.3887	93,971
Philadelphia	642,145	26,378	4.2838	615,767	31,069	5.3137	584,698
Burlington	84,788	29,518	53.4069	55,270	22,357	69.9276	32,913
Camden	105,843	27,194	34.5164	78,649	28,383	56.4656	50,266
Camden City	32,565	- 2,643	-7.5068	35,208	731	2.1203	34,477
Gloucester	49,693	11,215	29.1465	38,478	12,176	46.2931	26,302
Mercer	59,940	17,000	39.5901	42,940	15,844	58.4736	27,096
Trenton	33,546	- 101	-0.3002	33,647	1,360	4.2122	32,287
REGION	1,573,677	230,661	17.1749	1,343,016	265,904	24.6868	1,077,112
COUNTY	847,552	208,115	32.5466	639,437	231,590	56.7835	407,847
CITIES	726,125	22,546	3.2045	703,579	34,314	5.1271	669,265

CHART I
 Percentage of Region's Countries, 1950-1970



KE SEMI-LOGARITHMIC 359-70
 KEUFFEL & ESSER CO. MADE IN U.S.A.
 3 CYCLES X 60 DIVISIONS

TABLE 2

HOUSEHOLD DISTRIBUTION: % OF REGION, COUNTIES

"STATUS QUO" TRACK: CODE 30

MUNICIPALITY	1950	1960	1970	1980	1990	2000
	ACTUAL	ACTUAL	ACTUAL			
Bucks	3.78	6.20	7.47	8.70	9.90	10.80
Chester	3.75	4.20	4.98	5.70	6.40	7.30
Delaware	10.58	11.65	11.48	11.30	10.80	10.40
Montgomery	8.72	10.94	11.98	12.60	13.10	13.40
Philadelphia	54.28	45.85	40.80	36.60	32.60	29.10
Burlington	3.06	4.11	5.39	6.80	8.30	9.80
Camden	7.87	8.48	8.80	9.00	9.40	9.60
Gloucester	2.44	2.87	3.16	3.40	3.60	3.80
Mercer	5.52	5.70	5.94	5.90	5.90	5.80
REGION	100.00	100.00	100.00	100.00	100.00	100.00

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TABLE 3

HOUSEHOLDS: % DISTRIBUTION: COUNTIES

"STATUS QUO" TRACK: CODE 30

MUNICIPALITY	1970	1975	1980	1985	1990	1995	2000
Bucks	7.47	8.09	8.70	9.30	9.90	10.35	10.80
Chester	4.98	5.34	5.70	6.05	6.40	6.85	7.30
Delaware	11.48	11.39	11.30	11.05	10.80	10.60	10.40
Montgomery	11.98	12.29	12.60	12.85	13.10	13.25	13.40
Philadelphia	40.80	38.70	36.60	34.60	32.60	30.85	29.10
Burlington	5.39	6.09	6.80	7.55	8.30	9.05	9.80
Camden	8.80	8.91	9.00	9.20	9.40	9.50	9.60
Gloucester	3.16	3.28	3.40	3.50	3.60	3.70	3.80
Mercer	5.94	5.91	5.90	5.90	5.90	5.85	5.80
REGION	100.00	100.00	100.00	100.00	100.00	100.00	100.00

TABLE 4

HOUSEHOLD DISTRIBUTION: COUNTIES

"STATUS QUO" TRACK: CODE 30

MUNICIPALITY	1970	1975	1980	1985	1990	1995	2000
Bucks	117,612	135,401	156,344	174,960	193,976	209,943	226,012
Chester	78,401	89,375	102,432	113,818	125,398	138,947	152,767
Delaware	180,669	190,632	203,067	207,883	211,610	215,014	217,641
Montgomery	188,475	205,696	226,429	241,746	256,675	268,767	280,422
Philadelphia	642,145	647,715	657,722	650,927	638,748	625,771	608,977
Burlington	84,788	101,927	122,200	142,038	162,626	183,573	205,085
Camden	138,408	149,125	161,735	173,079	184,179	192,701	200,900
Gloucester	49,693	54,897	61,100	65,845	70,537	75,052	79,523
Mercer	93,486	98,915	106,026	110,996	115,602	118,663	121,377
REGION	1,573,677	1,673,683	1,797,055	1,881,292	1,959,351	2,028,431	2,092,704
ADDITIONS	-----	100,006	123,372	84,237	78,059	69,080	64,273

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Chart 10
Horizontal axis: No. of cycles
Vertical axis: Amplitude

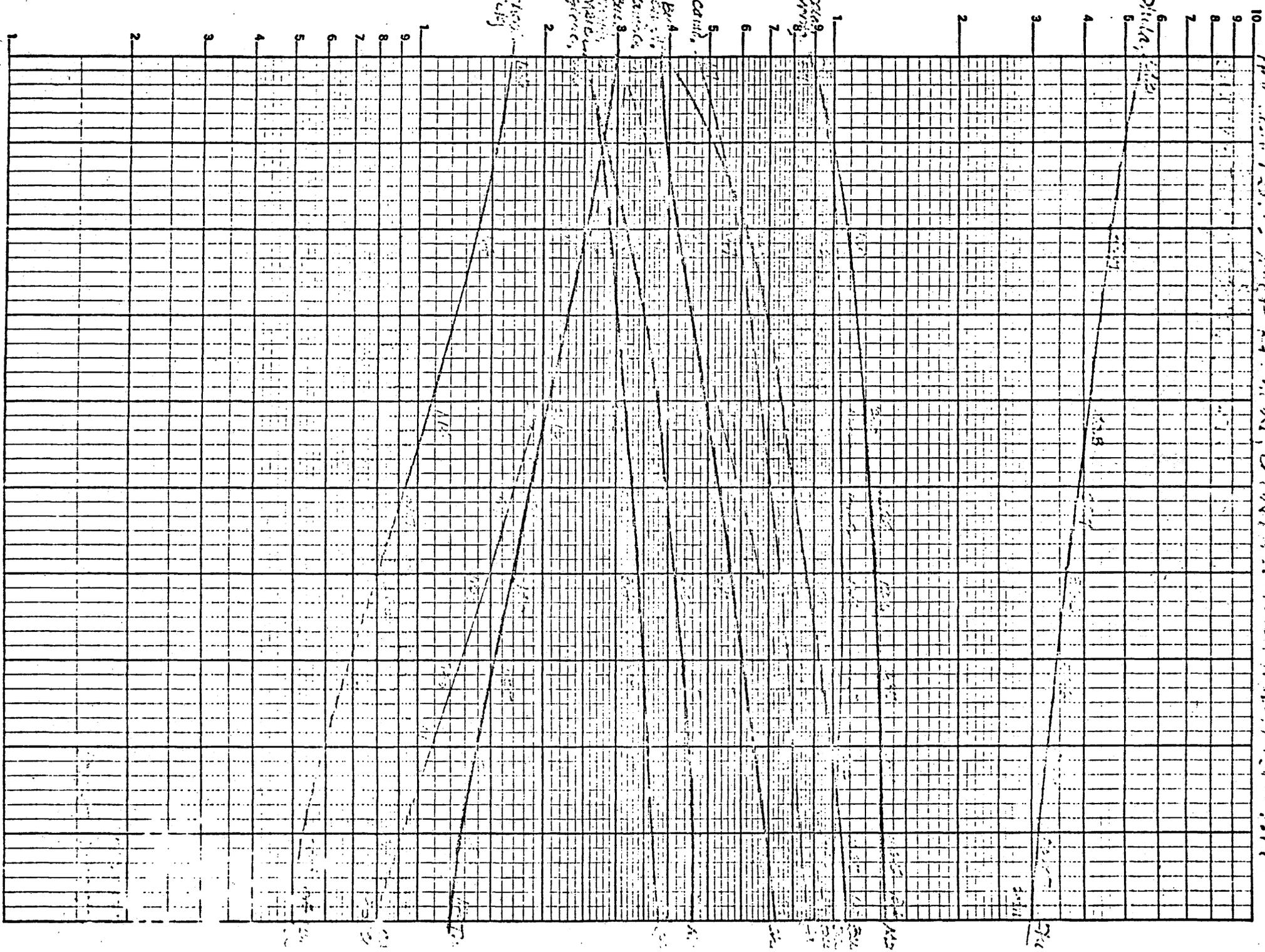


TABLE 5

HOUSEHOLD DISTRIBUTION: % OF REGION, COUNTIES & CITIES

"STATUS QUO" TRACK: CODE 20

MUNICIPALITY	1950	1960	1970	1980	1990	2000
	ACTUAL	ACTUAL	ACTUAL			
Bucks	3.78	6.20	7.47	8.70	9.90	10.80
Chester	3.75	4.20	4.98	5.70	6.40	7.30
Delaware	8.93	10.24	10.34	10.50	10.20	9.90
Chester City	1.65	1.41	1.14	0.80	0.60	0.50
Montgomery	8.72	10.94	11.98	12.60	13.10	13.40
Philadelphia	54.28	45.85	40.80	36.60	32.60	29.10
Burlington	3.06	4.11	5.39	6.80	8.30	9.80
Camden	4.67	5.86	6.73	7.50	8.30	8.80
Camden City	3.20	2.62	2.07	1.50	1.10	0.80
Gloucester	2.44	2.87	3.16	3.40	3.60	3.80
Mercer	2.52	3.20	3.81	4.20	4.50	4.60
Trenton	3.00	2.50	2.13	1.70	1.40	1.20
CITIES	62.13	52.38	46.14	40.60	35.70	31.60
COUNTIES	37.87	47.62	53.86	59.40	64.30	68.40
REGION	100.00	100.00	100.00	100.00	100.00	100.00

TABLE 6

HOUSEHOLDS: % DISTRIBUTION, COUNTIES & CITIES

"STATUS QUO" TRACK: CODE 30

MUNICIPALITY	1970	1975	1980	1985	1990	1995	2000
Bucks	7.47	8.09	8.70	9.30	9.90	10.35	10.80
Chester	4.98	5.34	5.70	6.05	6.40	6.65	7.30
Delaware	10.34	10.42	10.50	10.35	10.20	10.05	9.90
Chester City	1.14	0.97	0.80	0.70	0.60	0.55	0.50
Montgomery	11.98	12.29	12.60	12.85	13.10	13.25	13.40
Philadelphia	40.80	38.70	36.60	34.60	32.60	30.85	29.10
Burlington	5.39	6.09	6.80	7.55	8.30	9.05	9.80
Camden	6.73	7.12	7.50	7.90	8.30	8.55	8.80
Camden City	2.07	1.79	1.50	1.30	1.10	0.95	0.80
Gloucester	3.16	3.28	3.40	3.50	3.60	3.70	3.90
Mercer	3.81	4.00	4.20	4.35	4.50	4.55	4.70
Trenton	2.13	1.91	1.70	1.55	1.40	1.30	1.20
REGION	100.00	100.00	100.00	100.00	100.00	100.00	100.00

TABLE 7

HOUSEHOLDS DISTRIBUTION: COUNTIES & CITIES

"STATUS QUO" TRACK: CODE 30

MUNICIPALITY	1970	1975	1980	1985	1990	1995	2000
Bucks	117,612	135,401	156,344	174,960	193,976	209,943	226,012
Chester	78,401	89,375	102,432	113,818	125,398	138,947	152,767
Delaware	162,800	174,398	188,691	194,714	199,854	203,857	207,178
Chester City	17,869	16,234	14,376	13,169	11,756	11,157	10,463
Montgomery	188,475	205,696	226,429	241,746	256,675	268,767	280,422
Philadelphia	642,145	647,715	657,722	650,927	638,748	625,771	608,977
Burlington	84,788	101,927	122,200	142,038	162,626	183,573	205,085
Camden	105,843	119,166	134,779	148,622	162,626	173,431	184,158
Camden City	32,565	29,959	26,956	24,457	21,553	19,270	16,742
Gloucester	46,693	54,897	61,100	65,845	70,537	75,052	79,523
Mercer	59,940	66,948	75,476	81,836	88,171	92,293	96,264
Trenton	33,546	31,967	30,550	29,160	27,431	26,370	25,113
REGION	1,573,677	1,673,683	1,797,055	1,881,292	1,959,351	2,028,431	2,092,704
ADDITIONS	-----	100,006	123,372	84,237	78,059	69,080	64,273



DELAWARE VALLEY REGIONAL PLANNING COMMISSION
Penn Square Building, 1317 Filbert Street, Philadelphia, Pennsylvania 19107
LOculet 8-3211

MEMORANDUM

Housing Plan Program
Working Paper No. 8

Subject Illustrative Example of Equal Share Housing
Allocation Methodology

To Record

Date August 14, 1972

From T. Dyckman and Al Toizer

Working Paper No. 4, June 30, 1972 outlined the criteria, assumptions, and methodology to be employed in the "Equal Share" Housing Allocation track. In order to answer some of the questions raised at the Housing TAC regarding the methodology, and to provide a clearer understanding of the somewhat abstract concepts, an illustrative example of the methodology has been prepared. The following pages contain the illustration of the process, selecting 1975 as the projected example period. The example is for illustrative purposes only and not to be construed as representing a final recommended allocation.

A. RELATIVE WEALTH OR FISCAL CAPACITY

For nine counties and for 12 counties/cities:

1. Calculate 1970 Market Value of all taxable real estate
2. Calculate 1969 income of residents
3. Add (1) + (2) to obtain estimated fiscal capacity (total wealth)
4. Calculate each county/city as percent of region's fiscal capacity
5. Divide (3) by 1970 household population to obtain per capita wealth
6. Obtain Allocation Factor by multiplying (4) by (5): weighting per capita wealth of county/city by total wealth of county/city
7. Sum county/city Allocation Factors, + obtain Allocation Percentages by calculating each county/city Factor as percent of regional sum.

B. HOUSING CONDITION

For nine counties and for 12 counties/cities:

1. Calculate percentage of the following characteristics for each county/city and for the region:
 - a. Year-round housing units lacking some or all plumbing facilities
 - b. Occupied housing units overcrowded (1.01 or more persons per room)
 - c. Owner-occupied units valued at less than \$15,000 plus renter-occupied units at less than \$100 monthly contract rent

NOTE: When available, and if calculable, (c) will be replaced by: owner-occupied units valued at more than two times household income plus renter-occupied units at more than 25% of income for gross monthly rent.
2. For each characteristic, divide the regional percentage by the percentage for each county/city to obtain Index Number showing relative deviation from regional norm.
3. Obtain Cumulative Index by summing indexes of the three characteristics.
4. Obtain Allocation Factor by multiplying (3) by the total number of year-round housing units in each county/city, weighting the incidence of housing conditions by the housing cost.
5. Sum the county/city Allocation Factors, and obtain Allocation Percentages by calculating each county/city Factor as percent of regional sum.

C. ALLOCATION BASE

For nine counties:

1. Describe and tabulate 1970 census characteristics of housing stock for each county/city as follows:
 - a. Total households (occupied housing units)
 - b. Occupied units by standard-substandard conditions: i.e., with all plumbing facilities and lacking plumbing facilities
 - c. Vacant units available for re-occupancy, by standard-sub-standard condition.
2. Estimate number of households in 1975 (from population projections for each county/city)
3. Allow 4% vacancy rate, multiplying (2) by .0416667, to obtain total number of housing units needed in 1975 in each county/city
4. Calculate losses to 1970 housing stock:
 - a. Five-percent casualty (at 1% per year) to existing standard housing units, occupied and vacant-available
 - b. One-third removal of existing sub-standard units, occupied and vacant-available (presumes policy of total removal of existing sub-standard units in three 5-year periods, by 1985)
5. Calculate components of need for each county
 - a. Projected household growth (see 2)
 - b. Casualty losses (see 4a)
 - c. Removal of sub-standard (see 4b)
 - d. Vacancy gap (vacancy needed at 4% rate, less surviving vacant units, after casualty and sub-standard removals)
6. Sum (5) for each county, and sum counties for regional requirements for 1975
7. Obtain Allocation Percentage by calculating each county as percent of regional sum.

FIGURE 1

RELATIVE WEALTH

<u>County</u>	<u>Total Wealth (\$000)</u>	<u>Percent of Region</u>	<u>Per Capita Wealth * (\$)</u>	<u>Allocation Factor</u>	<u>Allocation Percentage</u>
Bucks	3,350,151	8.084	8,167	66,022	7.668
Chester	2,451,201	5.915	9,376	55,459	6.441
Delaware	4,844,574	11.691	8,255	96,509	11.209
Montgomery	6,803,650	16.418	11,194	183,783	21.345
Philadelphia	12,819,259	30.935	6,734	208,316	24.194
Burlington	2,777,064	6.702	9,413	63,086	7.327
Camden	3,922,997	9.467	8,705	82,410	9.571
Gloucester	1,464,681	3.535	8,620	30,472	3.539
Mercer	3,005,676	7.253	10,337	74,974	8.707
Region	41,439,253	100.000	8,237	861,031	100.001

FIGURE 2

HOUSING CONDITIONS

<u>County</u>	<u>INDEX NUMBERS</u>			<u>Cumulative Index</u>	<u>Allocation Factor</u>	<u>Allocation Percentage</u>
	<u>HUs Lacking Plumbing</u>	<u>HUs Over-crowded</u>	<u>HUs of Low Value/Rent</u>			
Bucks	107.688	89.776	171.006	368.470	2743.259	8.327
Chester	64.979	109.454	147.014	321.447	1583.769	4.807
Delaware	190.153	122.309	139.058	451.520	5104.434	15.494
Montgomery	114.772	163.188	198.914	476.874	5649.526	17.149
Philadelphia	85.770	86.698	69.541	242.009	9990.857	30.327
Burlington	108.927	99.818	164.703	373.448	2008.030	6.095
Camden	130.941	100.292	108.834	340.067	2984.428	9.059
Gloucester	75.369	87.612	107.328	270.309	846.067	2.568
Mercer	110.684	106.916	126.534	344.134	2033.832	6.174
Region	989.283	966.063	1232.932	3188.278	32944.302	100.000

FIGURE 3

ALLOCATION BASE

<u>County</u>	<u>Components of Housing Unit Need: 1970-1975</u>				<u>Total HUs Required by 1975</u>	<u>Percent of Regional Requirement</u>
	<u>Household Growth 1970-1975</u>	<u>Casualty Losses</u>	<u>Sub-standard Removals</u>	<u>Vacancy Gap</u>		
Bucks	12,195	5,990	3,001	3,355	24,541	9,580
Chester	9,881	3,983	1,979	2,497	18,340	7,159
Delaware	9,512	9,145	3,290	5,834	27,781	10,844
Montgomery	18,510	9,576	3,121	5,759	36,966	14,430
Philadelphia	17,618	33,060	18,062	9,775	78,515	30,648
Burlington	7,679	4,311	1,984	2,501	16,475	6,431
Camden	8,583	7,067	3,170	3,365	22,185	8,660
Gloucester	6,634	2,518	1,410	1,726	12,288	4,797
Mercer	9,394	4,752	2,115	2,829	19,090	7,452
Region	100,006	80,402	38,132	37,641	256,181	100.001

FIGURE 4

SUMMARY OF ALLOCATION CALCULATIONS:

For 9 counties & 3 cities of the Region

<u>County & City</u>	<u>HUs Required by 1975</u>		<u>Low-Income Housing Allocation Percents</u>	
	<u>Number</u>	<u>Percent</u>	<u>Wealth</u>	<u>Conditions</u>
Bucks	24,541	9.580	7.574	8.024
Chester	18,340	7.159	6.363	4.633
Del: Chester	2,318*	.905	.454	.688
Balance	25,463	9.939	10.749	15.573
Montgomery	36,966	14.430	21.085	16.525
Philadelphia	78,515	30.648	23.899	29.224
Burlington	16,475	6.431	7.238	5.874
Cam: Camden	3,951*	1.542	.882	1.298
Balance	18,234	7.118	8.920	8.290
Gloucester	12,288	4.797	3.496	2.475
Mer: Trenton	4,382*	1.711	1.045	1.311
Balance	14,708	5.741	8.295	6.087
Region	256,181	100.001	100.000	100.002

*No population projection has been made yet for Chester, Camden, and Trenton. For these illustrative purposes, the households projected for these cities is identical to Philadelphia's 1970-75 rate of change.

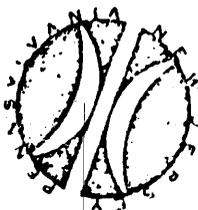
Household income data from the 1970 Census are not yet available. It is estimated, however, that approximately 25% of households will have incomes less than \$5,000, another 25% will have incomes between \$5,000 and \$9,999, and about 50% will be at \$10,000 or more.

If these percentages were to hold for the 256,181 housing units required by 1975, about 64,000 housing units will be needed in the region for each of the two lower income groups, and about 128,000 for the higher income group. The allocations below are shown for two-income groups: under \$10,000, and \$10,000 and over.

FIGURE 5

<u>County & City</u>	<u>Total Units</u>	<u>Allocation of Units by Income Group:</u>			
		<u>Wealth Under \$10,000</u>	<u>Factor \$10,000 & over</u>	<u>Condition Under \$10,000</u>	<u>Factor \$10,000 & over</u>
Bucks	24,541	9,702	14,839	10,278	14,263
Chester	18,340	8,150	10,190	5,934	12,406
Del: Chester	2,318	582	1,736	881	1,437
Balance	25,463	13,768	11,695	19,947	5,516
Montgomery	36,966	27,008	9,958	21,167	15,799
Philadelphia	78,515	30,612	47,903	37,433	41,082
Burlington	16,475	9,271	7,204	7,524	8,951
Cam: Camden	3,951	1,130	2,821	1,663	2,288
Balance	18,234	11,426	6,808	10,619	7,615
Gloucester	12,288	4,478	7,810	3,170	9,118
Mer: Trenton	4,382	1,339	3,043	1,679	2,703
Balance	14,708	10,625	4,083	7,797	6,911
Region	256,181	128,091	128,090	128,092	128,089

MEMORANDUM



DELAWARE VALLEY REGIONAL PLANNING COMMISSION
Penn Square Building, 1317 Filbert Street, Philadelphia, Pennsylvania 19107
LOcut 8-3211

Subject Addendum to Working Paper No. 8 - Clarification of Equal Share
Housing Allocation Methodologies

To Record

Date August 22, 1972

From T. Dyckman and A. Toizer

Working Paper No. 8, dated August 14, 1972, presented outlines of the computational steps employed in the Relative Wealth and Housing Condition Methodologies. This addendum discusses these techniques in greater detail, in order to clarify some perceptual problems which have been brought to our attention.

A. RELATIVE WEALTH

1. Calculate 1970 market value of all taxable real estate in each county/city of the region. Sources of these data were the respective state tax equalization authorities.
2. Calculate 1969 income of residents of each county/city. Source of these data were 1970 Census volumes entitled General Social and Economic characteristics, for Pennsylvania and New Jersey. Table 124 of the respective volumes gives the number of families and unrelated individuals in each county, and their mean income; and Table 89 presents the data for the cities. The number of earners multiplied by mean income provides the approximate total income of residents of each area. NOTE: The fourth-count census tapes will contain the estimated total income from which the means were calculated; and when available, those figures will replace the ones we calculated - although the differences will be very minor.
3. Adding (1) and (2) above, we obtain a figure which we have called "Total Wealth" (See the first column of Figure 1 in Working Paper No. 8). Obviously, taxable real estate values and income of residents are not the only components of fiscal capacity of the counties and cities; but they are by far the major potential sources of local taxes, and are the only ones for which data are readily available.
4. Total Wealth for the region is, of course, the sum of the wealth of each component area. Each county/city is then calculated as a percent of the total regional wealth. See column 2 of Figure 1 (which presents these figures for the nine counties only). These results could be used as the Allocation Factor, but they take no account of the demographic and social relativity in the fiscal capacity of each component area.

TO: Record

FROM: T. Dyckman and A. Toizer

5. Divide Total Wealth (3) by the household population (source: 1970 Census) to obtain Per Capita Wealth (column 3 of Figure 1), an index of the relative wealth of each county/city.
6. The Allocation Factor then is obtained by multiplying (4) by (5), and is shown in column 4 of Figure 1. This procedure adjusts the county's/city's "total wealth" by its "relative wealth". This is, in effect, the county's household population weighted by the county's fiscal capacity.
7. The county/city Allocation Factors are added (bottom of column 4); and the Allocation Percentage for each county/city is obtained by computing its Allocation Factor as a percent of the regional sum of the Factors. The results are shown in the last column of Figure 1. They imply that each county's "absolute" wealth, modified by its "relative" wealth, is a useful and suitable indication of its ability to provide the resources for the county's appropriate share of the region's housing needs for low- and moderate-income households. This implication is based, of course, upon the assumptions of "total" and "relative" wealth employed in the methodology.

NOTE: The Allocation Percentages for the nine counties shown in column 5 of Figure 1 differ from those shown in column 3 of Figure 4, because the results in Figure 1 were computed on the basis of the nine counties only, while those given in Figure 4 were computed on the basis of 12 component areas.

B. HOUSING CONDITION

1. Calculate percentage of the following 1970 housing condition characteristics for each county/city and for the region:
 - a. Year-round housing units lacking some or all plumbing facilities
 - b. Occupied housing units overcrowded (units with more than one-person-per-room average)
 - c. Owner-occupied units valued at less than \$15,000 plus renter-occupied units at less than \$100 monthly contract rent.*

These three factors (substandard quality, crowding, excessive expense) are our best attempt to describe and measure the incidence of housing problems in each county/city, relying of necessity upon available 1970 Census indicators of these characteristics. Obviously, these criteria do not perfectly measure the incidence of housing problems. They are neither precise nor exhaustive; but they are generally recognizable and acceptable factors, and data are uniformly available for all counties, cities, minor civil divisions, and census tracts.

*NOTE: As we have recognized and acknowledged in the past, this item (c) is a proxy for excessive housing expense. When the data are available, this item will be replaced by a more direct (but still imperfect) set of measures of excessive expense - owner-occupied units valued at more than double the household's income, plus renter-occupied units at more than 25% of income for gross monthly rent.

TO: Record

FROM: T. D. Ckman and A. Toixer

2. For each of these three characteristics, divide the regional percentage by the percentage for each county/city, to obtain an Index Number showing each area's deviation from the regional norm. (See columns 1, 2, and 3 of Figure 2.) An Index Number greater than 100.000 signifies that the area's incidence of that characteristic was less than its regional incidence, and thus the area is "healthier" by the degree to which its Index Number exceeds parity (100.000). A figure below 100.000 indicates the reverse, and measures the degree to which the area's incidence of a given characteristic is greater than that observed throughout the region.
3. Obtain Cumulative Index by summing the Index Numbers calculated for each of the three characteristics. This result is shown in column 4 of Figure 2. In this instance, a Cumulative Index of 300,000 would indicate parity with the region in the incidence of all three characteristics. The degree to which numbers exceed (or fall short of) 300.000 indicate the relative low incidence (or, conversely, relative concentration) of the housing condition factors.
4. The Allocation Factor (column 5 of Figure 2) is obtained by multiplying the Cumulative Index (item 3 above, and column 4 of Figure 2) for each county/city by the total number of year-round housing units in each county/city (source: 1970 Census). This procedure weights the relative incidence of the condition factors in each county/city by the housing stock "universe" in which these conditions exist. In effect, relative incidence is modified by the existing supply of units in which such condition characteristics can arise.
5. The county/city Allocation Factors are added (bottom of column 5 of Figure 2); and the Allocation Percentage for each county/city is obtained by computing its Allocation Factor as a percent of the regional sum of Factors. The results are shown in the final column (column 6 of Figure 2). They imply that, based upon the assumptions involved in measuring the incidence of certain housing conditions, each county's/city's appropriate share of the region's need for low- and moderate-income housing should reflect the relative degree to which the county/city is not presently burdened by such conditions.

NOTE: The Allocation Percentages for the nine counties shown in column 6 of Figure 2 differ from those shown in column 4 of Figure 4, because the results in Figure 2 were computed on the basis of the nine counties only, while those in Figure 4 were computed on the basis of 12 component areas (as indicated in the left-hand column).

MEMORANDUM



DELAWARE VALLEY REGIONAL PLANNING COMMISSION

Penn Square Building, 1317 Filbert Street, Philadelphia, Pennsylvania 19107

LOcuet 8-3211

Subject HOUSING PLAN PROGRAM
WORKING PAPER NO. 9
Sub-County Housing Allocation Criteria

To The Record

Date Sept. 7, 1972

From Tom Dyckman
Sally Marks

The purpose of the Regional Housing Plan developed by DVRPC is to allocate future needed housing units throughout the Region so that an equitable distribution of housing types and an increase in housing choice results. Since the counties are responsible for allocation units on a sub-county level, the criteria used for sub-county allocation play a major role in the overall Regional Housing Plan.

The sub-county allocation criteria recommended here were derived from the regional housing allocation criteria utilized in the Regional Allocation Plan and similar studies prepared by the Miami Valley Regional Planning Commission, the Metropolitan Council of the Twin Cities Area, the Southeastern Wisconsin Regional Planning Commission, the Metropolitan Washington Council of Governments, and the San Bernadino County Planning Department. Although the reports prepared by these other agencies were concerned primarily with the distribution of low- and moderate-income housing, while DVRPC's Plan includes all income groups, they provided valuable information about methodology followed and allocation criteria used.

Each report was examined to determine 1) the criteria used for evaluation, 2) the definition of each criterion, and 3) the allocation formula developed. An analysis of these factors and a review of the Regional Housing Plan resulted in the selection of the sub-county allocation criteria recommended here.

The following is a summary of the recommended criteria for sub-county housing allocation, including for each criterion a justification for selection, definition, and illustrative methodology.

SUB-COUNTY HOUSING ALLOCATION CRITERIA

CRITERIA	JUSTIFICATION	DEFINITION	ILLUSTRATIVE METHODOLOGY
1. Relative Wealth	Additional housing units should be encouraged in those areas which have the potential fiscal resources to absorb them.	The allocation of housing is based on relative per capita wealth as measured by the market value of all taxable real estate plus household income (1970).	<ol style="list-style-type: none"> 1) Total market value of all taxable real estate + Total household income = wealth, each area* (1970) 2) Area wealth ÷ area household population = per capita wealth, each area (1970) 3) Sum of areas' per capita wealth = county per capita index. 4) Area per capita wealth as % of county per capita index = allocation factor weighted. 5) Allocation factor x incremental county household need = unit allocation.
2. Substandard Housing	Replacement housing units should be encouraged in those areas which now contain a concentration of substandard housing.	The allocation of housing is based on the condition of housing as indicated by the incidence of lack of plumbing facilities, overcrowding, and excessive expense (owner-occupied units valued at more than double the household's income and renter-occupied units at more than 25% of income for gross monthly rent).	<ol style="list-style-type: none"> 1) Percent lacking one or more plumbing facilities: county % = index number ÷ area's %. 2) Percent with 1.01 persons per room or more: county % = index number ÷ area's %. 3) Percent owner-occupied units valued at more than double the household's income:** county % = index number ÷ area's %. 4) Percent renter-occupied units at more than 25% of income** for gross monthly rent: county % = index number ÷ area's %. 5) Sum of index numbers 1,2,3 & 4 = area index number. 6) Sum of area indices = county index total. 7) Area index number % of county index total = allocation factor weighted. 8) Allocation factor X incremental county household need = unit allocation.

* Refers to the sub-county area which the county determines to use as its unit of allocation.

** This information should be available for sub-county allocation from the 4th count census tapes.

SUB-COUNTY HOUSING ALLOCATION CRITERIA

CRITERIA	JUSTIFICATION	DEFINITION	ILLUSTRATIVE METHODOLOGY
3. Employment Opportunities	Housing units should be readily accessible to employment opportunities.	The allocation of housing is based on the number of employment opportunities within 30 minutes commutation time.	1) Area's percentage of county's jobs by class and income group + 2) Area's percentage of county's jobs by class and income group within 30 minutes commutation time, portal-to-portal = allocation factor. 3) Allocation factor x incremental county household need = unit allocation.
4. Developable Land	Additional housing units should be encouraged in those areas which have the physical capacity to support them.	The allocation of housing is based on the amount of land which possesses the potential for development. Developable land is considered to be vacant land minus flood plains, soils unsuitable for development, excessive slope, and/or land use conflicts in terms of the county or regional plan. Within the four cities-Philadelphia, Camden, Trenton, and Chester-the amount of land should be adjusted to reflect the amount of re-developable land available.	1) Total county vacant land. 2) Sum of county undevelopable land (i.e. flood plain + 25% slope or more + unsuitable soils + land use conflicts with county and/or regional plan) 3) #1 minus #2 = Total county developable land*. 4) Total area's vacant land. 5) Sum of area's undevelopable land. 6) #4 minus #5 = Total area's developable land. 7) Area's developable land ÷ county developable land = area's % of county developable land (allocation factor). 8. Allocation factor x incremental county household need = unit allocation. *In four cities, adjust to include redevelopable land.
5. Low and Moderate Income Housing Distribution	Low and moderate income housing should be encouraged in areas which have little or none at present in order to promote more balanced communities and	The allocation of housing is based on the location and inverse ratio of low and moderate* income households presently existing within the county.	1) Total number of area's low and moderate income households ÷ total number of county's low and moderate income households = area's % of county's low and moderate income households.

SUB-COUNTY HOUSING ALLOCATION CRITERIA

CRITERIA	JUSTIFICATION	DEFINITION	ILLUSTRATIVE METHODOLOGY
5. Low and Moderate Income Housing Distribution	increase equal opportunity. Low and moderate income housing should be discouraged in areas where it is presently over-supplied, because of the financial burden it places on the community.	*For example: Low income \$0-4,999 Moderate income \$5-9,999	2) Inverse of area's % of county's low and moderate income households = allocation factor. 3) Allocation factor x incremental county household need = unit allocation.

MEMORANDUM



DELAWARE VALLEY REGIONAL PLANNING COMMISSION

Penn Square Building, 1317 Filbert Street, Philadelphia, Pennsylvania 19107

LOcust 8-3211

Subject Working Paper No. 12
Housing Plan Program
EQUAL SHARE HOUSEHOLD ALLOCATION:
REVISED RELATIVE WEALTH METHODOLOGY

To Record

Date October 11, 1972

From Alfred Toizer

The Relative Wealth Allocation Method, as described in Working Paper No. 8, did not produce plausible results as it was initially conceived. The problem was that the application of the Allocation Percentage for low-and-moderate-income households to each county took no account of the counties' proportions of the regional growth. Therefore, the methodology has had to be somewhat revised. The corrected technique is outlined below:

Computation

1. Calculate 1970 market value of all taxable real estate in each county;
2. Calculate 1969 income of residents of each county;
3. Add (1) and (2) to obtain estimated total wealth;
4. Divide (3) by 1970 household population of county, which yields;
5. Per-capita wealth of each county's household population;
6. Sum the per-capita wealth figures and divide by 9 (number of counties), to obtain;
7. Mean per-capita wealth for all counties of the region;
8. Compute Relative Wealth Index by dividing each county's per-capita wealth by regional mean;
9. Multiply (8) by the county's proportion of the regional growth for the period, to obtain;
10. Relative Wealth Allocation Factor for each county;

October 11, 1972

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MEMORANDUM:

TO: RECORD

FROM: ALFRED TOIZER

11. These factors are summed and adjusted to a base of 100;
12. Each county's factor is proportionally adjusted to that base, which results in;
13. Relative Wealth Allocation Percentage, which is each county's share of the region's projected number of low and moderate-income households. This, however, permits the calculation of only the income groups (households with less than \$10,000 income, and those with \$10,000 or more). To split these into the four income groups used in the allocation techniques, the following additional steps are required:
14. Compute the regional proportion of household income below \$5,000 to those below \$10,000 (.43205). Similarly, compute the regional proportion of households in the \$10,000-14,999 group to those at \$10,000 or more (.54446).
15. Apply these factors to each county's allocation percentage for the two income groups, and derive the four-group percentage distribution. NOTE: This assumes (in addition to those assumptions already made) that the allocation methodology also re-distributes all income groups in all counties in a curve approximating the regional pattern.

The illustrative derivation of the Relative Wealth Allocation Percentage for application to the year 2000 is summarized in the table below.

	Total Wealth (million\$)	Per Capita Wealth	Index Number	1970-2000 Illustration		
				Regional Growth	Allocation Factor	Allocation Percent
Bucks	\$ 3,350	\$ 8,167	.9097	13.187%	11.966	11.700%
Chester	2,451	9,376	1.0443	12.592	13.150	12.826
Delaware	4,845	8,254	.9194	7.832	7.201	7.024
Montgomery	6,804	11,194	1.2468	19.168	23.899	23.310
Philadelphia	12,819	6,734	.7501	9.506	7.130	6.954
Burlington	2,777	9,413	1.0484	12.626	13.237	12.911
Camden	3,923	8,705	.9696	8.166	7.918	7.723
Gloucester	1,465	8,620	.9601	7.787	7.476	7.292
Mercer	<u>3,006</u>	<u>10,337</u>	<u>1.1514</u>	<u>9.136</u>	<u>10.519</u>	<u>10.260</u>
REGION	\$41,439	80,800*		100.000%	102.526	100.000%

*Mean of county per capita wealth is 8,978.

October 17, 1972

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MEMORANDUM:

TO: RECORD

FROM: ALFRED TOIZER

A Note on the Housing Condition Allocation Methodology

Upon receipt of the 1970 Census data on the relative costs of housing (the value-income ratio and the gross rent as a percent of income), the Housing Condition Allocation Methodology was pursued as promised. However, analysis of these data indicated that the housing cost problem is far more a factor of income than of location; and therefore, the inclusion of this index would not serve as a suitable allocation criterion.

With this finding, the Housing Condition technique would be best limited to the two factors of overcrowding and lack of plumbing facilities.

Furthermore, our review of this abbreviated technique suggested that its continued use as an allocation methodology would not produce an alternative allocation which differed materially from the range encompassed by those already computed. It can be made available, however, if another alternative is desired.

TD:rs



DELAWARE VALLEY REGIONAL PLANNING COMMISSION
Penn Square Building, 1317 Filbert Street, Philadelphia, Pennsylvania 19107

LOCust 8-3211

MEMORANDUM

Subject Working Paper No. 13
HOUSING PLAN PROGRAM
"STATUS QUO" HOUSEHOLD ALLOCATION

To Record

Date Oct. 12, 1972

PRELIMINARY: NOT FOR PUBLICATION

From Thomas J. Dyckman

The "Status Quo" household allocation represents a projected distribution based on a continuation of the 1970 distribution of the four income classes: less than \$5,000; \$5-9,999; \$10 -14,999; and \$15,000 or more. Its basic components include the following:

1. Regional household projections to the year 2000, as shown in Working Paper No. 3, to the total of 2,092,704 households.
2. Regional household income distribution projections to the year 2000, as illustrated in Working Paper No. 11 (1970 dollars).
3. Nine county household projections to the year 2000, contained in Working Paper No. 10.
4. The basic assumption that the distribution among the counties of each of the four groups in 2000 will be similar to what was observed in 1970.

The 2000 county income distributions were obtained by reducing or increasing the respective income class in proportion to the regional change, thus maintaining the relative position of each class within the county. Table B shows the results in 2000, while Table A shows the actual 1970 distribution.

This method does not constitute a recommended alternative, but serves to illustrate the results the consequence of continuance of the 1970 distribution; i.e., the concentrations of low income households in the central cities and of high income households in the suburban counties remain.

TABLE A

HOUSEHOLD INCOME DISTRIBUTION: COUNTIES, 1970

COUNTY	HOUSEHOLDS 1970				TOTAL
	Less than \$5,000	\$5- 9,999	\$10- 14,999	\$15,000 +	
Bucks	16,325	33,415	38,861	29,011	117,612
Chester	13,537	22,641	20,727	21,496	78,401
Delaware	31,581	49,831	51,751	47,506	180,669
Montgomery	27,751	48,152	51,500	61,072	188,475
Philadelphia	206,984	206,380	138,434	90,347	642,145
Burlington	13,548	25,271	25,061	20,908	84,788
Camden	30,363	40,607	37,175	30,263	138,408
Gloucester	9,884	15,810	14,796	9,203	49,693
Mercer	20,442	26,952	24,673	21,419	93,486
REGION	370,415	469,059	402,978	331,225	1,573,677

	PERCENTAGE 1970				
Bucks	13.880	28.411	33.042	24.667	100.000
Chester	17.266	28.878	26.437	27.418	99.999
Delaware	17.480	27.581	28.644	26.294	100.000
Montgomery	14.724	25.548	27.325	32.403	100.000
Philadelphia	32.233	32.139	21.558	14.070	100.000
Burlington	15.979	29.805	29.557	24.659	100.000
Camden	21.937	29.339	26.859	21.865	100.000
Gloucester	19.890	31.815	29.775	18.520	100.000
Mercer	21.866	28.830	26.392	22.911	99.999
REGION	23.538	29.807	25.607	21.048	100.000

TABLE B
'STATUS QUO' HOUSEHOLD ALLOCATION: COUNTIES, 2000

COUNTY	HOUSEHOLDS									
	TOTAL 2000					NET CHANGE 1970-2000				
	Less than \$5,000	\$5-9,999	\$10-14,999	\$15,000 +	TOTAL	Less than \$5,000	\$5-9,999	\$10-14,999	\$15,000 +	TOTAL
Bucks	13,661	36,474	77,092	58,829	186,056	- 2,664	3,059	38,231	29,818	63,444
Chester	15,424	28,854	50,071	49,410	143,759	1,887	6,213	29,344	27,914	63,358
Delaware	24,218	41,551	81,971	73,581	221,321	- 7,363	- 8,280	30,220	26,075	40,652
Montgomery	23,572	48,208	102,855	113,328	287,963	- 4,179	56	51,355	52,256	99,453
Philadelphia	177,676	168,252	200,891	145,363	691,482	-29,308	38,128	61,757	55,016	49,337
Burlington	14,191	31,564	57,046	47,517	150,318	643	6,293	31,985	26,609	65,530
Camden	27,840	37,120	63,732	52,098	180,790	- 2,523	- 3,487	26,557	21,535	42,352
Gloucester	12,032	20,733	34,394	22,953	90,112	2,148	4,923	19,598	13,750	40,419
Mercer	21,599	28,213	49,013	42,078	140,903	1,157	1,261	24,340	20,659	47,417
REGION	330,213	434,054	723,280	605,157	2,092,704	-40,202	-35,005	320,302	273,932	519,027
		440,969	716,365				-28,090	313,387		
	PERCENTAGE									
	2000									
	Less than \$5,000	\$5-9,999	\$10-14,999	\$15,000+	TOTAL					
Bucks	7.342	19.604	41.435	31.619	100.000					
Chester	10.728	20.071	34.830	34.370	99.999					
Delaware	10.942	18.774	37.037	33.246	99.999					
Montgomery	8.186	16.740	35.718	39.355	100.000					
Philadelphia	25.695	23.332	29.951	21.002	100.000					
Burlington	9.441	20.998	37.950	31.611	100.000					
Camden	15.399	20.532	35.252	28.817	100.000					
Gloucester	13.352	23.008	38.168	25.472	100.000					
Mercer	15.328	20.023	34.785	29.863	99.999					
REGION	15.779	20.741	34.562	28.917	99.999					

MEMORANDUM



DELAWARE VALLEY REGIONAL PLANNING COMMISSION
Penn Square Building, 1317 Filbert Street, Philadelphia, Pennsylvania 19107
Locust 8-3211

Subject Working Paper No. 14
HOUSING PLAN PROGRAM
RELATIVE WEALTH HOUSEHOLD ALLOCATION

To Record

Date Oct. 11, 1972

PRELIMINARY: NOT FOR PUBLICATION

From Alfred Toizer

The Relative Wealth household allocation represents an allocation to each county of the additional households to be created between 1970 and 2000, according to the theoretical fiscal capacity of each county to support a more equitable range of income groups. It is presumed that the relative wealth of each county is a suitable indication of its ability to provide the public services necessary to support this growth.

In order to quantify this objective, the following inputs were employed:

1. Regional household projections to the year 2000 (as shown in Working Paper No. 3) to a total of 2,092,704.
2. Regional household income distribution projections to the year 2000, in 1970 dollars (as presented in Working Paper No. 11).
3. Household projections for the nine counties to the year 2000 (as contained in Working Paper No. 10).
4. Each county's household income distribution was computed for the year 2000 (as described in Working Paper No. 12).

The results are stated in the attached Table B.

TABLE A
HOUSEHOLD INCOME DISTRIBUTION: COUNTIES, 1970

COUNTY	HOUSEHOLDS 1970				TOTAL
	- \$5,000	\$5- 9,999	\$10- 14,999	\$15,000 +	
Bucks	16,325	33,415	38,861	29,011	117,612
Chester	13,325,37	22,641	20,727	21,496	78,401
Delaware	31,581	49,831	51,751	47,506	180,669
Montgomery	27,751	48,152	51,500	61,072	188,475
Philadelphia	206,984	206,380	138,434	90,347	642,145
Burlington	13,548	25,271	25,061	20,908	84,788
Camden	30,363	40,607	37,175	30,263	138,408
Gloucester	9,884	15,810	14,796	9,203	49,693
Mercer	20,442	26,952	24,673	21,419	93,486
REGION	370,415	469,059	402,978	331,225	1,573,677

	PERCENTAGE 1970				
Bucks	13.880	28.411	33.042	24.667	100.000
Chester	17.266	28.878	26.437	27.418	99.999
Delaware	17.480	27.581	28.644	26.294	100.000
Montgomery	14.724	25.548	27.325	32.403	100.000
Philadelphia	32.233	32.139	21.558	14.070	100.000
Burlington	15.979	29.805	29.557	24.659	100.000
Camden	21.937	29.339	26.859	21.865	100.000
Gloucester	19.890	31.815	29.775	18.520	100.000
Mercer	21.866	28.830	26.392	22.911	99.999
REGION	23.538	29.807	25.607	21.048	100.000

TABLE B
RELATIVE WEALTH HOUSEHOLD ALLOCATION, YEAR 2000

COUNTY	TOTAL HOUSEHOLDS 2000					NET CHANGE 1970-2000				
	\$5,000	\$5- 9,999	\$10- 14,999	\$15,000 +	TOTAL	\$5,000	\$5- 9,999	\$10- 14,999	\$15,000 +	TOTAL
Bucks	24,295	31,937	70,684	59,140	186,056	7,970	- 1,478	31,823	30,129	68,444
Chester	21,206	27,875	51,549	43,129	143,759	7,669	5,234	30,822	21,633	65,358
Delaware	29,834	39,216	82,907	69,364	221,321	- 1,747	-10,615	31,156	21,858	40,652
Montgomery	41,541	54,606	104,436	87,380	287,963	13,790	6,454	52,936	26,308	99,488
Philadelphia	127,966	168,217	215,223	180,076	691,482	-79,018	-38,163	76,789	89,729	49,337
Burlington	22,056	28,993	54,049	45,220	150,318	8,508	3,722	28,988	24,312	65,530
Camden	27,317	35,909	64,009	53,555	180,790	- 3,046	- 4,698	26,834	23,292	42,352
Gloucester	13,572	17,840	31,960	26,740	90,112	3,688	2,030	17,164	17,537	40,419
Mercer	22,422	29,473	48,462	40,546	140,903	1,980	2,521	23,789	19,127	47,417
REGION	330,209	434,066	723,279	605,150	2,092,704	-40,206	-34,993	320,301	273,925	519,027
	PERCENTAGE 2000									
	\$5,000	\$5- 9,999	\$10- 14,999	\$15,000 +	TOTAL					
Bucks	13.058	17.165	37.991	31.786	100.000					
Chester	14.751	19.390	35.858	30.001	100.000					
Delaware	13.480	17.719	37.460	31.341	100.000					
Montgomery	14.426	18.963	36.267	30.344	100.000					
Philadelphia	18.506	24.327	31.125	26.042	100.000					
Burlington	14.673	19.288	35.956	30.083	100.000					
Camden	15.110	19.862	35.405	29.623	100.000					
Gloucester	15.061	19.798	35.467	29.674	100.000					
Mercer	15.913	20.917	34.394	28.776	100.000					
REGION	15.779	20.742	34.562	28.917	100.000					

MEMORANDUM



DELAWARE VALLEY REGIONAL PLANNING COMMISSION
Penn Square Building, 1317 Filbert Street, Philadelphia, Pennsylvania 19107
Locust 8-3211

Subject Working Paper No. 15
HOUSING PLAN PROGRAM
EQUALIZATION TREND HOUSEHOLD ALLOCATION

To Record

Date October 12, 1972

PRELIMINARY: NOT FOR PUBLICATION

From Thomas J. Dyckman

The Equalization Trend household allocation focuses on achieving parity of income distribution for the additional households formed between 1970 and 2000. The method assumes the following components:

1. Regional household projections to the year 2,000, as shown in Working Paper No. 3, to the total of 2,092,704 households.
2. Regional household income distribution projections to the year 2000, (four groups; under \$5,000; \$5-9,999; \$10-14,999; \$15,000; in 1970 dollars) as illustrated in Working Paper No. 11.
3. Nine county household projections to the year 2000 as contained in Working Paper No. 10.
4. The distribution of each county's projected additional households by the year 2000, at the same proportion of respective income groups as the region as a whole for the year 2000.

As the regional income distribution changes between 1970 and 2000, it was necessary to adjust the 1970 stock of households which would remain in 2000 (this income attrition is shown in Table B). To these figures was added the projected additional household growth distributed according to the income distribution of the region as a whole (also Table B). The resulting total households and percentage distribution for each county in 2000 are shown on Table C.

NOTE: Due to the calculation of income attrition for each county of the 1970 households remaining in 2000, the income distribution percentage for the region as a whole does not equal exactly the percentages shown in Working Paper No. 11.

TABLE A

HOUSEHOLD INCOME DISTRIBUTION: COUNTIES, 1970

COUNTY	HOUSEHOLDS 1970				TOTAL
	- \$5,000	\$5- 9,999	\$10- 14,999	\$15,000 +	
Bucks	16,325	33,415	38,861	29,011	117,612
Chester	13,325	22,641	20,727	21,496	78,401
Delaware	31,581	49,831	51,751	47,506	180,669
Montgomery	27,751	48,152	51,500	61,072	188,475
Philadelphia	206,984	206,380	138,434	90,347	642,145
Burlington	13,548	25,271	25,061	20,908	84,788
Camden	30,363	40,607	37,175	30,263	138,408
Gloucester	9,884	15,810	14,796	9,203	49,693
Mercer	20,442	26,952	24,673	21,419	93,486
REGION	370,415	469,059	402,978	331,225	1,573,677

	PERCENTAGE 1970				
Bucks	13.880	28.411	33.042	24.667	100.000
Chester	17.266	28.878	26.437	27.418	99.999
Delaware	17.480	27.581	28.644	26.294	100.000
Montgomery	14.724	25.548	27.325	32.403	100.000
Philadelphia	32.233	32.139	21.558	14.070	100.000
Burlington	15.979	29.805	29.557	24.659	100.000
Camden	21.937	29.339	26.859	21.865	100.000
Gloucester	19.890	31.815	29.775	18.520	100.000
Mercer	21.866	28.830	26.392	22.911	99.999
REGION	23.538	29.807	25.607	21.048	100.000

TABLE B
 EQUALIZATION TREND 1970 HOUSEHOLDS ADJUSTED TO 2000 INCOME
 DISTRIBUTION; ADDITIONAL HOUSEHOLD GROWTH 1970-2000

COUNTY	1970 HOUSEHOLDS IN 2000				TOTAL
	- \$5,000	\$5- 9,999	\$10- 14,999	\$15,000 +	
Bucks	10,175	21,616	48,764	37,057	117,612
Chester	8,641	15,001	26,637	28,122	78,401
Delaware	20,031	32,804	66,085	61,749	180,669
Montgomery	17,061	30,723	63,746	76,945	188,475
Philadelphia	150,179	155,405	202,218	134,343	642,145
Burlington	8,631	16,711	32,146	27,300	84,788
Camden	20,072	27,861	49,477	40,998	138,408
Gloucester	6,554	10,880	19,753	12,506	49,693
Mercer	13,460	18,419	32,706	28,901	93,486
REGION	254,804	329,420	541,532	447,921	1,573,677

	ADDITIONAL HOUSEHOLDS 1970-2000				TOTAL
	- \$5,000	\$5- 9,999	\$10- 14,999	\$15,000 +	
Bucks	10,800	14,196	23,656	19,792	68,444
Chester	10,313	13,556	22,589	18,900	65,358
Delaware	6,415	8,432	14,050	11,755	40,652
Montgomery	15,698	20,635	34,385	28,770	99,488
Philadelphia	7,785	10,233	17,052	14,267	49,337
Burlington	10,340	13,592	22,649	18,949	65,530
Camden	6,688	8,790	14,648	12,256	42,382
Gloucester	6,378	8,383	13,970	11,688	40,419
Mercer	7,482	9,835	16,388	13,712	47,417
REGION	81,899	107,652	179,387	150,089	519,027

Table C
 EQUALIZATION TREND HOUSEHOLD ALLOCATION, YEAR 2000

COUNTY	TOTAL HOUSEHOLDS 2000					NET CHANGE 1970-2000				
	Less than \$5,000	\$5- 9,999	\$10- 14,999	\$15,000 or more	TOTAL	Less than \$5,000	\$5- 9,999	\$10- 14,999	\$15,000 or more	TOTAL
Bucks	20,975	35,812	72,420	56,849	186,056	4,650	2,397	33,559	27,838	68,444
Chester	18,954	28,557	49,226	47,022	143,759	5,417	5,916	28,499	25,526	65,358
Delaware	26,446	41,236	80,135	73,504	221,321	- 5,135	- 8,595	28,384	25,998	40,652
Montgomery	32,759	51,358	98,131	105,715	287,963	5,008	3,206	46,631	44,643	99,488
Philadelphia	157,964	165,638	219,270	148,610	691,482	-49,020	-40,742	80,836	58,263	49,337
Burlington	18,971	30,303	54,795	46,249	150,318	5,423	5,032	29,734	25,341	65,530
Camden	26,760	36,651	64,125	53,254	180,790	- 3,603	- 3,956	26,950	22,991	42,382
Gloucester	12,932	19,263	33,723	24,194	90,112	3,048	3,453	18,927	14,991	40,419
Mercer	20,942	28,254	49,094	42,613	140,903	500	1,302	24,421	21,194	47,417
REGION	336,703	437,072	720,919	598,010	2,092,704	-33,712	-31,987	317,941	266,785	519,027
	PERCENTAGE 2000									
	Less than \$5,000	\$5- 9,999	\$10- 14,999	\$15,000 or more	TOTAL					
Bucks	11.273	19.248	38.924	30.555	100.000					
Chester	13.185	19.864	34.242	32.709	100.000					
Delaware	11.949	18.632	36.208	33.211	100.000					
Montgomery	11.376	17.835	34.078	36.711	100.000					
Philadelphia	22.844	23.954	31.710	21.492	100.000					
Burlington	12.621	20.159	36.453	30.767	100.000					
Camden	14.802	20.273	35.469	29.456	100.000					
Gloucester	14.351	21.377	37.423	26.849	100.000					
Mercer	14.863	20.053	34.842	30.243	100.000					
REGION	16.089	20.886	34.449	28.576	100.000					



MEMORANDUM

Subject Working Paper No. 16
HOUSING PLAN PROGRAM
METHODOLOGY FOR EVALUATION OF ALTERNATIVE
HOUSEHOLD ALLOCATIONS

To Record

Date October 11, 1972

From Thomas J. Dyckman

In order to evaluate the relative merits of any particular household allocation, it is necessary first to establish the goals which are to be achieved. It is imperative that these goals be translated into measurable (i.e., quantifiable) objectives if the evaluations are to be comparable and consistent.

In February 1972 DVRPC adopted a basic goal and seven objectives concerning residential land use and housing (see Appendix A). Two of these (No. 5 and No. 7) are relevant to the present subject of housing distribution and thus provide a basis for the evaluation of the allocations. (The other five are concerned with other aspects of the housing problem). The quantification process, which is calculated in other working papers, is briefly summarized below:

ORIGINAL OBJECTIVE

QUANTIFIED OBJECTIVE

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Equal housing opportunity for all income groups. ("Eliminate racial, religious, ethnic and economic discrimination and insure the protection of rights in the provision and procurement of decent homes in all communities.") 2. Convenience of housing to employment opportunities, ("Provide adequate housing convenient to employment centers for all workers who wish to live close to their jobs.") | <ol style="list-style-type: none"> 1. Proportionate distribution of household income groups in each county, the same as that of the region as a whole. 2. Distribution of households by income group, among the counties in proportion to the number of jobs for that income group in each county. |
|--|--|

A second step in evaluating the merits of any particular allocation is to determine how closely each allocation approaches each objective, where both allocation and objective take the form of a table containing as many as 48 cells. The determination of the extent of objective approximation is facilitated by the use of a standard measure of goodness of fit, chi-squared (χ^2), expressed mathematically as:

$$\chi^2 = \sum_{ij} \frac{(a_{ij} - b_{ij})^2}{a_{ij}}$$

where a_{ij} and b_{ij} represent the entries in column i , row j of the objective and allocation tables respectively.

To illustrate the use of this measure, the attached tables are presented, comparing the "Status Quo" and Relative Wealth Allocations to the Equal Opportunity objective. To simplify the example, the number of income groups has been reduced to two.

COMPARATIVE EVALUATION

COUNTY	EQUAL OPPORTUNITY OBJECTIVE		STATUS QUO ALLOCATION		RELATIVE WEALTH ALLOCATION	
	<\$10,000	\$10,000+	<\$10,000	\$10,000+	<\$10,000	\$10,000+
Bucks	67,949	118,107	50,135	135,921	56,231	129,825
Chester	52,504	86,255	44,278	99,481	49,080	94,679
Delaware	80,829	140,492	65,769	155,552	69,050	152,271
Montgomery	105,166	182,797	71,780	216,183	96,149	191,814
Philadelphia	252,530	438,952	339,013	352,469	296,180	395,302
Burlington	54,897	95,421	45,755	104,563	51,049	99,269
Camden	66,025	114,765	64,960	115,830	63,226	117,564
Gloucester	32,909	57,203	32,765	57,347	31,412	58,700
Mercer	51,458	89,445	49,812	91,091	51,895	89,008
Region	764,267	1,323,437	764,267	1,328,437	764,272	1,328,432

CALCULATION OF χ^2

	STATUS QUO		RELATIVE WEALTH	
Bucks	4,670	2,687	2,021	1,163
Chester	1,289	785	223	136
Delaware	2,806	1,614	1,717	988
Montgomery	10,599	6,098	773	445
Philadelphia	29,618	17,039	7,545	4,341
Burlington	1,522	876	270	155
Camden	17	10	119	68
Gloucester	1	0	68	39
Mercer	53	30	4	2
	<u>50,575</u>	<u>29,139</u>	<u>12,740</u>	<u>7,337</u>
	29,139		7,337	
Region ²	79,714		20,077	

APPENDIX A: Residential Land Use and Housing Goal and Objectives

Goal

PROVIDE SUFFICIENT LAND FOR RESIDENTIAL DEVELOPMENT TO INSURE AN ADEQUATE SUPPLY AND CHOICE OF STANDARD HOUSING UNITS FOR ALL HOUSEHOLDS, REGARDLESS OF INCOME, DISTRIBUTED THROUGHOUT THE REGION SO AS TO BE ACCESSIBLE TO JOBS AND COMMUNITY SERVICES.

Objectives

1. Increase housing construction from the current rate of 25,000 units annually to 55,000 units annually for the next ten years, including 15,000 per year for low and moderate income households.
2. Encourage the construction of medium and high density housing, in order to reduce development costs and minimize land consumption.
3. Provide for the rehabilitation of substandard housing and for a halt to the spread of blight.
4. Plan and schedule public projects so that displaced households will be assured of standard and convenient replacement housing.
5. Provide adequate housing convenient to employment centers for all workers who wish to live close to their jobs.
6. Encourage new residential development to take advantage of public services and facilities which are available but not fully utilized.
7. Eliminate racial, religious, ethnic and economic discrimination and insure the protection of rights in the provision and procurement of decent homes in all communities.

MEMORANDUM



DELAWARE VALLEY REGIONAL PLANNING COMMISSION
Penn Square Building, 1317 Filbert Street, Philadelphia, Pennsylvania 19107
LOcust 8-3211

Subject Working Paper No. 17
HOUSING PLAN PROGRAM
QUANTIFICATION OF EQUAL OPPORTUNITY OBJECTIVE

To Record

Date October 11, 1972

PRELIMINARY: NOT FOR PUBLICATION

From T.J. Dyckman

In February, 1972 the DVRPC adopted the following objective (among others) as part of the statement of objectives governing the regional housing plan:

"Eliminate racial, religious, ethnic and economic discrimination and insure the protection of rights in the provision and procurement of decent homes in all communities."

We are concerned here with the equality of opportunity among income groups. In an absolute sense, this would be achieved if each income group was represented in every county and major city in the same proportion as in the region as a whole. (i.e., if low-income households represent X% of the region's total households in a given year, then they should represent X% of the total households of each county and city in the same period.)

In order to quantify this objective, the following inputs were employed:

1. Regional household projections to the year 2000, as shown in Working Paper No. 3, to the total of 2,092,704 households.
2. Regional household income distribution projections to the year 2000, as illustrated in Working Paper No. 11 (1970 dollars).
3. Nine county household projections to the year 2000, as contained in Working Paper No. 10.
4. Each county's household income distribution was assumed to be identical with that of the region as a whole in the year 2000, (as calculated in Working Paper No. 11), and the number of households in each income group was calculated from the total in each county.

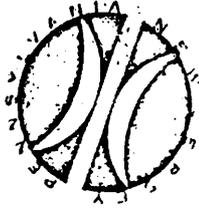
The quantification results are stated in the attached table.

**EQUAL SHARE HOUSEHOLD ALLOCATION
ABSOLUTE EQUALITY: COUNTIES 2000**

COUNTY	HOUSEHOLDS TOTAL 2000				TOTAL
	Less than \$5,000	\$5-9,999	\$10-14,999	\$15,000+	
BUCKS	29,357	38,592	64,305	53,802	186,056
CHESTER	22,684	29,820	49,685	41,570	143,759
DELAWARE	34,924	45,905	76,492	64,000	221,321
MONTGOMERY	45,440	59,726	99,525	83,272	287,963
PHILADELPHIA	109,110	143,420	238,990	199,962	691,482
BURLINGTON	23,719	31,178	51,953	43,468	150,318
CAMDEN	28,527	37,498	62,485	52,280	180,790
GLOUCESTER	14,219	18,190	31,145	26,058	90,112
MERCER	22,333	29,225	48,700	40,745	140,903
REGION	330,213	434,054	723,280	605,157	2,092,704

	PERCENTAGE				TOTAL
	Less than \$5,000	\$5-9,999	\$10-14,999	\$15,000+	
BUCKS	15.780	20.741	34.562	28.917	100.00
CHESTER	15.780	20.741	34.562	28.917	100.00
DELAWARE	15.780	20.741	34.562	28.917	100.00
MONTGOMERY	15.780	20.741	34.562	28.917	100.00
PHILADELPHIA	15.780	20.741	34.562	28.917	100.00
BURLINGTON	15.780	20.741	34.562	28.917	100.00
CAMDEN	15.780	20.741	34.562	28.917	100.00
GLOUCESTER	15.780	20.741	34.562	28.917	100.00
MERCER	15.780	20.741	34.562	28.917	100.00
REGION	15.780	20.741	34.562	28.917	100.00

MEMORANDUM



DELAWARE VALLEY REGIONAL PLANNING COMMISSION
Penn Square Building, 1317 Filbert Street, Philadelphia, Pennsylvania 19107
Locust 8-3211

Subject WORKING PAPER NO. 18, HOUSING PLAN PROGRAM
QUANTIFICATION OF CONVENIENCE-TO-EMPLOYMENT OBJECTIVE

To Record
PRELIMINARY: NOT FOR PUBLICATION

Date October 16, 1972

From Thomas J. Dyckman and John Blair

In February, 1972, the DVRPC adopted the following objective (among others) as part of the statement of objectives governing the regional housing plan:

"Provide adequate housing convenient to employment centers for all workers who wish to live close to their jobs."

The focus here becomes the proximity of households to jobs. As the county is the basic geographical unit for the allocation plan, the objective can be considered to be most fully met if for each income group the distribution of households by county is the same as the distribution of jobs by county.

In order to quantify this objective, the following inputs were employed:

1. Regional household projections to the year 2000, as shown in Working Paper No. 3, to the total of 2,092,704 households.
2. Regional household income distribution projections to the year 2000, as illustrated in Working Paper No. 11.
3. Regional employment projections to the year 2000 as shown in Table 1. The methodology leading to these results will be detailed in a future working paper, but a basic assumption is that Philadelphia will be able to stabilize its share of regional employment by 1980.
4. The percentage distribution of jobs by county within each income class was computed, as shown in Table 2.
5. The households in each income group (item 2 above) were then distributed to the counties in accord with these percentages, as shown in the top half of Table 3. The bottom half shows the effect of this on the distribution of income groups within each county.

Table 1. NUMBER OF EMPLOYEES BY INCOME CLASS AND COUNTY FOR THE YEAR 2000

COUNTY	Less than \$5,000	\$5,000- \$9,999	\$10,000- 14,999	Over \$15,000	TOTAL
Bucks	21,446	71,303	51,625	32,835	177,209
Chester	14,012	47,691	34,524	22,463	118,690
Delaware	28,415	95,501	69,015	44,632	237,563
Montgomery	59,436	200,398	144,005	93,235	497,074
Philadelphia	134,607	508,353	363,789	275,601	1,282,350
Burlington	12,891	43,289	30,601	19,342	106,123
Camden	24,698	87,227	62,750	42,341	217,016
Gloucester	3,965	13,638	9,669	6,350	33,622
Mercer	20,148	73,593	53,758	38,225	185,724
REGION	319,618	1,140,993	819,736	575,024	2,855,371

Table 2. PERCENTAGE OF EMPLOYEES BY COUNTY WITHIN EACH INCOME CLASS FOR THE YEAR 2000

COUNTY	Less than \$5,000	\$5,000 \$9,999	\$10,000- \$14,999	Over \$15,000	TOTAL
Bucks	6.7099	5.8305	6.2977	5.8947	6.2451
Chester	4.3838	3.8997	4.2115	4.0326	4.1828
Delaware	8.8900	14.5087	8.4191	8.0125	8.3724
Montgomery	18.5960	16.3868	17.5672	16.7380	17.5270
Philadelphia	42.1151	41.5690	44.3788	46.2459	44.5537
Burlington	4.0328	3.5398	3.7330	3.4724	3.7400
Camden	7.7272	7.1326	7.6549	7.6012	7.6478
Gloucester	1.2402	1.1151	1.1795	1.1400	1.1851
Mercer	6.3035	6.0178	6.5579	6.8623	6.5457
REGION	100.0000	100.0000	100.0000	100.0000	100.0000

Table 3. DISTRIBUTION OF HOUSEHOLDS ACCORDING TO EMPLOYMENT, BY COUNTY, FOR THE YEAR 2000

COUNTY	Less than \$ 5,000	\$5- 9,999	\$10- 14,999	\$15,000 +	TOTAL
Bucks	22,156	25,307	45,549	35,671	128,683
Chester	14,475	16,926	30,460	24,403	86,264
Delaware	29,335	62,975	60,893	48,488	201,711
Montgomery	61,406	71,127	127,060	101,291	360,844
Philadelphia	139,069	180,431	320,982	279,860	920,342
Burlington	13,316	15,364	26,934	21,013	76,627
Camden	25,516	30,959	55,365	45,999	157,839
Gloucester	4,095	4,840	8,530	6,898	24,363
Mercer	20,814	26,120	47,432	41,527	135,893
REGION	330,213	434,054	723,280	605,157	2,092,704

PERCENTAGE

Bucks	17.22	19.66	35.40	27.72	100.00
Chester	16.78	19.62	35.31	28.29	100.00
Delaware	14.55	31.22	30.19	24.04	100.00
Montgomery	17.02	19.71	35.21	28.06	100.00
Philadelphia	15.11	19.60	34.88	30.41	100.00
Burlington	17.38	20.05	35.15	27.42	100.00
Camden	16.17	19.61	35.08	29.14	100.00
Gloucester	16.81	19.87	35.01	28.31	100.00
Mercer	15.32	19.22	34.90	30.56	100.00
REGION	15.78	20.74	34.56	28.92	100.00

HOUSEHOLD ALLOCATION
ACCORDING TO EMPLOYMENT

REVISED CONVENIENCE-TO-WORK EMPLOYMENT TRACT

DISTRIBUTION OF HOUSEHOLDS ACCORDING TO EMPLOYMENT,
BY COUNTY, FOR THE YEAR 2000.

	Less than \$5,000	\$5000 - \$9,999	\$10,000 - \$14,999	\$15,000 and more	Total
Bucks	31,191	37,732	62,041	48,563	179,527
Chester	18,422	23,642	38,623	31,734	112,421
Delaware	33,077	40,301	66,932	53,393	193,703
Montgomery	76,946	97,288	158,716	129,219	462,169
Philadelphia	94,289	134,313	229,684	203,012	661,298
Burlington	17,735	22,397	36,518	28,890	105,540
Camden	29,682	39,281	65,738	54,712	189,413
Gloucester	7,195	8,989	14,718	11,746	42,643
Mercer	21,661	30,092	50,304	43,867	145,924
Region	330,198	434,030	723,274	605,136	2,092,638

	Less than \$5,000	\$5000 - \$9,999	PERCENTAGE \$10,000 - \$14,999	\$15,000 and more	Total
Bucks	17.373	21.017	34.558	27.050	100.00
Chester	16.386	21.029	34.355	28.227	100.00
Delaware	17.076	20.805	34.553	27.564	100.00
Montgomery	16.648	21.050	34.341	27.959	100.00
Philadelphia	14.258	20.310	34.732	30.699	100.00
Burlington	16.804	21.221	34.601	27.373	100.00
Camden	15.670	20.738	34.706	28.885	100.00
Gloucester	16.872	21.067	34.514	27.544	100.00
Mercer	14.844	20.621	34.472	30.061	100.00
Region	15.779	20.740	34.562	28.917	100.00

* Employment and Households in the same County.

Table 6. HOUSEHOLD ALLOCATION ACCORDING TO INCREMENTAL EMPLOYMENT, YEAR 2000

COUNTY	TOTAL HOUSEHOLDS 2000					NET CHANGE 1970-2000				
	Less than \$5,000	\$5,000 9,999	\$10,000 14,999	\$15,000 or more	TOTAL	Less than \$5,000	\$5,000 9,999	\$10,000 14,999	\$15,000 or more	TOTAL
	Bucks	17,803	30,808	65,436	49,152	163,199	1,478	- 2,607	26,575	20,141
Chester	13,206	19,732	34,937	34,453	102,328	- 331	- 2,909	14,210	12,957	23,927
Delaware	26,834	40,806	80,983	72,518	221,141	- 4,747	- 9,025	29,232	25,012	40,472
Montgomery	35,709	53,468	104,281	106,784	300,242	7,958	5,316	52,781	45,712	111,767
Philadelphia	168,374	188,249	255,603	196,429	808,655	-38,610	-18,131	117,169	106,082	166,510
Burlington	13,127	22,349	41,953	34,153	111,582	- 421	- 2,922	16,892	13,245	26,794
Camden	28,629	39,780	70,440	56,620	195,469	- 1,734	- 827	33,265	26,357	57,061
Gloucester	7,630	12,331	22,330	14,300	56,591	- 2,254	- 3,479	7,534	5,097	6,898
Mercer	18,881	26,567	47,310	40,739	133,497	- 1,561	- 385	22,637	19,320	40,011
REGION	330,193	434,090	723,273	605,148	2,092,704	-40,222	-34,969	320,295	273,923	519,027
	PERCENTAGE 2000									
	Less than \$5,000	\$5,000 9,999	\$10,000 14,999	\$15,000 or more	TOTAL					
Bucks	10.91	18.88	40.10	30.11	100.00					
Chester	12.91	19.28	34.14	33.67	100.00					
Delaware	12.13	18.45	36.62	32.80	100.00					
Montgomery	11.89	17.81	34.73	35.57	100.00					
Philadelphia	20.82	23.28	31.61	24.29	100.00					
Burlington	11.76	20.03	37.60	30.61	100.00					
Camden	14.64	20.35	36.04	28.97	100.00					
Gloucester	13.48	21.79	39.46	25.27	100.00					
Mercer	14.14	19.90	35.44	30.52	100.00					
REGION	15.78	20.74	34.56	28.92	100.00					

MEMORANDUM



DELAWARE VALLEY REGIONAL PLANNING COMMISSION

Penn Square Building, 1317 Filbert Street, Philadelphia, Pennsylvania 19107

LOuest 8-3211

Subject Working Paper No. 19
HOUSING PLAN PROGRAM
HOUSEHOLD ALLOCATION BY ADDITIONAL EMPLOYMENT

To Record

Date October 17, 1972

From Thomas J. Dyckman and John Blair

This method describes an incremental allocation. The net additional households projected for 1970-2000 are allocated according to the net additional jobs projected for the same period.

The following assumptions and method were used in this allocation:

1. Regional household projections to the year 2000, as shown in Working Paper No. 3, to the total of 2,092,704 households.
2. Regional household income distribution projections to the year 2000, as illustrated in Working Paper No. 11.
3. Regional employment projections to the year 2000 as shown in Working Paper No. 18.
4. Since salary levels of existing jobs are expected to increase between 1970 and 2000, it was necessary to adjust the existing job distribution (1970) to reflect this increase. The 1970 jobs distribution is shown in Table 1; the distribution of these jobs in 2000 (reflecting salary growth) is shown in Table 2.
5. Incremental employment (jobs) 1970-2000 was calculated as the difference between the two previous results, as shown in Table 3.
6. The percentage distribution of these additional jobs by county within each income class was calculated, as shown in Table 4.

7. The additional households in each income group (from item 2 above) were then distributed to the counties in accord with these percentages, as shown in Table 5.
8. These additional households were then added to the 1970 households (adjusted to the 2000 income distribution; see Table 5 in Working Paper No. 15) to get the household allocation by incremental employment, as shown in Table 6.

TJD/JB/mjh

Table 1. EMPLOYMENT 1970

COUNTY	Less than \$5,000	\$5,000- 9,999	\$10,000- 14,999	\$15,000 or more	TOTAL
Bucks	34,820	48,570	17,240	9,499	100,129
Chester	24,453	34,659	12,624	7,003	78,739
Delaware	53,602	74,484	26,440	14,887	169,413
Montgomery	96,833	135,489	48,289	27,096	307,707
Philadelphia	309,028	438,803	160,786	96,068	1,004,685
Burlington	19,283	26,527	9,319	5,222	60,351
Camden	37,637	52,156	18,722	11,232	119,747
Gloucester	7,014	9,504	3,330	1,966	21,814
Mercer	36,559	51,262	18,703	11,504	118,028
REGION	619,229	871,454	315,453	184,477	1,980,613

Table 2. 1970 EMPLOYMENT "ADVANCED" TO THE YEAR 2000

COUNTY	Less than \$5,000	\$5,000- 9,999	\$10,000- 14,999	\$15,000 or more	TOTAL
Bucks	11,605	41,068	28,931	18,522	100,126
Chester	8,123	32,123	23,226	14,971	78,450
Delaware	19,624	69,178	48,737	31,887	169,426
Montgomery	35,381	125,585	88,832	57,923	307,721
Philadelphia	111,136	400,326	291,127	202,130	1,004,719
Burlington	7,091	24,744	17,251	11,233	60,319
Camden	13,662	48,028	34,217	23,854	119,761
Gloucester	2,577	8,861	6,161	4,227	21,826
Mercer	13,154	46,788	33,880	24,215	118,037
REGION	222,353	196,708	572,362	388,962	1,980,385

Table 3. INCREMENTAL EMPLOYMENT 1970-2000

COUNTY	Less than \$5,000	\$5,000- 9,999	\$10,000- 14,999	\$15,000 or more	TOTAL
Bucks	9,841	30,235	22,694	14,313	77,129
Chester	5,889	15,561	11,298	7,492	39,944
Delaware	8,791	26,323	20,278	12,745	68,168
Montgomery	24,055	74,813	55,173	35,312	189,655
Philadelphia	23,471	108,027	72,662	73,471	259,632
Burlington	5,800	18,545	13,360	8,109	45,817
Camden	11,036	39,199	28,533	18,487	97,269
Gloucester	1,388	4,777	3,508	2,123	11,805
Mercer	6,994	26,805	19,878	14,010	67,717
REGION	97,265	344,186	247,374	186,062	857,114

Table 4. FREQUENCY DISTRIBUTION OF INCREMENTAL EMPLOYMENT 1970-2000

COUNTY	Less than \$5,000	\$5,000- 9,999	\$10,000- 14,999	\$15,000 or more	TOTAL
Bucks	10.117	8.784	9.173	7.672	8.810
Chester	6.054	4.521	4.567	4.026	4.599
Delaware	9.023	7.647	8.197	6.849	7.787
Montgomery	24.731	21.736	22.303	18.978	21.640
Philadelphia	24.130	31.386	29.373	39.487	31.729
Burlington	5.963	5.388	5.396	4.358	5.236
Camden	11.346	11.388	11.534	9.935	11.115
Gloucester	1.427	1.387	1.418	1.141	1.348
Mercer	7.190	7.787	8.035	7.529	7.736
REGION	100.000	100.000	100.000	100.000	100.000

HOUSING ALLOCATION
 ACCORDING TO EMPLOYMENT

REVISED EMPLOYMENT PROJECTIONS

FREQUENCY DISTRIBUTION OF INCREMENTAL EMPLOYMENT

1970 - 2000

	Less than \$5,000	\$5,000 - \$9,999	\$10,000 - \$14,999	\$15,000 or more	Total
Bucks	19.356	16.910	16.748	15.604	16.858
Chester	9.322	8.793	8.380	8.543	8.673
Delaware	12.881	10.674	10.962	10.265	10.911
Montgomery	40.440	37.856	36.855	36.357	37.549
Philadelphia	-20.878	-13.927	-12.657	- 9.276	-13.359
Burlington	10.491	9.930	9.776	9.155	9.787
Camden	15.687	16.068	16.312	15.797	16.044
Gloucester	4.571	4.294	4.261	3.925	4.239
Mercer	8.127	9.397	9.361	9.627	9.294
Region	100.00	100.00	100.00	100.00	100.00

DISTRIBUTION OF ADDITIONAL HOUSEHOLDS 1970-2000
 IN PROPORTION TO ADDITIONAL JOBS

	Less than \$5,000	\$5,000 - \$9,999	\$10,000 - \$14,999	\$15,000 or more	Total
Bucks	14,595	17,695	30,438	24,534	87,262
Chester	7,029	9,201	15,230	13,432	44,892
Delaware	9,712	11,169	19,923	16,139	56,943
Montgomery	30,493	39,614	66,982	57,163	194,252
Philadelphia	-15,743	-14,574	-23,003	-14,584	- 67,904
Burlington	7,910	10,391	17,767	14,394	50,462
Camden	11,823	16,814	29,646	24,837	83,120
Gloucester	3,446	4,493	7,744	6,171	21,854
Mercer	6,128	9,833	17,013	15,136	48,110
Region	75,393	104,636	181,740	157,222	518,991

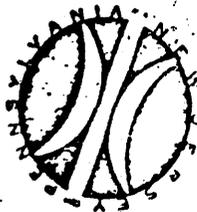
Table 5. DISTRIBUTION OF ADDITIONAL HOUSEHOLDS 1970-2000 IN PROPORTION TO ADDITIONAL JOBS

COUNTY	Less than \$5,000	\$5,000- 9,999	\$10,000- 14,999	\$15,000 or more	TOTAL
Bucks	7,628	9,192	16,672	12,095	45,587
Chester	4,565	4,731	8,300	6,331	23,927
Delaware	6,803	8,002	14,898	10,769	40,472
Montgomery	18,648	22,745	40,535	29,839	111,767
Philadelphia	18,195	32,844	53,385	62,086	166,510
Burlington	4,496	5,638	9,807	6,853	26,794
Camden	8,557	11,919	20,963	15,622	57,061
Gloucester	1,076	1,451	2,577	1,794	6,898
Mercer	5,421	8,148	14,604	11,838	40,011
Region	75,389	104,670	181,741	157,227	519,027

Table 6. HOUSEHOLD ALLOCATION ACCORDING TO INCREMENTAL EMPLOYMENT, YEAR 2000

COUNTY	TOTAL HOUSEHOLDS 2000					NET CHANGE 1970-2000				
	Less than \$5,000	\$5,000 9,999	\$10,000 14,999	\$15,000 or more	TOTAL	Less than \$5,000	\$5,000 9,999	\$10,000 14,999	\$15,000 or more	TOTAL
Bucks	17,803	30,808	65,436	49,152	163,199	1,478	- 2,607	26,575	20,141	45,587
Chester	13,206	19,732	34,937	34,453	102,328	- 331	- 2,909	14,210	12,957	23,927
Delaware	26,834	40,806	80,983	72,518	221,141	- 4,747	- 9,025	29,232	25,012	40,472
Montgomery	35,709	53,468	104,281	106,784	300,242	7,958	5,316	52,781	45,712	111,767
Philadelphia	168,374	188,249	255,603	196,429	808,655	-38,610	-18,131	117,169	106,082	166,510
Burlington	13,127	22,349	41,953	34,153	111,582	- 421	- 2,922	16,892	13,245	26,794
Camden	28,629	39,780	70,440	56,620	195,469	- 1,734	- 827	33,265	26,357	57,061
Gloucester	7,630	12,331	22,330	14,300	56,591	- 2,254	- 3,479	7,534	5,097	6,898
Mercer	18,881	26,567	47,310	40,739	133,497	- 1,561	- 385	22,637	19,320	40,011
REGION	330,193	434,090	723,273	605,148	2,092,704	-40,222	-34,969	320,295	273,923	519,027
	PERCENTAGE 2000									
	Less than \$5,000	\$5,000 9,999	\$10,000 14,999	\$15,000 or more	TOTAL					
Bucks	10.91	18.88	40.10	30.11	100.00					
Chester	12.91	19.28	34.14	33.67	100.00					
Delaware	12.13	18.45	36.62	32.80	100.00					
Montgomery	11.89	17.81	34.73	35.57	100.00					
Philadelphia	20.82	23.28	31.61	24.29	100.00					
Burlington	11.76	20.03	37.60	30.61	100.00					
Camden	14.64	20.35	36.04	28.97	100.00					
Gloucester	13.48	21.79	39.46	25.27	100.00					
Mercer	14.14	19.90	35.44	30.52	100.00					
REGION	15.78	20.74	34.56	28.92	100.00					

MEMORANDUM



DELAWARE VALLEY REGIONAL PLANNING COMMISSION

Penn Square Building, 1317 Filbert Street, Philadelphia, Pennsylvania 19107

LOcust 8-3211

Subject WORKING PAPER NO. 20
HOUSING PLAN PROGRAM
EVALUATION OF ALTERNATIVE HOUSEHOLD ALLOCATIONS

Date October 18, 1972

To Record

PRELIMINARY: NOT FOR PUBLICATION

From Staff

The allocation analysis has produced two quantified objectives against which alternative allocations can be evaluated. These are:

1. Equal Opportunity

Proportionate distribution of household income groups in each county, the same as that of the region as a whole.

2. Convenience-to-Employment

Distribution of households by income group, among the counties in proportion to the number of jobs for that income group in each county.

The alternative allocations evaluated against these objectives are:

- a. "Status Quo" allocation
- b. Relative wealth allocation
- c. Equalization Trend allocation
- d. Additional Employment allocation

In measuring goodness-of-fit of these allocations with regard to the first objective, χ^2 was calculated for the variation in percentage distribution of the four income groups, less than \$5,000; \$5-9,999; \$10,-14,999; and \$15,000 or more. In measuring goodness-of-fit with regard to the second objective, χ^2 was calculated from the actual (not percentage) household distribution. The results are shown on the attached table. It should be noted, the best fit is represented by the lowest figure.

ALLOCATION	OBJECTIVE 1	OBJECTIVE 2
	EQUAL OPPORTUNITY	CONVENIENCE-TO-EMPLOYMENT
a. STATUS QUO	33.5620	546,123
b. RELATIVE WEALTH	5.8281	440,098
c. EQUALIZATION TREND	16.0626	484,512
d. ADDITIONAL EMPLOYMENT	15.0025	186,316

What is readily apparent is that the Status Quo alternative produces results at the greatest variance from the either objective.

With regard to Objective 1, it can be seen that the Relative Wealth Allocation makes the greatest improvement over the Status Quo Allocation, and that the Equalization Trend and Additional Employment Allocations result in approximately equal but also significant improvements over the Status Quo.

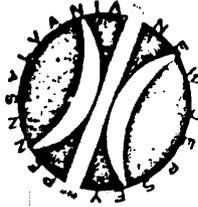
With regard to Objective 2, it can be seen that the Additional Employment Allocation results in the greatest improvement over the Status Quo Allocation, and that the Relative Wealth and Equalization Trend Allocations represent only very modest improvements over the Status Quo.

The evaluation given here cannot be used to establish, in any rigorous way, the "best" allocation, since that would depend on the relative importance attached to each objective. However, the following observations can be made:

1. If the two objectives are felt to be equally important, or if convenience-to-employment is given the greater weight, then the Additional Employment Allocation maximizes the joint achievement of the two objectives.
2. If equal opportunity is felt to be very much more important than convenience-to-employment, then the Relative Wealth Allocation gives the best results.
3. If a position between these two is held, then a fifth allocation, in which relative wealth and additional employment are both used as criteria, might be best; this, however, would have to be calculated.

TD/jfk

MEMORANDUM



DELAWARE VALLEY REGIONAL PLANNING COMMISSION
Penn Square Building, 1317 Filbert Street, Philadelphia, Pennsylvania 19107
LOcust 8-3211

Subject WORKING PAPER No. 21
HOUSING PLAN PROGRAM
ESTIMATE OF HOUSING REQUIREMENTS -
ALTERNATIVE ALLOCATION METHODS

To Record Preliminary: Not for Publication

Date October 27, 1972

From T.J. Dyckman

The alternative household allocations described in Working Papers Nos. 13, 14, 15 and 19 and their evaluation contained in Working Paper No. 20 define systems of household distribution for specific income groups according to stated basic objectives.

Households occupy housing units but do not constitute the entire housing program. In order to ascertain the resultant housing requirements of the allocation methods additional calculations are necessary:

1. An estimate of the depreciation and casualty losses of the 1970 occupied housing units by the year 2000, taken at the rate of 1% per year.
2. The addition of a 4% vacancy rate to provide adequate housing choice.

These calculations provide a preliminary estimate of housing requirements. It should be noted that replacements for sub-standard or overcrowded housing units are not included and will be required in the final housing requirement projection.

Table 1 shows the depreciation of the 1970 occupied housing units and Tables 2-5 contain the estimate of housing requirements of the four income groups for each alternative allocation. The totals are not exactly the same due to conversion of percentage distribution to whole numbers.

TD:rs.

TABLE 1 DEPRECIATION OF 1970 OCCUPIED HOUSING UNITS BY 2000

	<u>Less Than \$5,000</u>		<u>\$5,000-9,999</u>		<u>\$10,000-14,999</u>		<u>\$15,000 +</u>	
	<u>Occupied 1970</u>	<u>Remaining 2000</u>	<u>Occupied 1970</u>	<u>Remaining 2000</u>	<u>Occupied 1970</u>	<u>Remaining 2000</u>	<u>Occupied 1970</u>	<u>Remaining 2000</u>
Bucks	16,325	11,427	33,415	23,391	38,861	27,203	29,011	20,308
Chester	13,537	9,476	22,641	15,849	20,727	14,509	21,496	15,047
Delaware	31,581	22,107	49,831	34,882	51,751	36,226	47,506	33,254
Montgomery	27,751	19,426	48,152	33,706	51,500	36,050	61,072	42,750
Philadelphia	206,984	144,889	206,380	144,466	138,434	96,904	90,347	63,243
Burlington	13,548	9,484	25,271	17,690	25,061	17,543	20,908	14,636
Camden	30,363	21,254	40,607	28,425	37,175	26,023	30,263	21,184
Gloucester	9,884	6,919	15,810	11,067	14,796	10,357	9,203	6,442
Mercer	20,442	14,309	26,952	18,866	24,673	17,271	21,419	14,993
Region	<u>370,415</u>	<u>259,291</u>	<u>469,059</u>	<u>328,342</u>	<u>402,978</u>	<u>282,086</u>	<u>331,225</u>	<u>231,857</u>

TABLE 2

ADDITIONAL HOUSING UNITS REQUIRED 1970-2000
BY INCOME GROUP: STATUS QUO ALLOCATION

	Less than \$5,000	\$5,000 -9,999	\$10,000 -14,999	\$15,000+	TOTAL
Bucks	2,803	14,603	53,101	40,972	111,479
Chester	6,591	14,207	37,648	36,422	94,868
Delaware	3,120	8,400	49,161	43,393	104,074
Montgomery	5,128	16,511	71,091	75,300	168,030
Philadelphia	40,190	23,593	118,831	88,177	270,791
Burlington	5,298	15,189	41,880	34,861	97,228
Camden	7,746	10,242	40,364	33,085	91,437
Gloucester	5,614	10,530	25,470	17,467	59,081
Mercer	8,190	10,523	33,784	28,838	81,335
REGION	84,680	123,798	471,330	398,515	1,078,323

AVERAGE ANNUAL HOUSING REQUIREMENTS : 1973-2000

Bucks	104	541	1,967	1,517	4,129
Chester	244	526	1,394	1,349	3,513
Delaware	116	311	1,821	1,607	3,855
Montgomery	190	611	2,633	2,789	6,223
Philadelphia	1,489	874	4,401	3,266	10,030
Burlington	196	563	1,551	1,291	3,601
Camden	287	379	1,495	1,225	3,386
Gloucester	208	390	943	647	2,188
Mercer	303	390	1,251	1,068	3,012
REGION	3,137	4,585	17,456	14,759	39,937

TABLE 3

**ADDITIONAL HOUSING UNITS REQUIRED 1970-2000 BY INCOME GROUP:
EQUALIZATION TREND ALLOCATIONS**

	Less than \$5,000	\$5,000 -9,999	\$10,000 -14,999	\$15,000 +	TOTAL
Bucks	10,422	13,913	48,235	38,910	111,480
Chester	10,268	13,898	36,768	33,934	94,868
Delaware	5,441	8,072	47,248	43,313	104,074
Montgomery	14,698	19,792	66,170	67,370	168,030
Philadelphia	19,657	28,074	131,502	91,559	270,792
Burlington	10,277	13,876	39,535	33,540	97,228
Camden	6,621	9,753	40,774	34,289	91,437
Gloucester	6,552	8,999	24,771	18,760	59,082
Mercer	7,506	10,565	33,869	29,396	81,336
REGION	91,442	126,942	468,872	391,071	1,078,327

AVERAGE ANNUAL HOUSING REQUIREMENTS: 1973-2000

Bucks	386	515	1,787	1,441	4,129
Chester	380	515	1,362	1,257	3,514
Delaware	201	299	1,750	1,604	3,854
Montgomery	544	733	2,451	2,495	6,223
Philadelphia	728	1,040	4,870	3,391	10,029
Burlington	381	514	1,464	1,242	3,601
Camden	245	361	1,510	1,270	3,386
Gloucester	243	333	917	695	2,188
Mercer	278	391	1,254	1,089	3,012
REGION	3,386	4,701	17,365	14,484	39,936

TABLE 4.

ADDITIONAL HOUSING UNITS REQUIRED 1970-2000 BY
INCOME GROUP:RELATIVE WEALTH ALLOCATIONS

	<u>Less Than</u> <u>\$ 5,000</u>	<u>\$5,000-</u> <u>9,999</u>	<u>\$10,000-</u> <u>14,999</u>	<u>\$15,000+</u>	<u>TOTAL</u>
Bucks	13,880	9,877	46,426	41,296	111,479
Chester	12,614	13,187	39,188	29,879	95,868
Delaware	8,970	5,968	50,135	39,000	104,073
Montgomery	23,846	23,175	72,738	48,271	168,030
Philadelphia	-11,591	30,760	127,287	124,336	270,792
Burlington	13,491	12,511	38,758	32,468	97,228
Camden	7,201	8,980	40,653	34,602	91,436
Gloucester	7,219	7,516	22,935	21,412	59,082
Mercer	9,047	11,835	33,210	27,242	81,334
Region	<u>84,677</u>	<u>123,809</u>	<u>471,330</u>	<u>398,506</u>	<u>1,078,322</u>

AVERAGE ANNUAL HOUSING REQUIREMENTS: 1973-2000

Bucks	514	366	1,719	1,529	4,128
Chester	467	488	1,451	1,107	3,513
Delaware	332	221	1,857	1,444	3,854
Montgomery	883	858	2,694	1,788	6,223
Philadelphia	-429	1,139	4,714	4,605	10,029
Burlington	500	463	1,435	1,203	3,601
Camden	267	333	1,506	1,282	3,388
Gloucester	267	278	849	793	2,187
Mercer	335	438	1,230	1,009	3,012
Region	<u>3,136</u>	<u>4,584</u>	<u>17,455</u>	<u>14,760</u>	<u>39,935</u>

TABLE 5

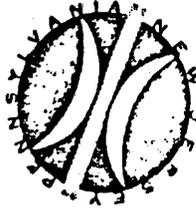
**ADDITIONAL HOUSING UNITS REQUIRED 1970 - 2000
BY INCOME GROUP: ADDITIONAL EMPLOYMENT ALLOCATIONS**

	Less than \$5,000	\$5,000 - \$9,999	\$10,000 - \$14,999	\$ \$15,000 +	TOTAL
Bucks	7,118	8,701	40,960	30,892	87,671
Chester	4,280	4,705	21,884	20,842	51,711
Delaware	5,845	7,624	48,131	42,286	103,886
Montgomery	17,771	21,990	72,576	68,483	180,820
Philadelphia	30,501	51,627	169,349	141,371	392,848
Burlington	4,190	5,590	26,158	20,940	56,878
Camden	8,568	13,013	47,352	37,795	106,728
Gloucester	1,029	1,778	12,903	8,454	24,164
Mercer	5,359	8,808	32,010	27,443	73,620
Region	84,661	123,836	471,323	398,506	1,078,326

AVERAGE ANNUAL HOUSING REQUIREMENTS: 1973-2000

Bucks	264	322	1,517	1,144	3,247
Chester	159	174	811	776	1,916
Delaware	217	282	1,783	1,566	3,848
Montgomery	658	814	2,688	2,536	6,696
Philadelphia	1,130	1,912	6,272	5,236	14,550
Burlington	155	207	969	776	2,107
Camden	317	482	1,754	1,400	3,953
Gloucester	38	66	478	313	895
Mercer	199	326	1,186	1,016	2,727
Region	3,137	4,585	17,458	14,759	39,939

MEMORANDUM



DELAWARE VALLEY REGIONAL PLANNING COMMISSION

Penn Square Building, 1317 Filbert Street, Philadelphia, Pennsylvania 19107

LOcust 8-3211

Subject Working Paper No. 22
HOUSING PLAN PROGRAM
REVISED EMPLOYMENT PROJECTIONS

To Record

Date December 20, 1972

From John Blair

1. Working Paper No. 18 presented employment projections for the region, assuming that Philadelphia would be able to stabilize its share of regional employment by 1980. These projections were criticized by TAC Housing because they led to unrealistically high employment projections for the city. In the revised projections presented in this paper the above assumption was relaxed. It is felt that the resulting projections do reflect a more realistic estimate of future allocation of regional employment. Revised employment projections are shown in Table 1.
2. Working Paper No. 19 developed incremental employment projections for the region. Since these were based upon employment projections described in Working Paper No. 18 they also had to be revised to correspond with the new projections. The procedures used are parallel to those described in Working Paper No. 19. Incremental employment projections are illustrated in Table 2.
3. The distribution of additional households between 1970 and 2000 based upon incremental employment, was modified to correspond with revisions in the latter and is presented in Table 3.
4. The distribution of year 2000 households, the sum of 1970 households discounted for expected changes in income plus expected additional households, is shown in Table 4.
5. Intra-county commutation was not considered in this paper. Working Paper No. 23 examines this issue.

TABLE 1

REVISED YEAR 2000 EMPLOYMENT PROJECTIONS

	<u>Less than \$5,000</u>	<u>\$5000- \$9,999</u>	<u>\$10,000- \$14,999</u>	<u>\$15,000 and more</u>	<u>TOTAL</u>
Bucks	28,359	97,199	73,496	44,726	243,780
Chester	16,749	60,907	45,776	29,227	152,659
Delaware	30,073	103,827	79,328	49,174	262,402
Montgomery	69,956	250,622	188,095	119,005	627,678
Philadelphia	85,725	345,998	272,205	186,963	890,891
Burlington	16,125	57,699	43,286	26,610	143,720
Camden	26,987	101,196	77,907	50,389	256,479
Gloucester	6,544	23,148	17,444	10,819	57,955
Mercer	19,695	77,524	59,618	40,401	197,238
Region	300,213	1,118,120	857,155	557,314	2,832,802

TABLE 2

REVISED INCREMENTAL EMPLOYMENT 1970 - 2000

	<u>Less than \$5,000</u>	<u>\$5000- \$9,999</u>	<u>\$10,000- \$14,999</u>	<u>\$15,000 and more</u>	<u>Total</u>
Bucks	17,437	56,875	43,184	26,157	143,652
Chester	8,398	29,576	21,609	14,321	73,903
Delaware	11,604	35,901	28,265	17,207	92,926
Montgomery	36,430	127,323	95,030	60,943	139,956
Philadelphia	-18,808	-46,841	-32,637	-15,549	-113,836
Burlington	9,451	33,399	25,207	15,346	83,401
Corridor	14,132	54,044	42,062	26,480	136,717
Gloucester	4,118	14,445	10,987	6,580	36,128
Mercer	7,322	31,605	24,137	16,137	79,200
Region	90,084	336,327	257,844	167,622	852,097

TABLE 3

REVISED INCREMENTAL HOUSEHOLD PROJECTIONS

	Less than \$5,000	\$5,000 - \$9,999	\$10,000 - \$14,999	\$15,000 and more	Total
Bucks	14,595	17,695	30,438	24,534	87,262
Chester	7,029	9,201	15,230	13,432	44,892
Delaware	9,712	11,169	19,923	16,139	56,943
Montgomery	30,493	39,614	66,982	57,163	194,252
Philadelphia	-15,743	-14,574	-23,003	-14,584	-67,904
Burlington	7,910	10,391	17,767	14,394	50,462
Camden	11,823	16,814	29,646	24,837	83,120
Gloucester	3,446	4,493	7,744	6,171	21,854
Mercer	6,128	9,833	17,013	15,136	48,110
Region	75,393	104,636	181,740	157,222	518,991

TABLE 4

REVISED HOUSEHOLD PROJECTIONS

	Less than \$5,000	\$5,000 - \$9,999	\$10,000 - \$14,999	\$15,000 or more	Total
Bucks	31,191	37,732	62,041	48,563	179,527
Chester	18,422	23,642	38,623	31,734	112,421
Delaware	33,077	40,301	66,932	53,393	193,703
Montgomery	76,946	97,288	158,716	129,219	462,169
Philadelphia	94,289	134,313	229,684	203,012	661,298
Burlington	17,735	22,397	36,518	28,890	105,540
Camden	29,682	39,281	65,738	54,712	189,413
Gloucester	7,195	8,989	14,718	11,746	42,643
Mercer	21,661	30,092	50,304	43,867	145,924
Region	330,198	434,030	723,274	605,136	2,092,638

MEMORANDUM



DELAWARE VALLEY REGIONAL PLANNING COMMISSION

Penn Square Building, 1317 Filbert Street, Philadelphia, Pennsylvania 19107

LOcust 8-3211

Subject : Working Paper No. 23
HOUSING PLAN PROGRAM
HOUSEHOLD ALLOCATION BY ADDITIONAL EMPLOYMENT UTILIZING 1970
COMMUTING PATTERNS

To : Record

Date : November 28, 1972

From : John Blair

This paper describes a modification of household allocation based on incremental employment (Working Paper No. 22). In Working Paper No. 22 additional employment was allocated to the county in which the employment took place. The assumption was made that employees would live in the same county in which employed.

In this Working Paper, employment projections are still made by county in which employment takes place. The assumption that an employee work and live in the same county is relaxed to permit a distribution of place of residence in accordance with the observed 1970 commuting pattern.

1. Tables 1 and 2 show 1960 and 1970 work-to-home commuting patterns. Table 1 was derived from THE JOURNEY TO WORK, a Public Information Bulletin of the Philadelphia City Planning Commission. The last row of each table shows the net in or out commuting occurring in each county. In 1960, Philadelphia and Mercer Counties experienced net incommutation. The remaining seven counties experienced net outcommutation. In 1970, Philadelphia, Mercer and Montgomery Counties had net incommuting while the remaining six had net outcommuting.

Table 2 is derived from THE FOURTH COUNT, 1970 CENSUS OF POPULATION. Complete information on commutation not presented in these reports; hence it has been necessary to estimate some of the cells of Table 2. These all total less than 5% of all trips; hence errors in there estimates will not bias the results greatly.

2. Table 3 shows the information contained in Table 2 converted to a percentage distribution. The rows tabulate place of residence and the columns the place of work. For example, the first row, fifth column shows that, according to 1970 Census of Population tabulations, 8.305 percent of the employees in Bucks County reside in Philadelphia.

3. Although it is recognized that income has a substantial effect on an employee's commuting pattern, there is no data available to detail this. Accordingly, Table 3 was applied to incremental (1970-2000) employees in all income classes (see Working Paper No. 22) to generate incremental employees by place of residence (Table 4).

Page 2
November 28, 1972

4. Table 5 is a frequency distribution of Table 4.
5. Table 6 shows the distribution of additional households based upon incremental employment after commuting.

1960
WORK TO HOME TRIPS

Place of Work	Bucks	Chester	Del.	Mont.	Phila.	Burl.	Camden	Glou.	Mercer	Outside	Total	In- Commuting
Bucks	57,843	74	381	4,253	5,118	1,350	368	77	2,728	2,187	74,379	16,536
Chester	169	53,996	2,943	4,654	2,316	54	191	101	0	2,910	67,334	13,338
Delaware	307	2,690	103,586	2,760	12,667	250	1,236	464	0	3,854	127,814	24,228
Montgomery	8,858	5,859	8,909	120,832	19,867	232	748	191	79	6,342	171,917	51,085
Philadelphia	21,098	4,755	69,527	52,350	671,103	9,301	33,913	7,964	532	8,292	878,835	207,732
Burlington	1,979	24	187	208	1,608	67,883	4,776	568	2,572	3,269	83,074	15,191
Camden	695	91	1,694	901	9,586	6,878	89,493	7,617	126	2,847	119,928	30,435
Gloucester	43	11	175	56	543	233	3,318	25,622	0	1,707	31,708	6,086
Mercer	9,180	0	116	216	762	3,683	483	85	90,847	7,880	113,252	22,405
Outside	5,066	4,980	7,362	4,941	7,298	1,904	3,010	3,849	5,117		43,527	
Total	105,238	72,480	194,880	191,171	730,868	91,768	137,536	46,538	102,001	39,288	1,803,331	
Outcommuting	47,395	18,484	91,294	70,339	59,765	23,885	48,043	20,916	11,154			
Net	-30,859	-5,146	-67,066	-19,254	+147,967	-8,694	-17,608	-14,830	+11,251			

1970
WORK TO HOME TRIPS

Place of Work	Bucks	Chester	Del.	Mont.	Phila.	Burl.	Camden	Glou.	Mercer	Outside	Total	In- Commuting
Bucks	83,094	290	608	8,024	9,302	2,358	627	152	2,928	4,615	111,998	28,904
Chester	441	60,017	5,022	5,754	2,467	119	271	137	28	6,141	80,397	20,380
Delaware	1,249	5,859	112,388	4,505	14,624	384	1,690	707	235	8,133	149,774	37,386
Montgomery	17,031	10,802	13,862	150,822	35,338	1,152	1,690	379	284	13,385	244,745	93,923
Philadelphia	25,742	6,787	66,342	49,709	559,771	15,005	38,114	10,854	592	17,500	790,416	230,645
Burlington	2,179	633	1,215	1,493	4,126	74,316	7,948	693	2,600	6,899	102,107	27,791
Camden	2,101	1,472	3,641	2,850	12,266	13,358	93,602	9,489	----	6,008	144,786	51,184
Gloucester	538	609	951	806	2,236	1,029	5,110	30,490	857	3,602	46,228	15,738
Mercer	5,680	----	1,569	1,215	3,763	6,945	2,780	282	92,766	16,631	131,631	38,865
Outside	21,784	10,235	11,415	11,013		5,654	8,954	5,471	17,343	0	91,869	
Total	159,839	96,704	217,013	236,191	643,893	120,320	160,786	58,654	117,633	82,922	1,893,951	
Outcommuting	76,745	36,687	104,388	85,369	84,122	46,004	67,184	28,164	24,867			
Net	-47,841	-16,307	-67,002	+8,554	+146,523	-18,213	-16,000	-12,426	+13,998			

TABLE 3
1970
WORK TO HOME TRIP DISTRIBUTION

	Bucks	Chester	Delaware	Montgomery	Philadelphia	Burlington	Camden	Gloucester	Mercer	Outside	Total
Bucks	74.172	00.258	00.542	07.164	08.305	02.105	00.559	00.135	02.614	04.120	100.00
Chester	00.548	74.650	06.246	07.156	03.068	00.148	00.337	00.170	00.034	07.638	100.00
Delaware	00.833	03.911	75.038	03.007	09.764	00.256	01.128	00.472	00.156	05.430	100.00
Montgomery	06.958	04.413	05.663	61.624	14.459	00.470	00.690	00.154	00.116	05.468	100.00
Philadelphia	03.256	00.858	08.393	06.288	70.819	01.898	04.822	01.373	00.074	02.214	100.00
Burlington	02.134	00.619	01.189	01.462	04.041	72.786	07.784	00.678	02.546	06.756	100.00
Camden	01.451	01.016	02.514	01.968	08.471	09.226	64.648	06.553	00.004	04.149	100.00
Gloucester	01.163	01.317	02.057	01.743	04.836	02.225	11.053	65.955	01.853	07.791	100.00
Mercer	04.315	0	01.191	00.923	02.858	05.276	02.111	00.214	70.474	12.634	100.00
Outside	23.712	11.140	12.425	11.987	0	06.154	09.74	05.955	18.877	0	100.00
TOTAL	08.439	05.105	11.458	12.470	33.997	06.352	08.489	03.096	06.210	04.378	100.00

**TABLE 4
EMPLOYEES BY INCOME AT RESIDENCE
(AFTER COMMUTING)**

	\$5,000	\$5 - \$10,000	\$10 - \$15,000	\$15,000	Total
Bucks	16,803	56,885	43,228	26,771	143,687
Chester	8,953	31,607	23,380	15,339	79,279
Delaware	10,990	36,828	28,856	18,276	94,950
Montgomery	24,541	86,833	65,099	41,973	218,446
Philadelphia	-3,228	1,900	3,435	5,733	7,840
Burlington	9,153	33,326	25,352	15,751	83,582
Camden	10,505	40,829	31,808	20,230	103,372
Gloucester	3,870	14,180	10,892	6,716	35,658
Mercer	6,804	28,136	21,480	14,190	70,610
Region	88,391	330,524	253,530	164,979	837,424

**TABLE 5
PERCENTAGE DISTRIBUTION OF EMPLOYEES**

	\$5,000	\$5 - \$10,000	\$10 - \$15,000	\$15,000
Bucks	19.009	17.210	17.050	16.226
Chester	10.128	09.562	09.221	09.297
Delaware	12.433	11.142	11.381	11.077
Montgomery	27.764	26.271	25.677	25.441
Philadelphia	-03.651	00.574	01.354	03.474
Burlington	10.355	10.082	09.999	09.547
Camden	11.884	12.352	12.546	12.262
Gloucester	04.378	04.290	04.296	04.070
Mercer	07.697	08.512	08.472	08.601
Total	100.00	100.00	100.00	100.00

**TABLE 6
HOUSEHOLDS BY INCOME AT RESIDENCE
(AFTER COMMUTING)**

	\$5,000	\$5 - \$10,000	\$10 - \$15,000	\$15,000	Total
Bucks	14,330	18,013	30,986	25,511	88,840
Chester	7,635	10,008	16,758	14,617	49,018
Delaware	9,373	11,662	20,683	17,416	59,134
Montgomery	20,931	27,497	46,665	40,000	135,093
Philadelphia	-2,752	600	2,460	5,462	5,770
Burlington	7,806	10,552	18,172	15,010	51,540
Camden	8,959	12,928	22,801	19,279	63,967
Gloucester	3,300	4,490	7,807	6,399	21,996
Mercer	5,802	8,909	15,397	13,523	43,631
Region	75,389	104,670	181,741	157,227	519,027

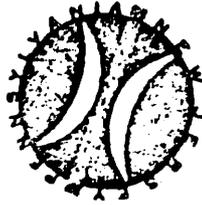
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104,670

181,741

157,227

519,027



DELAWARE VALLEY REGIONAL PLANNING COMMISSION

Penn Square Building, 1317 Filbert Street, Philadelphia, Pennsylvania 19107

LOout 8-3211

MEMORANDUM

Subject Working Paper No. 24
HOUSING PLAN PROGRAM
COMPARISON OF ALLOCATION OF HOUSEHOLDS BY EMPLOYMENT WITH AND WITHOUT
COMMUTATION

To Record

Date November 28, 1972

From John Blair

This paper compares employment based allocation of year 2000 households with and without commutation.

1. Table 1, 1970 HOUSEHOLDS IN 2000, shows 1970 household distribution discounted for expected changes in income structure in year 2000. This table was developed in Working Paper 15.
2. Table 2, DISTRIBUTION OF ADDITIONAL HOUSEHOLDS 1970-2000 IN PROPORTION TO ADDITIONAL JOBS (NO COMMUTING), shows the distribution of additional job based households without consideration of commuting patterns. This table was developed in Working Paper No. 23.
3. Table 3, DISTRIBUTION OF ADDITIONAL HOUSEHOLDS 1970-2000 IN PROPORTION TO ADDITIONAL JOBS (WITH COMMUTING), shows the distribution of additional job base households with consideration of commuting patterns. This table was developed in Working Paper No. 23.
4. Table 4, HOUSEHOLDS IN YEAR 2000, WITHOUT COMMUTING, represents the sum of discounted 1970 households (TABLE 1) and additional households 1970-2000 (TABLE 2) Commuting patterns are not considered in this table.
5. Table 5, HOUSEHOLDS IN YEAR 2000, WITH COMMUTING, represents the sum of discounted 1970 households (TABLE 1) and additional households 1970-2000 (TABLE 3). Commuting patterns are considered in this table.

TABLE 1

COUNTY	1970 HOUSEHOLDS IN 2000				TOTAL
	- \$5,000	\$5- 9,999	\$10- 14,999	\$15,000 +	
Bucks	10,175	21,616	48,764	37,057	117,612
Chester	8,641	15,001	26,637	28,122	78,401
Delaware	20,031	32,804	66,085	61,749	180,669
Montgomery	17,061	30,723	63,746	76,945	188,475
Philadelphia	150,179	155,405	202,218	134,343	642,145
Burlington	8,631	16,711	32,146	27,300	84,788
Camden	20,072	27,861	49,477	40,998	138,408
Gloucester	6,554	10,880	19,753	12,506	49,693
Mercer	13,460	18,419	32,706	28,901	93,486
REGION	254,804	329,420	541,532	447,921	1,573,677

TABLE 2

DISTRIBUTION OF ADDITIONAL HOUSEHOLDS 1970-2000
IN PROPORTION TO ADDITIONAL JOBS (NO COMMUTING)

	Less than \$5,000	\$5,000 - \$9,999	\$10,000 - \$14,999	\$15,000 or more	Total
Bucks	14,595	17,695	30,438	24,534	87,262
Chester	7,029	9,201	15,230	13,432	44,892
Delaware	9,712	11,169	19,923	16,139	56,943
Montgomery	30,493	39,614	66,982	57,163	194,252
Philadelphia	-15,743	-14,574	-23,003	-14,584	-67,904
Burlington	7,910	10,391	17,767	14,394	50,462
Camden	11,823	16,814	29,646	24,837	83,120
Gloucester	3,446	4,493	7,744	6,171	21,854
Mercer	6,128	9,833	17,013	15,136	48,110
Region	75,393	104,636	181,740	157,222	518,991

TABLE 3

DISTRIBUTION OF ADDITIONAL HOUSEHOLDS 1970-2000
IN PROPORTION TO ADDITIONAL JOBS (WITH COMMUTING)

	\$2500	\$5,000 - \$9,999	\$10,000 - \$14,999	\$15,000 or more	TOTAL
Bucks	14,330	18,013	30,986	25,511	88,840
Chester	7,635	10,008	16,758	14,617	49,018
Delaware	9,373	11,662	20,683	17,416	59,134
Montgomery	20,931	27,497	46,665	40,000	135,093
Philadelphia	-2,752	600	2,460	5,462	5,770
Burlington	7,806	10,552	18,172	15,010	51,540
Camden	8,959	12,928	22,801	19,279	63,967
Gloucester	3,300	4,490	7,807	6,399	21,996
Mercer	5,802	8,909	15,397	13,523	43,631
Region	75,389	104,670	181,741	157,227	518,027
	75,364	104,659	181,751	157,217	518,131

TABLE 4
WITHOUT COMMUTING

	5,000	5 - 10,000	10 - 15,000	15,000	Total
Bucks	24,770	39,311	79,202	61,591	204,874
Chester	15,670	24,202	41,867	41,554	123,293
Delaware	29,743	43,973	86,008	77,888	237,612
Montgomery	47,554	70,337	130,728	134,108	382,727
Philadelphia	134,436	140,831	179,215	119,759	574,241
Burlington	16,541	27,102	49,913	41,694	135,250
Camden	31,895	44,675	79,123	65,835	221,528
Gloucester	10,000	15,373	27,497	18,677	71,547
Mercer	19,588	28,252	49,719	44,037	141,596
Total	330,197	434,056	723,272	605,143	209,266

2024/03

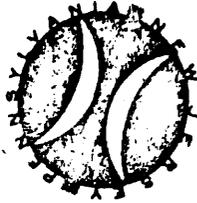
TABLE 5
HOUSEHOLDS IN YEAR 2000
(WITH COMMUTING)

	5,000	5 - 10,000	10 - 15,000	15,000	Total
Bucks	24,505	39,629	79,750	62,568	206,452
Chester	16,276	25,009	43,395	42,739	127,419
Delaware	29,404	44,466	86,768	79,165	239,803
Montgomery	37,992	58,220	110,411	116,945	323,568
Philadelphia	147,427	156,005	204,678	139,805	647,915
Burlington	16,437	27,263	50,318	42,310	136,328
Camden	29,031	40,789	72,278	60,277	202,375
Gloucester	9,854	15,370	27,560	18,905	71,689
Mercer	19,262	27,328	48,102	42,424	137,117
Total	330,188	434,079	723,261	605,148	2,092,676

605,148

2024/03

MEMORANDUM



DELAWARE VALLEY REGIONAL PLANNING COMMISSION

Penn Square Building, 1317 Filbert Street, Philadelphia, Pennsylvania 19107

LOoust 8-3211

Subject HOUSING PLAN PROGRAM
WORKING PAPER NO. 25
ALTERNATIVE HOUSING ALLOCATIONS

To Record

Date December 20, 1972

From Thomas J. Dyckman

This Working Paper presents the calculations of alternate housing allocations as requested by the Housing TAC. Specifically, TAC requested varying combinations of five alternative allocation models previously presented, which were:

1. Equalization Trend
2. Relative Wealth
3. Additional Employment A (original projections without commutation)
4. Additional Employment B (revised projections without commutation)
5. Additional Employment C (revised projections with commutation)

TACs requested weighted combinations of the above to include variations of:

1. 50% Equalization, Relative Wealth or Additional Employment combined with 25% of the other two;
2. 50% of any two, except Employment A; and
3. One-third of each, except Employment A.

The resulting fourteen combinations are attached along with a diagram illustrating the respective weights of the combinations.

NOTE: The accompanying combinations include corrections of previously distributed copies.

TJD:rs

HOUSING ALLOCATION MODELS

INPUT MATRIX 1

ADDITIONAL HOUSING UNITS REQUIRED 1970-2000:
EQUILIZATION TREND ALLOCATION

INCOME CLASS	1	2	3	4	TOTALS
BUCKS	10422.	13913.	48235.	38910.	111,480
CHESTER	10268.	13898.	36768.	33934.	94,868
DELAWARE	5441.	8072.	47248.	43313.	104,074
MONTGOMERY	14698.	19792.	66170.	67370.	168,030
PHILADELPHIA	19657.	28074.	131502.	91559.	270,792
BURLINGTON	10277.	13876.	39535.	33540.	97,228
CAMDEN	6621.	9753.	40774.	34289.	91,437
GLOUCESTER	6552.	8999.	24771.	18760.	59,082
MERCER	7506.	10565.	33869.	29396.	81,336
TOTALS	11443	15672	46872	31107	107,327

THIS IS THE MATRIX THAT WILL BE WEIGHTED BY WEIGHT 1 IN EACH OF THE FOLLOWING OUTPUT MATRICES. THE VALUE OF EACH WEIGHT FOR EACH OUTPUT MATRIX WILL BE GIVEN ABOVE THAT OUTPUT MATRIX.

INCOME CLASSES:

1. MORE THAN \$5,000

2. \$ 3,000 - 4,999

3. \$ 1,000 - 2,999

4. \$ 15,000 +

INPUT MATRIX 2

ADDITIONAL HOUSING UNITS REQUIRED 1970-2000 :
RELATIVE WEALTH ALLOCATION

INCOME CLASS	1	2	3	4	TOTALS
BUCKS	13880.	9877.	46426.	41296.	111479
CHESTER	12614.	13187.	39188.	29879.	94868
DELAWARE	8970.	5968.	50135.	39000.	104073
MONTGOMERY	23846.	23175.	72738.	48271.	168030
PHILADELPHIA	-11591.	30760.	127287.	124336.	270792
BURLINGTON	13491.	12511.	38758.	32468.	97228
CAMDEN	7201.	8980.	40653.	34602.	91436
GLOUCESTER	7219.	7516.	22935.	21412.	59082
MERCER	9047.	11835.	33210.	27242.	81334
TOTALS	84677	123809	471330	398506	1078322

THIS IS THE MATRIX THAT WILL BE WEIGHTED BY WEIGHT 2 IN EACH OF THE FOLLOWING OUTPUT MATRICES. THE VALUE OF EACH WEIGHT FOR EACH OUTPUT MATRIX WILL BE GIVEN ABOVE THAT OUTPUT MATRIX.

INPUT MATRIX 3

ADDITIONAL HOUSING UNITS REQUIRED 1970-2000;
ADDITIONAL EMPLOYMENT ALLOCATION

INCOME CLASS	1	2	3	4	TOTALS
BUCKS	7118.	8701.	40960.	30892.	87671
CHESTER	4280.	4705.	21884.	20842.	51711
DELAWARE	5845.	7624.	48131.	42286.	103886
MONTGOMERY	17771.	21990.	72576.	68483.	180820
PHILADELPHIA	30501.	51627.	169349.	141371.	392848
BURLINGTON	4190.	5590.	26158.	20940.	56878
CAMDEN	8568.	13013.	47352.	37795.	106728
GLOUCESTER	1029.	1778.	12903.	8454.	24164
MERCER	5359.	8808.	32010.	27443.	73620
TOTALS	84661	123536	471323	398506	1078326

THIS IS THE MATRIX THAT WILL BE WEIGHTED BY WEIGHT 3 IN EACH OF THE FOLLOWING OUTPUT MATRICES. THE VALUE OF EACH WEIGHT FOR EACH OUTPUT MATRIX WILL BE GIVEN ABOVE THAT OUTPUT MATRIX.

INPUT MATRIX 4

ADDITIONAL HOUSING UNITS REQUIRED 1970-2000 ;
 REVISED EMPLOYMENT PROJECTIONS, WITHOUT COMMUTATION

INCOME CLASS	1	2	3	4	TOTALS
BUCKS	14375.	17559.	55298.	43849.	131081
CHESTER	6847.	9361.	29103.	28238.	73549
DELAWARE	8875.	10923.	53366.	47880.	121044
MONTGOMERY	30109.	39562.	100125.	96946.	266742
PHILADELPHIA	-4851.	2234.	89777.	61506.	148666
BURLINGTON	7746.	10541.	34450.	28795.	81532
CAMDEN	11970.	18111.	56397.	47394.	133872
GLOUCESTER	3498.	4946.	18286.	13013.	39743
MERCER	6095.	10563.	34520.	30879.	82057
TOTALS	84664	123800	471322	398500	1078286

THIS IS THE MATRIX THAT WILL BE WEIGHTED BY WEIGHT 4 IN EACH OF THE FOLLOWING OUTPUT MATRICES. THE VALUE OF EACH WEIGHT FOR EACH OUTPUT MATRIX WILL BE GIVEN ABOVE THAT OUTPUT MATRIX.

INPUT MATRIX 5

ADDITIONAL HOUSING UNITS REQUIRED 1970-2000:
 REVISED EMPLOYMENT PROJECTIONS, WITH COMMUTATION

INCOME CLASS	1	2	3	4	TOTALS
BUCKS	14099.	17889.	55870.	44867.	132725
CHESTER	7478.	10202.	30694.	29473.	77847
DELAWARE	8522.	11437.	54157.	49210.	123326
MONTGOMERY	20149.	26940.	78961.	79068.	205118
PHILADELPHIA	8681.	18039.	116302.	82387.	225409
BURLINGTON	7638.	10709.	34871.	29437.	82655
CAMDEN	8987.	14063.	49267.	41604.	113921
GLOUCESTER	3346.	4943.	18351.	13251.	39891
MERCER	5756.	9601.	32836.	29199.	77392
TOTALS	84656	123823	471309	393496	1078284

THIS IS THE MATRIX THAT WILL BE WEIGHTED BY WEIGHT 5 IN EACH OF THE FOLLOWING OUTPUT MATRICES. THE VALUE OF EACH WEIGHT FOR EACH OUTPUT MATRIX WILL BE GIVEN ABOVE THAT OUTPUT MATRIX.

WEIGHTED OUTPUT MATRIX 1

WEIGHT 1 = 0.500
 WEIGHT 2 = 0.250
 WEIGHT 3 = 0.250
 WEIGHT 4 = 0.0
 WEIGHT 5 = 0.0

INCOME CLASS	1	2	3	4	TOTALS
BUCKS	10461.	11601.	45964.	37502.	105528.
CHESTER	9358.	11422.	33652.	29647.	84079.
DELAWARE	6424.	7434.	48191.	41978.	104027.
MONTGOMERY	17753.	21187.	69414.	62874.	171228.
PHILADELPHIA	14556.	34634.	139910.	112206.	301306.
BURLINGTON	9559.	11463.	35997.	30122.	87141.
CAMDEN	7253.	10375.	42388.	35244.	95260.
GLOUCESTER	5338.	6823.	21345.	16847.	50353.
MERCER	7355.	10443.	33240.	28369.	79407.
TOTALS	88056.	125382.	470099.	394789.	1078325.

WEIGHTED OUTPUT MATRIX 2

WEIGHT 1 = 0.500
 WEIGHT 2 = 0.250
 WEIGHT 3 = 0.0
 WEIGHT 4 = 0.250
 WEIGHT 5 = 0.0

INCOME CLASS	1	2	3	4	TOTALS
BUCKS	12275.	13816.	49549.	40741.	116380.
CHESTER	9999.	12586.	35457.	31496.	89538.
DELAWARE	7182.	8259.	49499.	43377.	108316.
MONTGOMERY	20838.	25580.	76301.	69989.	192708.
PHILADELPHIA	5718.	22286.	120017.	92240.	240261.
BURLINGTON	10448.	12701.	38070.	32086.	93304.
CAMDEN	8103.	11649.	44650.	37644.	102046.
GLOUCESTER	5955.	7615.	22691.	17986.	54247.
MERCER	7539.	10882.	33867.	29228.	81516.
TOTALS	88056.	125373.	470099.	394787.	1078315.

WEIGHTED OUTPUT MATRIX 3

WEIGHT 1 = 0.500
 WEIGHT 2 = 0.250
 WEIGHT 3 = 0.0
 WEIGHT 4 = 0.0
 WEIGHT 5 = 0.250

INCOME CLASS	1	2	3	4	TOTALS
BUCKS	12206.	13898.	49692.	40996.	116791.
CHESTER	10157.	12796.	35855.	31805.	90613.
DELAWARE	7094.	8387.	49697.	43709.	108887.
MONTGOMERY	18348.	22425.	71010.	65520.	177302.
PHILADELPHIA	9101.	26237.	126648.	97460.	259446.
BURLINGTON	10421.	12743.	38175.	32246.	93585.
CAMDEN	7358.	10637.	42867.	36196.	97058.
GLOUCESTER	5917.	7614.	22707.	18046.	54284.
MERCER	7454.	10642.	33446.	28808.	80350.
TOTALS	88054.	125379.	470096.	394786.	1078315.

WEIGHTED OUTPUT MATRIX 4

WEIGHT 1 = 0.250
 WEIGHT 2 = 0.500
 WEIGHT 3 = 0.0
 WEIGHT 4 = 0.250
 WEIGHT 5 = 0.0

INCOME CLASS	1	2	3	4	TOTALS
BUCKS	13139.	12807.	49096.	41338.	116380.
CHESTER	10586.	12408.	36062.	30483.	89538.
DELAWARE	8064.	7733.	50221.	42298.	108316.
MONTGOMERY	23125.	26426.	77943.	65215.	192708.
PHILADELPHIA	-2094.	22957.	118963.	100434.	240261.
BURLINGTON	11251.	12360.	37875.	31818.	93304.
CAMDEN	8248.	11456.	44619.	37722.	102045.
GLOUCESTER	6122.	7244.	22232.	18649.	54247.
MERCER	7924.	11200.	33702.	28690.	81515.
TOTALS	86365.	124590.	470714.	396646.	1078314.

WEIGHTED OUTPUT MATRIX 5

WEIGHT 1 = 0.250
 WEIGHT 2 = 0.500
 WEIGHT 3 = 0.0
 WEIGHT 4 = 0.0
 WEIGHT 5 = 0.250

INCOME CLASS	1	2	3	4	TOTALS
BUCKS	13070.	12889.	49239.	41592.	116791.
CHESTER	10744.	12619.	36460.	30791.	90613.
DELAWARE	7976.	7861.	50419.	42631.	108887.
MONTGOMERY	20635.	23271.	72652.	60745.	177302.
PHILADELPHIA	1289.	26908.	125595.	105655.	259446.
BURLINGTON	11224.	12402.	37981.	31978.	93585.
CAMDEN	7503.	10444.	42837.	36274.	97058.
GLOUCESTER	6084.	7244.	22248.	18709.	54284.
MERCER	7839.	10959.	33281.	28270.	80349.
TOTALS	86363.	124596.	470710.	396645.	1078313.

WEIGHTED OUTPUT MATRIX 6

WEIGHT 1 = 0.250
 WEIGHT 2 = 0.250
 WEIGHT 3 = 0.0
 WEIGHT 4 = 0.500
 WEIGHT 5 = 0.0

INCOME CLASS	1	2	3	4	TOTALS
BUCKS	13263.	14727.	51314.	41976.	121280.
CHESTER	9144.	11452.	33541.	30072.	84209.
DELAWARE	8040.	8972.	51029.	44518.	112559.
MONTGOMERY	24691.	30523.	84790.	77383.	217386.
PHILADELPHIA	-409.	15826.	109586.	84727.	209729.
BURLINGTON	9815.	11867.	36798.	30900.	89380.
CAMDEN	9441.	13739.	48555.	40920.	112654.
GLOUCESTER	5192.	6602.	21070.	16550.	49413.
MERCER	7186.	10882.	34030.	29599.	81696.
TOTALS	86362.	124588.	470712.	396644.	1078305.

WEIGHTED OUTPUT MATRIX 7

WEIGHT 1 = 0.250
 WEIGHT 2 = 0.250
 WEIGHT 3 = 0.0
 WEIGHT 4 = 0.0
 WEIGHT 5 = 0.500

INCOME CLASS	1	2	3	4	TOTALS
BUCKS	13125.	14892.	51600.	42485.	122102.
CHESTER	9460.	11872.	34336.	30690.	86358.
DELAWARE	7864.	9229.	51424.	45183.	113700.
MONTGOMERY	19711.	24212.	74208.	68444.	186574.
PHILADELPHIA	6357.	23728.	122848.	95167.	248101.
BURLINGTON	9761.	11951.	37009.	31221.	89942.
CAMDEN	7949.	11715.	44990.	38025.	102679.
GLOUCESTER	5116.	6600.	21102.	16669.	49487.
MERCER	7016.	10401.	33188.	28759.	79364.
TOTALS	86358.	124599.	470705.	396642.	1078304.

WEIGHTED OUTPUT MATRIX 8

WEIGHT 1 = 0.334
 WEIGHT 2 = 0.333
 WEIGHT 3 = 0.0
 WEIGHT 4 = 0.333
 WEIGHT 5 = 0.0

INCOME CLASS	1	2	3	4	TOTALS
BUCKS	12890.	13783.	49985.	41349.	118007.
CHESTER	9910.	12150.	35021.	30687.	87769.
DELAWARE	7760.	8321.	50247.	43398.	109725.
MONTGOMERY	22876.	27502.	79664.	70859.	200901.
PHILADELPHIA	1090.	20364.	116204.	92466.	230124.
BURLINGTON	10504.	12311.	37583.	31603.	92001.
CAMDEN	8595.	12279.	45936.	38757.	105567.
GLOUCESTER	5757.	7156.	22000.	17729.	52642.
MERCER	7549.	10987.	33866.	29173.	81575.
TOTALS	86932.	124852.	470506.	396020.	1078310.

WEIGHTED OUTPUT MATRIX 9

WEIGHT 1 = 0.334
 WEIGHT 2 = 0.333
 WEIGHT 3 = 0.0
 WEIGHT 4 = 0.0
 WEIGHT 5 = 0.333

INCOME CLASS	1	2	3	4	TOTALS
BUCKS	12798.	13893.	50175.	41688.	118554.
CHESTER	10120.	12430.	35551.	31098.	89200.
DELAWARE	7642.	8492.	50510.	43840.	110485.
MONTGOMERY	19559.	23299.	72617.	64905.	180380.
PHILADELPHIA	5596.	25627.	125037.	99419.	255679.
BURLINGTON	10468.	12367.	37723.	31817.	92375.
CAMDEN	7602.	10931.	43562.	36829.	98924.
GLOUCESTER	5707.	7155.	22022.	17809.	52691.
MERCER	7436.	10667.	33306.	28613.	80022.
TOTALS	86929.	124860.	470502.	396019.	1078309.

WEIGHTED OUTPUT MATRIX 10

WEIGHT 1 = 0.500
 WEIGHT 2 = 0.500
 WEIGHT 3 = 0.0
 WEIGHT 4 = 0.0
 WEIGHT 5 = 0.0

INCOME CLASS	1	2	3	4	TOTALS
BUCKS	12151.	11895.	47331.	40103.	111480.
CHESTER	11441.	13543.	37978.	31907.	94868.
DELAWARE	7206.	7020.	48692.	41157.	104074.
MONTGOMERY	19272.	21484.	69454.	57821.	168030.
PHILADELPHIA	4033.	29417.	129395.	107948.	270792.
BURLINGTON	11884.	13194.	39147.	33004.	97228.
CAMDEN	6911.	9367.	40714.	34446.	91437.
GLOUCESTER	6886.	8258.	23853.	20086.	59082.
MERCER	8277.	11200.	33540.	28319.	81335.
TOTALS	88060.	125376.	470101.	394789.	1078324.

WEIGHTED OUTPUT MATRIX 11

WEIGHT 1 = 0.500
 WEIGHT 2 = 0.0
 WEIGHT 3 = 0.0
 WEIGHT 4 = 0.500
 WEIGHT 5 = 0.0

INCOME CLASS	1	2	3	4	TOTALS
BUCKS	12399.	15736.	51767.	41380.	121281.
CHESTER	8558.	11630.	32936.	31086.	84209.
DELAWARE	7158.	9498.	50307.	45597.	112559.
MONTGOMERY	22404.	29677.	83148.	82158.	217386.
PHILADELPHIA	7403.	15154.	110640.	76533.	209729.
BURLINGTON	9012.	12209.	36993.	31168.	89380.
CAMDEN	9296.	13932.	48586.	40842.	112655.
GLOUCESTER	5025.	6973.	21529.	15887.	49413.
MERCER	6801.	10564.	34195.	30138.	81697.
TOTALS	88053.	125371.	470097.	394786.	1078306.

WEIGHTED OUTPUT MATRIX 12

WEIGHT 1 = 0.500
 WEIGHT 2 = 0.0
 WEIGHT 3 = 0.0
 WEIGHT 4 = 0.0
 WEIGHT 5 = 0.500

INCOME CLASS	1	2	3	4	TOTALS
BUCKS	12261.	15901.	52053.	41889.	122103.
CHESTER	8873.	12050.	33731.	31704.	86358.
DELAWARE	6982.	9755.	50703.	46262.	113700.
MONTGOMERY	17424.	23366.	72566.	73219.	186574.
PHILADELPHIA	14169.	23057.	123902.	86973.	248101.
BURLINGTON	8958.	12293.	37203.	31489.	89942.
CAMDEN	7804.	11908.	45021.	37947.	102679.
GLOUCESTER	4949.	6971.	21561.	16006.	49487.
MERCER	6631.	10083.	33353.	29298.	79364.
TOTALS	88049.	125383.	470091.	394784.	1078305.

WEIGHTED OUTPUT MATRIX 13

WEIGHT 1 = 0.0
 WEIGHT 2 = 0.500
 WEIGHT 3 = 0.0
 WEIGHT 4 = 0.500
 WEIGHT 5 = 0.0

INCOME CLASS	1	2	3	4	TOTALS
BUCKS	14128.	13718.	50862.	42573.	121280.
CHESTER	9731.	11274.	34146.	29059.	84209.
DELAWARE	8923.	8446.	51751.	43440.	112559.
MONTGOMERY	26978.	31369.	86432.	72609.	217386.
PHILADELPHIA	-8221.	16497.	108532.	92921.	209729.
BURLINGTON	10619.	11526.	36604.	30632.	89380.
CAMDEN	9586.	13546.	48525.	40998.	112654.
GLOUCESTER	5359.	6231.	20611.	17213.	49413.
MERCER	7571.	11199.	33865.	29061.	81696.
TOTALS	84671.	123805.	471326.	398503.	1078304.

WEIGHTED OUTPUT MATRIX 14

WEIGHT 1 = 0.0
 WEIGHT 2 = 0.500
 WEIGHT 3 = 0.0
 WEIGHT 4 = C.C
 WEIGHT 5 = 0.500

INCOME CLASS	1	2	3	4	TOTALS
BUCKS	13990.	13883.	51148.	43082.	122102.
CHESTER	10046.	11695.	34941.	29676.	86358.
DELAWARE	8746.	8703.	52146.	44105.	113700.
MONTGOMERY	21998.	25058.	75850.	63670.	186574.
PHILADELPHIA	-1455.	24400.	121795.	103362.	248101.
BURLINGTON	10565.	11610.	36815.	30953.	89942.
CAMDEN	8094.	11522.	44960.	38103.	102679.
GLOUCESTER	5283.	6230.	20643.	17332.	49487.
MERCER	7402.	10718.	33023.	28221.	79363.
TOTALS	84667.	123816.	471320.	398501.	1078303.



DELAWARE VALLEY REGIONAL PLANNING COMMISSION

Penn Towers Building, 1819 J.F. Kennedy Blvd., Philadelphia, Penna. 19103

LOcust 7-3000

MEMORANDUM

DATE May 19, 1976
FROM Walter K. Johnson, Exec. Direc.
TO Executive Committee and Board

SUBJECT Sub-County Housing Allocation
Plans - Municipal Allocations

At the April meeting of the Board, staff was asked to prepare an overview statement on the sub-county housing allocation plans - all of which have been completed. The attached sheets list the data from these plans, showing the allocation of housing by income group to municipalities within each of the eight counties outside of Philadelphia according to the respective county allocation plan. A comparison of the county-wide tabulation and DVRPC's allocation to the county is included and the date of county plan adoption is noted.

The Regional Housing Allocation Plan listed housing needs to the Year 2000 for four income groups - less than \$5,000, \$5,000 to \$9,999, \$10,000 to \$14,999 and \$15,000 or more.

Following is a list of differences between each of the nine county plans and the Regional Housing Allocation Plan:

1. Bucks County: Allocation of all four income groups to 1985.
2. Chester County: Allocation (in terms of a range of units) of all four income groups, to 2000.
3. Delaware County: Allocation of two income groups - less than \$10,000 and \$10,000 or more - to 2000.
4. Montgomery County: Allocation of three income groups - less than \$5,000, \$5,000 to \$9,999, and \$10,000 or more - to 1985; only growth housing units are allocated, not replacements.
5. Philadelphia: Philadelphia has no sub-county municipalities and thus no sub-allocation; the Philadelphia

May 19, 1976

City Planning Commission adopted DVRPC's allocation on February 5, 1976.

6. Burlington County: Allocation of all four income groups to 2000.
7. Camden County: Allocation of all four income groups to 2000.
8. Gloucester County: Allocation (in terms of a range of units) of three income groups - less than \$5,000, \$5,000 to \$9,999 and \$10,000 or more - to 2000.
9. Mercer County: Allocation (in terms of a range of units) of two income groups - less than \$5,000 and \$5,000 to \$9,999 - to 2000; no allocation of income groups above \$10,000.

As previously noted in individual reviews of the plans of each of the foregoing jurisdictions, they are all consistent with the DVRPC plan, and the regional plan and county plans may now be endorsed as an official set of housing allocation plans for the Delaware Valley region.

WKJ/gst
Attachments

BUCKS COUNTY HOUSING ALLOCATION PLAN 1970-1985*

Minor Civil Division	Income Group				TOTAL
	Less Than \$5,000	\$5,000- \$9,999	\$10,000- \$14,999	\$15,000 or more	
Bedminster Twp.	47	42	140	138	367
Bensalem Twp.	1,286	1,392	4,943	4,176	11,797
Bridgeton Twp.	11	11	39	34	95
Bristol Bor.	48	65	243	189	545
Bristol Twp.	496	505	1,757	1,518	4,276
Buckingham Twp.	229	204	681	632	1,746
Chalfont Bor.	45	33	103	108	289
Doylestown Bor.	103	83	265	261	712
Doylestown Twp.	281	388	1,446	1,119	3,234
Dublin Bor.	27	29	107	88	251
Durham Twp.	7	7	22	21	57
East Rockhill Twp.	73	87	321	261	742
Falls Twp.	401	531	1,981	1,548	4,461
Haycock Twp.	16	16	53	50	135
Hilltown Twp.	113	171	648	495	1,427
Hulmeville Bor.	3	4	13	11	31
Ivyland Bor.	7	7	28	23	65
Langhorne Bor.	8	9	32	27	76
Langhorne Manor Bor.	12	12	37	37	98
Lower Makefield Twp.	298	366	1,318	1,091	3,073
Lower Southampton T.	267	265	910	804	2,246
Middletown Twp.	686	617	2,067	1,904	5,274
Milford Twp.	77	97	358	287	819
Morrisville Bor.	71	81	287	240	679
New Britain Bor.	50	41	134	128	353
New Britain Twp.	168	222	827	652	1,869
New Hope Bor.	133	85	246	285	749
Newtown Bor.	13	14	48	41	116
Newtown Twp.	231	283	1,035	831	2,380
Nockamixon Twp.	32	30	102	92	256
Northampton Twp.	582	673	2,437	2,015	5,707
Pennel Bor.	8	7	26	23	64
Perkasie Bor.	126	137	490	411	1,164
Plumstead Twp.	137	166	601	491	1,395
Quakertown Bor.	100	111	385	333	929
Richlandtown Bor.	10	8	29	27	74
Richland Twp.	167	216	796	637	1,816
Riegelsville, Bor.	7	8	28	23	66
Sellersville Bor.	70	68	235	207	580
Silverdale Bor.	5	5	19	16	45
Solebury Twp.	103	86	287	273	749
Springfield Twp.	42	46	165	138	391
Telford Bor. (part)	10	11	41	34	96
Tinicum Twp.	43	43	145	134	365
Trumbauersville Bor.	9	10	35	29	83

BUCKS COUNTY HOUSING ALLOCATION PLAN 1970-1985* (continued)

Minor Civil Division	Income Group				TOTAL
	Less Than \$5,000	\$5,000- \$9,999	\$10,000- \$14,999	\$15,000 or more	
Tullytown Bor.	87	92	323	276	778
Upper Makefield Twp.	57	57	191	187	492
Upper Southampton T.	293	333	1,201	993	2,820
Warminster Twp.	502	533	1,886	1,600	4,521
Warrington Twp.	298	366	1,340	1,070	3,074
Warwick Twp.	72	86	309	254	721
West Rockhill Twp.	75	94	340	277	786
Wrightstown Twp.	48	56	210	210	524
Yardley Bor.	20	15	49	50	134
COUNTY TOTAL	8,110	8,924	31,759	26,799	75,592
(DVRPC Allocation**)	6,400	6,950	25,100	20,800	59,300)

* Adopted by Bucks County Planning Commission December 6, 1973 and County Commissioners August 13, 1974

** 1/2 1970-2000 allocation

CHESTER COUNTY HOUSING ALLOCATION PLAN, 1970-2000*

Minor Civil Division	Income Group				\$15,000 or more		TOTAL	
	Less Than \$5,000	\$5,000- \$9,999	\$10,000- \$14,999					
Atglen Bor.	22 - 33	33 - 50	112 - 122	140 - 153	307 - 358			
Avondale Bor.	26 - 41	34 - 54	100 - 112	43 - 54	203 - 261			
Birmingham Twp.	18 - 22	28 - 36	153 - 163	253 - 273	452 - 494			
Caln Twp.	116 - 164	204 - 304	701 - 781	267 - 328	1,288 - 1,577			
Charlestown Twp.	54 - 67	80 - 110	315 - 342	251 - 276	700 - 795			
Coatesville City	337 - 563	403 - 681	848 - 993	(-72)- (-2)	1,516 - 2,235			
Downingtown Bor.	218 - 318	331 - 495	1,012 - 1,119	(-197)- (-150)	1,364 - 1,782			
East Bradford Twp.	76 - 106	124 - 162	591 - 650	809 - 874	1,600 - 1,792			
East Brandywine T.	38 - 57	68 - 113	183 - 214	296 - 332	585 - 716			
East Caln Twp.	49 - 75	48 - 60	239 - 257	169 - 195	505 - 587			
East Coventry Twp.	59 - 80	130 - 202	407 - 458	531 - 586	1,127 - 1,326			
East Fallowfield T.	83 - 116	158 - 232	535 - 587	441 - 490	1,217 - 1,425			
East Goshen Twp.	113 - 138	249 - 334	1,100 - 1,189	772 - 887	2,234 - 2,548			
East Marlborough T.	62 - 90	84 - 119	353 - 396	484 - 532	983 - 1,137			
East Nantmeal Twp.	19 - 34	19 - 34	36 - 42	247 - 257	321 - 367			
East Nottingham T.	79 - 127	93 - 133	355 - 384	594 - 639	1,121 - 1,283			
East Pikeland Twp.	99 - 137	156 - 215	645 - 720	483 - 541	1,383 - 1,613			
Easttown Twp.	134 - 173	211 - 293	1,010 - 1,097	720 - 914	2,075 - 2,527			
East Vincent Twp.	89 - 121	143 - 208	480 - 531	316 - 351	1,028 - 1,211			
East Whiteland Twp.	163 - 206	266 - 342	1,347 - 1,451	786 - 904	2,562 - 2,903			
Elk Twp.	11 - 18	21 - 38	30 - 34	145 - 150	207 - 240			
Elverson Bor.	34 - 44	53 - 65	249 - 260	102 - 113	438 - 482			
Franklin Twp.	12 - 18	20 - 32	77 - 94	243 - 257	352 - 401			
Highland Twp.	25 - 42	27 - 44	81 - 94	358 - 377	491 - 557			
Honey Brook Bor.	22 - 36	38 - 66	73 - 86	7 - 14	140 - 202			
Honeybrook Twp.	80 - 118	133 - 193	475 - 513	822 - 882	1,510 - 1,706			
Kennett Square Bor.	121 - 217	105 - 186	203 - 255	90 - 132	519 - 790			
Kennett Twp.	90 - 131	117 - 162	514 - 560	462 - 531	1,183 - 1,384			
London Britain Twp.	17 - 28	20 - 34	51 - 63	180 - 188	268 - 313			
Londonderry Twp.	16 - 28	22 - 40	27 - 34	177 - 181	242 - 283			
London Grove Twp.	94 - 125	177 - 240	729 - 778	840 - 908	1,840 - 2,051			
Lower Oxford Twp.	59 - 90	86 - 125	310 - 335	475 - 509	930 - 1,059			
Malvern Bor.	49 - 74	90 - 151	219 - 251	81 - 105	439 - 581			
Modena Bor.	4 - 4	35 - 64	34 - 40	5 - 9	78 - 117			
New Garden Twp.	91 - 157	102 - 180	172 - 205	265 - 289	630 - 831			
Newlin Twp.	24 - 34	23 - 32	75 - 83	439 - 445	561 - 594			
New London Twp.	23 - 40	17 - 28	49 - 57	194 - 203	283 - 328			
North Coventry Twp.	160 - 247	265 - 416	789 - 888	1,000 - 1,110	2,214 - 2,661			
Oxford Bor.	138 - 227	164 - 254	456 - 499	187 - 220	945 - 1,200			
Parkesburg Bor.	70 - 115	79 - 125	255 - 294	310 - 353	714 - 887			
Pennsbury Twp.	30 - 43	37 - 49	169 - 189	363 - 400	599 - 681			
Penn Twp.	21 - 28	40 - 58	167 - 182	302 - 328	530 - 596			
Phoenixville Bor.	359 - 596	439 - 745	959 - 1,152	71 - 175	1,828 - 2,668			
Pocopson Twp.	27 - 37	43 - 66	131 - 144	245 - 256	446 - 503			
Sadsbury Twp.	70 - 114	80 - 121	268 - 293	424 - 467	842 - 995			

CHESTER COUNTY HOUSING ALLOCATION PLAN, 1970-2000** (continued)

Minor Civil Division	Income Group				TOTAL
	Less Than \$5,000	\$5,000- \$9,999	\$10,000- \$14,999	\$15,000 or more	
Schuylkill Twp.	129 - 158	247 - 325	1,121 - 1,220	605 - 714	2,102 - 2,417
So. Coatesville Bor.	42 - 70	58 - 99	106 - 119	40 - 51	246 - 339
South Coventry Twp.	25 - 41	32 - 54	85 - 109	102 - 111	244 - 315
Spring City Bor.	99 - 161	129 - 218	275 - 321	(-54) - (-35)	449 - 665
Thornbury Twp.	19 - 24	27 - 31	171 - 186	230 - 250	447 - 491
Tredyffrin Twp.	375 - 491	642 - 908	2,947 - 3,171	2,136 - 2,690	6,100 - 7,260
Upper Oxford Twp.	25 - 38	40 - 68	46 - 56	185 - 186	296 - 348
Upper Uwchlan Twp.	15 - 20	31 - 48	114 - 128	257 - 276	417 - 472
Uwchlan Twp.	108 - 133	207 - 267	1,031 - 1,123	851 - 970	2,197 - 2,493
Valley Twp.	126 - 174	207 - 287	715 - 781	213 - 248	1,261 - 1,490
Wallace Twp.	26 - 44	28 - 48	63 - 73	197 - 210	314 - 375
Warwick Twp.	25 - 42	43 - 76	73 - 92	247 - 264	388 - 474
West Bradford Twp.	107 - 146	185 - 235	850 - 911	895 - 958	2,037 - 2,250
West Brandywine T.	46 - 74	59 - 100	160 - 197	264 - 294	529 - 665
West Caln Twp.	57 - 96	70 - 123	141 - 178	442 - 463	710 - 860
West Chester Bor.	560 - 928	470 - 704	1,337 - 1,491	(-400) - (-324)	1,967 - 2,799
West Fallowfield T.	30 - 50	46 - 83	72 - 87	286 - 295	434 - 515
West Goshen Twp.	221 - 284	457 - 675	1,745 - 1,962	802 - 1,017	3,225 - 3,938
West Grove Bor.	59 - 95	71 - 108	211 - 235	8 - 20	349 - 458
West Marlborough T.	23 - 35	25 - 46	38 - 47	259 - 263	345 - 391
West Nantmeal Twp.	20 - 32	33 - 53	83 - 94	227 - 239	363 - 418
West Nottingham T.	34 - 56	43 - 72	78 - 90	146 - 150	301 - 368
West Pikeland Twp.	22 - 36	22 - 36	95 - 111	329 - 354	468 - 537
West Sadsbury Twp.	29 - 50	23 - 38	67 - 78	197 - 205	316 - 371
Westtown Twp.	103 - 127	184 - 225	1,018 - 1,099	783 - 916	2,088 - 2,367
West Vincent Twp.	24 - 38	46 - 83	95 - 115	279 - 301	444 - 537
West Whiteland Twp.	149 - 176	290 - 367	1,446 - 1,585	930 - 1,065	2,815 - 3,193
Willistown Twp.	150 - 219	194 - 282	857 - 965	1,695 - 1,866	2,896 - 3,332
COUNTY TOTAL	6,147 - 9,115	9,008 - 13,354	32,149 - 35,640	27,326 - 31,108	74,630 - 89,217
(DVRPC Allocation	10,100	12,400	35,600	31,100	89,200)

* Adopted by Chester County Planning Commission April 12, 1976

DELAWARE COUNTY HOUSING ALLOCATION PLAN 1970-2000*

Minor Civil Division	Income Group		TOTAL
	Less Than \$10,000	\$10,000 or more	
Aldan Bor.	78	306	384
Aston Twp.	418	2,961	3,379
Bethel Twp.	264	2,924	3,188
Birmingham Twp.	77	2,295	2,372
Brookhaven Bor.	127	732	859
Chester City	2,448	7,711	10,159
Chester Heights Bor.	92	719	811
Chester Twp.	226	923	1,149
Clifton Heights Bor.	145	942	1,087
Collingdale Bor.	299	925	1,224
Colwyn Bor.	57	205	262
Concord Twp.	656	5,914	6,570
Darby Bor.	305	846	1,151
Darby Twp.	328	1,341	1,669
East Lansdowne Bor.	79	179	258
Eddystone Bor.	78	1,136	1,214
Edgemont Gwp.	311	2,954	3,265
Folcroft Bor.	208	1,372	1,580
Glenolden Bor.	209	610	819
Haverford Twp.	751	3,530	4,281
Lansdowne Bor.	325	1,166	1,491
Lower Chichester T.	133	603	736
Marcus Hook Bor.	135	1,763	1,898
Marple Twp.	612	3,947	4,559
Media Bor.	147	803	950
Middletown Twp.	795	5,544	6,339
Millbourne Bor.	14	148	162
Morton Bor.	93	253	346
Nether Providence T.	395	1,582	1,977
Newtown Twp.	304	2,945	3,249
Norwood Bor.	163	590	753
Parkside Bor.	54	122	176
Prospect Park Bor.	178	477	655
Radnor Twp.	598	5,154	5,752
Ridley Park Bor.	162	543	705
Ridley Twp.	1,011	4,166	5,177
Rose Valley Bor.	12	125	137
Rutledge Bor.	23	63	86
Sharon Hill Bor.	170	614	784
Springfield Twp.	467	4,047	4,514
Swarthmore Bor.	73	527	600
Thornbury Twp.	80	2,588	2,668
Tinicum Twp.	195	4,025	4,220
Trainer Bor.	68	697	765
Upland Bor.	113	373	486

DELAWARE COUNTY HOUSING ALLOCATION PLAN 1974-1980* (continued)

Minor Civil Division	Income Group		TOTAL
	Less Than \$10,000	\$10,000 or more	
Upper Chichester T.	436	3,103	3,539
Upper Darby Twp.	1,741	7,331	9,072
Upper Providence T.	185	1,357	1,542
Yeadon Bor.	296	1,169	1,465
COUNTY TOTAL	16,134	94,350	110,484
(DVRPC Allocation	16,100	94,400	110,500)

* Adopted by Delaware County Planning Commission May 16, 1974

MONTGOMERY COUNTY HOUSING DISTRIBUTION PLAN 1970-1985*

Minor Civil Division	Income Group			TOTAL
	Less Than \$5,000	\$5,000- \$9,999	\$10,000 or more	
Abington Twp.	142	108	1,344	1,594
Ambler Bor.	7	5	92	104
Bridgeport Bor.	6	5	82	93
Bryn Athen Bor.	1	0	9	10
Cheltenham Twp.	126	122	1,275	1,523
Collegeville Bor.	7	15	273	295
Conshohocken Bor.	7	7	92	106
Douglass Twp.	41	20	571	632
East Greenville Bor.	0	0	0	0
East Norriton Twp.	94	55	842	991
Franconia Twp.	92	39	1,163	1,294
Greenlane Bor.	1	1	21	23
Hatboro Bor.	28	21	304	353
Hatfield Bor.	7	5	77	89
Hatfield Twp.	140	85	1,434	1,659
Horsham Twp.	126	80	1,531	1,737
Jenkintown Bor.	6	7	74	87
Lansdale Bor.	36	29	288	353
Limerick Twp.	81	48	1,237	1,366
Lower Frederick Twp.	19	17	479	515
Lower Gwynedd Twp.	55	43	678	776
Lower Merion Twp.	228	208	1,863	2,299
Lower Moreland Twp.	132	79	986	1,197
Lower Pottsgrove T.	140	85	1,106	1,331
Lower Providence T.	203	124	2,214	2,541
Lower Salford Twp.	92	54	1,202	1,348
Marlborough Twp.	11	17	365	393
Montgomery Twp.	157	83	1,480	1,720
Narberth Bor.	2	1	18	21
New Hanover Twp.	32	18	605	655
Norristown Bor.	23	16	348	387
North Wales Bor.	7	5	88	100
Pennsburg Bor.	1	1	15	17
Perkiomen Twp.	43	9	625	677
Plymouth Twp.	148	99	978	1,225
Pottstown Bor.	48	46	507	601
Red Hill Bor.	0	0	0	0
Rockledge Bor.	1	1	12	14
Royersford Bor.	15	12	166	193
Salford Twp.	17	10	334	361
Schwenksville Bor.	3	5	71	79
Skippack Twp.	28	12	439	479
Souderton Bor.	14	11	197	222
Springfield Twp.	49	40	537	626
Telford Bor. (part)	5	4	62	71

MONTGOMERY COUNTY HOUSING DISTRIBUTION PLAN 1970-1985* (continued)

Minor Civil Division	Income Group			TOTAL
	Less Than \$5,000	\$5,000- \$9,999	\$10,000 or more	
Towamencin Twp.	179	99	1,579	1,857
Trappe Bor.	31	16	307	354
Upper Dublin Twp.	218	156	1,512	1,886
Upper Frederick Twp.	7	6	189	202
Upper Gwynedd Twp.	142	88	1,067	1,297
Upper Hanover Twp.	36	27	762	825
Upper Merion Twp.	347	247	1,955	2,549
Upper Moreland Twp.	138	90	1,100	1,328
Upper Pottsgrove T.	41	28	563	632
Upper Providence T.	69	47	819	935
Upper Salford Twp.	14	10	270	294
West Conshohocken B.	0	0	0	0
West Norriton Twp.	90	64	797	951
West Pottsgrove Twp.	17	14	233	264
Whitemarsh Twp.	131	85	967	1,183
Whitpain Twp.	169	112	1,472	1,753
Worcester Twp.	15	9	134	158
COUNTY TOTAL Growth	4,065	2,750	39,810	46,625
Replacement	5,635	8,750	27,890	42,275
Total	9,700	11,500	67,700	88,900
(DVRPC Allocation**	9,800	11,650	68,750	90,200)

* Adopted by Montgomery County Planning Commission April 9, 1975

** 1/2 1970-2000 allocation

BURLINGTON COUNTY HOUSING ALLOCATION PLAN 1970-2000*

Minor Civil Division	Income Group				TOTAL
	Less Than \$5,000	\$5,000- \$9,999	\$10,000- \$14,999	\$15,000 or more	
Bass River Twp.	261	333	973	807	2,374
Beverly City	38	48	141	117	344
Bordentown City	55	69	203	168	495
Bordentown Twp.	397	505	1,479	1,227	3,608
Burlington City	153	195	570	472	1,390
Burlington Twp.	626	797	2,334	1,935	5,692
Chesterfield Twp.	272	347	1,015	842	2,475
Cinnaminson Twp.	319	406	1,190	987	2,902
Delanco Twp.	71	90	263	218	642
Delran Twp.	315	401	1,175	974	2,865
Eastampton Twp.	126	166	469	390	1,145
Edgewater Park Twp.	180	229	669	555	1,633
Evesham Twp.	678	863	2,527	2,096	6,164
Fieldsboro Bor.	10	13	39	32	94
Florence Twp.	427	543	1,590	1,318	3,878
Hainesport Twp.	153	194	570	472	1,389
Lumberton Twp.	247	314	919	762	2,242
Mansfield Twp.	327	417	1,220	1,012	2,976
Maple Shade Twp.	175	223	654	542	1,594
Medford Lakes Bor.	32	41	121	100	294
Medford Twp.	719	916	2,681	2,223	6,539
Moorestown Twp.	314	400	1,171	972	2,857
Mount Holly Twp.	153	195	571	473	1,392
Mount Laurel Twp.	439	558	1,636	1,356	3,989
New Hanover Twp.	80	102	297	246	725
North Hanover Twp.	273	348	1,020	845	2,486
Palmyra Bor.	125	160	467	388	1,140
Pemberton Bor.	18	22	66	54	160
Pemberton Twp.	1,073	1,365	4,000	3,317	9,755
Riverside Twp.	93	119	348	289	849
Riverton Bor.	28	35	103	86	252
Shamong Twp.	106	135	395	329	964
Southampton Twp.	637	812	2,377	1,971	5,797
Springfield Twp.	378	481	1,407	1,167	3,433
Tabernacle Twp.	149	190	556	460	1,355
Washington Twp.	150	190	558	463	1,361
Westampton Twp.	201	256	749	621	1,827
Willingboro Twp.	274	349	1,021	846	2,490
Woodland Twp.	17	21	63	52	153
Wrightstown Bor.	75	95	279	231	680
COUNTY TOTAL	10,164	12,936	37,884	31,416	92,400
(DVRPC Allocation)	10,500	12,400	37,700	31,800	92,000)

* Adopted by Burlington County Planning Board April 7, 1976

CAMDEN COUNTY HOUSING ALLOCATION PLAN, 1970-2000*

Minor Civil Division	Income Group				TOTAL
	Less Than \$5,000	\$5,000- \$9,999	\$10,000- \$14,999	\$15,000 or more	
Audubon Bor.	131	227	479	337	1,174
Audubon Park Bor.	- 1	- 1	0	0	- 2
Barrington Bor.	179	215	301	225	920
Bellmawr Bor.	382	426	1,081	1,170	3,059
Berlin Bor.	257	222	480	282	1,241
Berlin Twp.	154	164	489	454	1,261
Brooklawn Bor.	41	100	74	87	302
Camden City	128	380	11,502	13,004	25,014
Cherry Hill Twp.	2,036	2,867	5,161	1,450	11,514
Chesilhurst Bor.	4	6	109	182	301
Clementon Bor.	32	57	378	344	811
Collingswood Bor.	120	231	612	449	1,412
Gibbsboro Bor.	136	146	275	180	737
Gloucester City	68	163	986	830	2,047
Gloucester Twp.	962	1,148	3,139	2,660	7,909
Haddonfield Bor.	69	137	177	51	434
Haddon Heights Bor.	58	108	150	76	392
Haddon Twp.	236	442	652	328	1,658
Hi-Nella Bor.	4	4	72	117	197
Laurel Springs Bor.	19	34	56	50	159
Lawnside Bor.	5	14	382	227	628
Lindenwold Bor.	258	303	994	1,489	3,044
Magnolia Bor.	59	83	208	294	644
Merchantville Bor.	10	24	97	49	180
Mount Ephraim Bor.	46	71	194	168	479
Oaklyn Bor.	31	62	107	76	276
Pennsauken Twp.	646	1,125	2,109	1,450	5,330
Pine Hill Bor.	27	37	814	737	1,615
Pine Valley Bor.	-	-	-	-	-
Runnemede Bor.	300	326	446	444	1,516
Somerdale Bor.	82	98	392	345	917
Stratford Bor.	295	324	285	237	1,141
Tavistock Bor.	-	-	-	-	-
Voorhees Twp.	471	666	3,519	2,133	6,789
Waterford Twp.	133	205	1,543	1,330	3,211
Winslow Twp.	200	446	6,205	5,439	12,290
Wood-Lynne Bor.	20	38	133	109	300
COUNTY TOTAL	7,600	10,900	43,600	36,800	98,900
(DVRPC Allocation)	7,600	10,900	43,600	36,800	98,900)

* Adopted by Camden County Planning Board April 8, 1976

GLoucester County Housing Allocation Plan, 1970-2000*

Minor Civil Division	Income Group			TOTAL
	Less Than \$5,000	\$5,000- \$9,999	\$10,000 or More	
Clayton Bor.	220 - 245	280 - 310	1,660 - 1,605	2,160
Deptford Twp.	705 - 780	870 - 985	5,336 - 5,146	6,911
East Greenwich Twp.	130 - 140	160 - 180	965 - 935	1,255
Elk Twp.	160 - 180	205 - 230	1,228 - 1,183	1,593
Franklin Twp.	480 - 530	605 - 670	3,599 - 3,484	4,684
Glassboro Bor.	300 - 330	380 - 415	2,243 - 2,178	2,923
Greenwich Twp.	130 - 150	175 - 195	1,041 - 1,001	1,346
Harrison Twp.	160 - 180	205 - 225	1,214 - 1,174	1,579
Logan Twp.	210 - 230	265 - 295	1,575 - 1,525	2,050
Mantua Twp.	480 - 530	605 - 670	3,601 - 3,486	4,686
Monroe Twp.	430 - 475	540 - 600	3,233 - 3,128	4,203
National Park Bor.	75 - 80	90 - 105	560 - 540	725
Newfield Bor.	20 - 25	25 - 30	167 - 157	212
Paulsboro Bor.	105 - 115	135 - 150	798 - 773	1,038
Pitman Bor.	115 - 125	140 - 160	852 - 822	1,107
South Harrison Twp.	40 - 45	55 - 60	315 - 305	410
Swedesboro Bor.	20 - 25	25 - 30	173 - 163	218
Washington Twp.	655 - 720	825 - 910	4,914 - 4,764	6,394
Wenonah Bor.	35 - 40	45 - 50	277 - 267	357
West Deptford Twp.	570 - 630	715 - 795	4,288 - 4,148	5,573
Westville Bor.	45 - 50	55 - 65	343 - 328	443
Woodbury City	50 - 55	65 - 70	870 - 860	985
Woodbury Hts. Bor.	60 - 65	75 - 85	447 - 432	582
Woolwich Twp.	165 - 185	210 - 235	1,257 - 1,212	1,632
COUNTY TOTAL	5,360 - 5,930	6,750 - 7,520	40,956 - 39,616	53,066
(DVRPC Allocation	5,700	7,208	39,800	52,700)

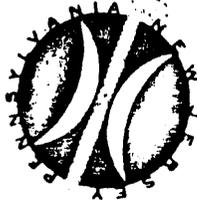
* Adopted by Gloucester County Planning Board December 29, 1975

MERCER COUNTY HOUSING ALLOCATION PLAN 1970-2000*

Minor Civil Division	Income Group				TOTAL
	Less Than \$5,000	\$5,000- \$9,999	\$10,000- \$14,999	\$15,000 or more	
East Windsor Twp.	369 - 669	531 - 960	-	-	-
Ewing Twp.	477 - 855	680 - 1,227	-	-	-
Hamilton Twp.	640 - 1,160	920 - 1,664	-	-	-
Hightstown Bor.	(included in East Windsor Twp.)				
Hopewell Bor.	(included in Hopewell Twp.)				
Hopewell Twp.	365 - 662	525 - 949	-	-	-
Lawrence Twp.	426 - 773	614 - 1,109	-	-	-
Pennington Bor.	(included in Hopewell Twp.)				
Princeton Bor.	(included in Princeton Twp.)				
Princeton Twp.	603 - 1,093	855 - 1,568	-	-	-
Trenton City	635 - 1,153	914 - 1,654	-	-	-
Washington Twp.	230 - 416	330 - 597	-	-	-
West Windsor Twp.	361 - 655	519 - 939	-	-	-
COUNTY TOTAL	4,116 - 7,436	5,888 - 10,700	-	-	-
(DVRPC Allocation	7,400	10,700	33,300	28,600	80,000)

* Adopted by Mercer County Planning Board February 18, 1976

MEMORANDUM



DELAWARE VALLEY REGIONAL PLANNING COMMISSION

Penn Square Building, 1317 Filbert Street, Philadelphia, Pennsylvania 19107

Locust 8-3211

Subject : Recommendation of Housing
Allocation Plan

To : Board Members and Planning
Coordinating Committee

Date : December 7, 1972

From : Technical Advisory Committee
on Housing

During the past year the Housing TAC has considered at length the many problems involved in the preparation of a Housing Allocation Plan. It has reviewed: basic housing data describing the regional housing stock; analysis of existing and projected housing needs by household income groups; population, income and employment projections; criteria to be employed in housing allocations; and the goals and objectives of a housing plan. The principal responsibility of the TAC has been to recommend a method of allocating the year 2000 regional housing needs to the nine counties of the region. The TAC has completed this task. In order that the PCC and Board can be fully apprised of the basis for TAC's conclusion, some background information and an explanation of the inputs to the selection process is provided herewith.

A. Background

Through its meeting of November 9, TAC received 21 working papers concerning housing data and allocation methodologies. Papers 13 through 19 discussed the application of various household allocation methods and goals against which the allocations might be judged. Working Paper 20 compared four alternative allocation methods. In Working Paper 21 these methods were applied to arrive at specific allocations.

The four allocation methods compared were:

1. "Status Quo", which continued the total household income group distribution pattern of 1970 to 2000;
2. "Equalization Trend", which distributed the additional housing units required between 1970 and 2000 to each county using the same proportion of income groups in each county as obtained for the region as a whole;
3. "Relative Wealth", wherein the distribution was according to a formula which provided an index to the theoretical fiscal capacity of each county; and

4. "Additional Employment", which distributed additional housing units according to the additional jobs projected between 1970 and 2000, based on the assumption that the additional housing units should be located in the same county as the additional jobs.

The two objectives against which the four alternative allocations were measured were:

1. Equal housing opportunity for all income groups; that is, each county should accommodate its proportionate share of the region's households of each income group.
2. Convenience of housing to employment opportunities; that is, a distribution of households, by income group, among the counties in proportion to the number of jobs for that income group.

No one of the four alternatives was found to meet both objectives best; the relative wealth achieved the equal opportunity objective best, while additional employment more easily achieved the convenience of work objective.

In the discussion of these alternatives at the November 9 TAC meeting, criticism of the "Additional Employment" method was expressed and staff was requested to consider the input of commutation patterns on that allocation. Meanwhile staff re-examined the "Additional Employment" input and recalculated those figures. The TAC also agreed to reject the "Status Quo" method, concluding that it was not a viable alternative.

The revised employment projections with the commuting pattern impact and the resulting housing allocations were presented at the TAC's November 16 meeting. Ten member agencies had by then responded to the chairman's request for written review and criticism of the four alternative methods.

These replies indicated a variety of preferences some of which were not reflected in the four allocation methods. Staff was then asked to prepare for TAC review allocations based on various combinations of the methods, utilizing various weighting techniques, including the following:

1. 50% Equalization, 25% Relative Wealth, 25% Employment;
2. 50% Relative Wealth, 25% Equalization, 25% Employment;
3. 50% Employment, 25% Equalization, 25% Relative Wealth;

4. 50% Relative Wealth, 50% Equalization;
5. One-third Equalization, one-third Relative Wealth, one-third Employment.

Staff thereafter presented 14 alternative allocations based on these combinations, at the TAC November 28 meeting. TAC voted to disregard any of the allocations which considered employment without the inclusion of commutation patterns. Continued discussion at this meeting resulted in an agreement on a compromise allocation of housing units, with adoption of the following resolution:

"The Technical Advisory Committee on Housing finds that the housing unit figures presented in Matrix #9 are the most acceptable compromise for allocating housing units by the year 2000".

B. Recommended Allocation

Matrix #9 attached, represents a combination of three allocations in equal proportion (one-third each):

1. Equalization Trend, the distribution of additional housing units to each county in the same proportion of income groups as obtains for the region as a whole. The proportions of households in each of the four income groups for the region was projected for the year 2000. This income distribution pattern was then applied to the additional housing units projected for each county. Literal or absolute distribution by income group is not accomplished by 2000 since the existing 1970 stock is not entirely redistributed. At the projected rate of depreciation, absolute equalization would require an additional 70 years to 2070.
2. Relative Wealth, the distribution of additional housing units to each county according to an index of each county's fiscal capacity. This method was used in order to allocate low and moderate income households in proportion to the county's relative wealth vis-a-vis the rest of the region. The market value of all taxable real estate and total personal income in each county was used to calculate mean regional and county per capita wealth which, together with each county's proportion of regional growth for the period 1970-2000, yielded a resultant Relative Wealth Allocation Percentage.
3. Additional Employment with Commutation: County employment projections for the years 1970-2000 were based on the trends of 1960-1970 modified to reflect changes in these trends which were expected to occur. Place of residence of added employees 1970-2000 was calculated using the 1970 commutation pattern, which showed Philadelphia, Mercer and Montgomery counties with net in-commutation patterns and the other six counties with net out-commutation patterns. The additional households 1970-2000 were then allocated to the counties in proportion to this distribution of additional employees by place of residence.

It should be noted here that these figures indicate the additional housing units which will need to be accommodated by the year 2000 assuming (1) depreciation and casualty losses of 1% per year; and (2) a 4% vacancy rate. These allocations do not, however, include replacement of the sub-standard housing units in existence in 1970 except insofar as such replacement might occur through future depreciation (factor 1 above).

Acknowledging the factor of compromise inherent in any selection, TAC has suggested that the staff review the methodology and resulting housing requirements biennially in an effort to improve the allocation plan as well as monitor progress towards achievement of its objectives. Its approved motion on this subject reads as follows:

"TAC-Housing recommends to the PCC and the Board of the DVRPC that a complete review of the regional and county methodology and allocation of housing units be accomplished biennially subsequent to the adoption of the original allocation by DVRPC".

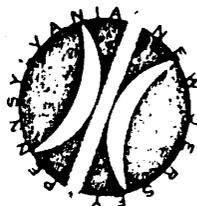
Attachments: Weighted Output Matrix 9

WEIGHTED OUTPUT MATRIX 9

ADDITIONAL HOUSING UNITS REQUIRED BY 2000

COUNTY	INCOME CLASS				Totals
	Less Than \$5000.	\$5,000-9,999	\$10-14,999	\$15,000 or More	
BUCKS	12798.	13893.	50175.	41688.	118554.
CHESTER	10120.	12430.	35551.	31098.	89200.
DELAWARE	7642.	8492.	50510.	43840.	110485.
MONTGOMERY	19559.	23299.	72617.	64905.	180380.
PHILADELPHIA	5596.	25627.	125037.	99419.	255679.
BURLINGTON	10468.	12367.	37723.	31817.	92375.
CAMDEN	7602.	10931.	43562.	36829.	98924.
GLOUCESTER	5707.	7155.	22022.	17809.	52691.
MERCER	7436.	10667.	33306.	28613.	80022.
TOTALS	86929.	124860.	470502.	396019.	1078309.

MEMORANDUM



DELAWARE VALLEY REGIONAL PLANNING COMMISSION

Penn Square Building, 1317 Filbert Street, Philadelphia, Pennsylvania 19107

LOcmt 8-3211

Subject Housing Plan Program Working Papers

To Record

Date 7-12-72

From T. J. Dyckman

WORKING PAPER NO. 6, REVISION OF WORKING PAPER NO. 1

1970 HOUSING STOCK, VACANCY AND RATES, PLUMBING FACILITIES AND OVERCROWDING

NOTE: This paper revises a previously issued paper in the attempt to
clasify some ambiguities regarding vacancies.

PRELIMINARY - NOT FOR PUBLICATION

TABLE 2

HOUSING DEFICIENCIES: 1970 REGIONAL TOTALS

CODE #2

Total Units	1,631,158
Standard or Non-deficient Units:	
1.00 persons per room or less, with all plumbing	1,461,177
Available vacant, for rent or sale, all plumbing	32,453
SUB-TOTAL	<u>1,493,630</u>
Deficient or Sub-standard Units:	
1.01 persons per room or more, with and without all plumbing	86,361
1.00 persons per room or less, without all plumbing	26,139
Vacant without plumbing	<u>3,820</u>
SUB-TOTAL	116,320
Other: vacant, seasonal, etc., with all plumbing	21,208
TOTALS: All Units	<u><u>1,631,158</u></u>

PRELIMINARY - NOT FOR PUBLICATION

DVRPC: 6-2-72

TABLE 1

HOUSING STOCK: 1970 REGIONAL TOTALS

CODE: #2

Total Units	1,631,158
Occupied	1,573,677
Vacant	57,481
Vacancies	57,481
Available for rent or for sale, all plumbing facilities	32,453
For rent or for sale without all plumbing	1,900
Other (seasonal, migrant, etc.)	23,128
Occupancy - All occupied units	1,573,677
1.00 person per room or less	1,487,316
1.01 persons per room or more	86,361
Plumbing Facilities	
With all plumbing facilities	1,598,708
Occupied	1,545,047
Vacant	53,661
Without all plumbing facilities, (lacking one or more)	32,450
Occupied	28,630
Vacant	3,820
Overcrowding and Plumbing	
1.01 persons per room or more	86,361
With all plumbing facilities	83,870
Lacking one or more	2,491

TABLE 3
HOUSING BY TENURE AND PLUMBING, 1970 - COUNTIES
CODE #2

MUNICIPALITY	a.			b.		
	TOTAL OCCUPIED & VACANT UNITS	WITH ALL PLUMBING	LACKING SOME	TOTAL OWNER/SALE & RENTAL, ALL PLUMBING	TOTAL OWNER/SALE, ALL PLUMBING	TOTAL RENTAL, ALL PLUMBING
Bucks	121,441	119,198	2,243	117,786	87,463	30,323
Chester	80,374	77,914	2,460	77,279	54,198	23,081
Delaware	184,403	182,475	1,928	181,019	131,198	49,821
Montgomery	193,241	189,892	3,349	188,288	134,662	53,626
Philadelphia	673,390	657,775	15,615	646,626	383,190	263,436
Burlington	87,710	86,108	1,602	84,779	61,137	23,642
Camden	143,154	140,980	2,174	139,257	98,627	40,630
Gloucester	51,050	49,703	1,347	49,077	38,071	11,806
Mercer	96,395	94,663	1,732	93,389	60,792	32,597
REGION	1,631,158	1,598,708	32,450	1,577,500	1,049,338	528,162

*This column includes owner and renter occupied plus vacant for sale and vacant for rent. Column b. does not equal column a. because of vacant units awaiting occupancy and vacant units held for occasional use, etc.

PRELIMINARY NOT FOR PUBLICATION

DVRPC: 7-1-72

TABLE 4
1970 VACANCY RATES: FOR SALE & FOR RENT - COUNTIES
CODE #2, 4

MUNICIPALITY	UNIT TOTALS ALL PLUMBING			AVAILABLE VACANCIES ALL PLUMBING			EFFECTIVE VACANCY RATE		
	TOTAL ALL*	TOTAL SALE**	TOTAL RENTAL	TOTAL	SALE	RENTAL	TOTAL	SALE	RENTAL
Bucks	117,786	87,463	30,323	2,121	348	1,773	1.80	0.40	5.85
Chester	77,279	54,198	23,081	1,202	321	881	1.56	0.59	3.82
Delaware	181,019	131,198	49,821	2,136	487	1,649	1.18	0.37	3.31
Montgomery	188,288	134,662	53,626	2,933	581	2,352	1.56	0.43	4.39
Philadelphia	646,626	383,190	263,436	17,686	3,456	14,230	2.74	0.90	5.44
Burlington	84,779	61,137	23,642	1,391	437	954	1.64	0.71	4.04
Camden	139,257	98,627	40,630	2,862	888	1,974	2.06	0.90	4.86
Gloucester	49,077	38,071	11,006	638	260	378	1.30	0.68	3.43
Mercer	93,389	60,792	32,597	1,484	478	1,006	1.59	0.79	3.09
REGION	1,577,500	1,049,338	528,162	32,453	7,256	25,197	2.06	0.69	4.77

*Owner and rental occupied plus standard available vacant

**Owner occupied and for sale

DVRPC: 7-1-72

PRELIMINARY - NOT FOR PUBLICATION

TABLE 5

VACANCIES: FOR SALE OR FOR RENT,
BY PLUMBING, 1970: REGION, COUNTIES & CITIES

CODE: #2, 4

MUNICIPALITIES	ALL PLUMBING FACILITIES			LACKING ONE OR MORE FACILITIES		
	TOTAL	FOR RENT	FOR SALES	TOTAL	FOR RENT	FOR SALE
Bucks	2,121	1,773	348	58	34	24
Chester	1,202	881	321	58	35	23
Delaware	1,645	1,255	390	68	67	1
Chester City	491	394	97	24	23	1
Montgomery	2,933	2,352	581	118	104	14
Philadelphia	17,686	14,230	3,456	1,370	1,145	225
Burlington	1,391	954	437	47	31	16
Camden	1,600	1,231	369	30	17	13
Camden City	1,262	743	519	32	22	10
Gloucester	638	378	260	23	11	12
Mercer	596	402	194	17	13	4
Trenton	888	604	284	55	45	10
REGION	32,453	25,197	7,256	1,900	1,547	353
COUNTIES	12,126	9,226	2,900	419	312	107
CITIES	20,327	15,971	4,356	1,481	1,235	246

PRELIMINARY - NOT FOR PUBLICATION

DVRPC: 7-1-72

TABLE 6

OCCUPIED UNITS BY TENURE, RACE OF HEAD, PLUMBING FACILITIES 1970

CODE #2

MUNICIPALITY	TOTAL (OCCUPIED & VACANT)			OCCUPIED			TOTAL NEGRO		
	TOTAL	ALL PLUMBING	LACKING SOME	TOTAL	ALL PLUMBING	LACKING SOME	TOTAL	ALL PLUMBING	LACKING SOME
Bucks	121,441	119,198	2,243	117,612	115,665	1,947	2,104	2,012	92
Chester	80,374	77,914	2,460	78,401	76,077	2,324	4,617	4,409	208
Delaware	184,403	182,475	1,928	180,669	178,883	1,786	12,305	11,965	340
Montgomery	193,241	189,892	3,349	188,475	185,355	3,120	5,589	5,292	297
Philadelphia	673,390	657,775	15,615	642,145	628,940	13,205	194,955	189,589	5,366
Burlington	87,710	86,108	1,602	84,788	83,388	1,400	6,339	6,150	189
Camden	143,154	140,980	2,174	138,408	136,395	2,013	14,303	13,843	460
Gloucester	51,050	49,703	1,347	49,693	48,439	1,254	3,838	3,429	409
Mercer	96,395	94,663	1,732	93,486	91,905	1,581	13,457	13,077	380
REGION	1,631,158	1,598,708	32,450	1,573,677	1,545,047	28,630	257,507	249,766	7,741

Source: 1970 Census

DVRPC: 7-1-72

TABLE 7

OVERCROWDING BY PLUMBING 1970

UNITS 1.01 PERSONS/ROOM BY TENURE, RACE OF HEAD, PLUMBING FACILITIES

CODE #2

MUNICIPALITY	TOTAL OVERCROWDED			TOTAL NEGRO		
	TOTAL	WITH PLUMBING	WITHOUT PLUMBING	TOTAL	WITH PLUMBING	WITHOUT PLUMBING
Bucks	7,190	6,999	191	354	332	22
Chester	3,931	3,554	377	802	682	120
Delaware	8,106	7,993	113	1,474	1,434	40
Montgomery	6,339	6,124	215	595	548	47
Philadelphia	40,647	39,612	1,035	20,756	20,143	613
Burlington	4,662	4,505	157	788	750	38
Camden	7,574	7,436	138	1,848	1,794	54
Gloucester	3,083	2,954	159	572	472	100
Mercer	4,799	4,693	106	1,871	1,816	55
REGION	86,361	83,870	2,491	29,060	27,971	1,089

Source: 1970 Census
DVRPC: 7-1-72