AD - Bernards 01/14/77

documents requested during deposition of Dr. James Ohls

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WOODRUFF J. ENGLISH
NICHOLAS CONOVER ENGLISH
FRANCIS E. P. McCARTER
ARTHUR C. HENSLER, JR.
ARTHUR L. NIMS, III
EUGENE M. HARING
JULIUS B. POPPINGA
GEORGE C. WITTE, JR.
STEVEN B. HOSKINS
RODNEY N. HOUGHTON
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ALFRED L. FERGUSON
CHARLES R. MERRILL
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JOSEPH E. IRENAS
JOHN L. McGOLDRICK
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MICHAEL C. BARR
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WARD J. HERBERT
OF COUNSEL

AREA CODE 201
622-4444

CABLE ADDRESS
"McCARTER"

January 14, 1977

Re: Bernards Township ads Allan-Deane Corp.

Benjamin N. Cittadino, Esq.
Mason, Griffin & Pierson
201 Nassau Street
Princeton, New Jersey 08540

Dear Mr. Cittadino:

We now enclose the following documents pursuant to your request to Dr. James Ohls made during his deposition of January 4, 1977. The documents are:

1. Curriculum vitae of James C. Ohls.

2. Letter dated July 15, 1976, from Dr. Ohls to Charles K. Agle.

3. Letter dated July 20, 1976, from Dr. Ohls to William Allen.

4. Letter dated July 21, 1976, to Charles K. Agle.

5. Letter dated September 17, 1976, from Dr. Ohls to Frederick C. Conley.

6. Letter dated September 29, 1976, from Dr. Ohls to Mr. Conley.

In providing these copies Dr. Ohls advised us that these are photocopies of the carbons of the originals. Therefore they may contain typographicals errors which were corrected in the originals, but not the carbons.

Dr. Ohls informs us that to the best of his knowledge, these are the only letters which he wrote during his research. He has reviewed his files and can locate no others.

Very truly yours,

Stuart E. Rickerson

Stuart E. Rickerson

SER:ck
Enclosures

JAMES C. OHLS

EDUCATION:

1972	Ph.D., Economics, University of Pennsylvania
1969	M.A., Economics, University of Pennsylvania
1967	B.A., Economics, Harvard College

POSITIONS:

1975 -	Senior Economist, Mathematica Policy Research, Inc.
1971 - 1975	Assistant Professor in Economics and Public Affairs, Princeton University

EXPERIENCE:

Co-Principal Investigator of Michigan Job Counselor Project. Designing and implementing an evaluation of a project in the state of Michigan to use private employment agencies to help find jobs for AFDC clients.

Analyst for Home Environment Project. Using regression analysis of data from the Gary Income Maintenance Experiment to assess the effects on school performance of home environmental factors.

Co-Principal Investigator of Indirect Fire Cost Project. Designing sampling plan and coordinating MPR's participation in a joint project with Princeton University to make a national estimate of medical and temporary housing costs resulting from residential fires.

Principal Investigator for the Bernards Township Project. Made projections of future job growth in the counties near Bernards Township, New Jersey and provided Township officials with consulting advice on how to translate job projections into housing need estimates.

Taught courses in public finance, urban economics, and housing policy analysis while on the faculty of Princeton University.

SELECTED PAPERS AND PUBLICATIONS:

"The Use of Policy Experiments in Social Science Research and Policy Development." MPR Working Paper, no. E-36, July 1976 (with Richard L. Kaluzny).

"Welfare Effects of Alternative Models of Zoning." Journal of Urban Economics, 1976 (with Richard Chadbourn Weisberg and Michelle J. White).

"Plans for an Analysis of Housing Data from the Seattle-Denver Income Maintenance Experiment." MPR Working Paper, no. D-3, April 1976 (with Cynthia Thomas).

"The Inter-Area Migration Project: Reviewer's Comments on Interim Report." MPR Working Paper, no. D-1, October 1975.

"The Neighborhood Evolution and Decline Project: Reviewer's Comments on the Interim Report." MPR Working Paper, no. D-2, October 1975.

"Discontinuous Urban Development and Economic Efficiency." Land Economics, August 1975 (with David Pines).

"Models in Urban Development." In A Guide to Models in Governmental Planning and Operations, edited by S. Gass and R. Sisson, 1975 (with Peter Hutchinson and others).

"Optimal Policy When Effects on Distribution are Uncertain." Public Finance Quarterly, April 1975 (with John Kwoka).

"Public Policy toward Low Income Housing and Filtering in Housing Markets." Journal of Urban Economics, April 1975.

"The Effect of Zoning on Land Value." Journal of Urban Economics, October 1974 (with Richard Chadbourn Weisberg and Michelle J. White).

"Supply and Demand for State and Local Services." Review of Economics and Statistics, November 1972 (with Terence J. Wales).

"Marginal Cost Pricing, Investment Theory, and CATV: A Reply." The Journal of Law and Economics, October 1971.

"Marginal Cost Pricing, Investment Theory, and CATV." The Journal of Law and Economics, October 1970.

- July 15, 1976

Mr. Charles Agle
10 Nassau Street
Princeton, N. J. 08540

Dear Charlie:

In response to your phone call I have calculated the values which fit into Bill Allen's formula for median commuting distances of ten miles, eight miles, and seven miles. Bill's formula, as given in this September 1, 1975 paper is:

$$F = \frac{1000}{B^{R^{1.4}}}$$

In order to adapt this for a specific median commuting distance, it is necessary to compute the appropriate B corresponding to each specific distance. The correct values of B are the following:

10 mile median:	1.02798
8 mile median:	1.03843
7 mile median:	1.04652

I have plotted the line for a median distance of seven on the enclosed graph paper (which was xeroxed from Bill's paper). If you need a more carefully done copy of the graph, call me and I'll have one made.

As I indicated to you on the phone, the formula itself strikes me as a reasonable one. It is important to note, however, that there are probably other formulas which are equally reasonable, and there is no clear basis for choosing which one is best. (Unfortunately, economics isn't that much of a science yet.) One partial basis for choosing among formulas, though, is to experiment with several different types of formulas to see which one best

fits the available data. Bill mentions in his paper having done some of this. It isn't clear from the paper, however, exactly how much he did, and I therefofe cannot fully judge his efforts. It would be possible with a few days of support and access to the data for me to do some additional experimentation of my own, but this would be outside of the scope of the currently proposed contract as I understand it.

Let me know if you have any questions about the above.

Sincerely yours,

James C. Ohls
Senior Economist

July 20, 1976

Mr. William W. Allen
44 Holmesbrook Road
Basking Ridge, N.J. 07920

Dear Bill:

I've now examined your September 1, 1975 paper at somewhat greater length and am writing to pass along the following reactions:

1. The general JORD approach strikes me as very reasonable and I see no fundamental problems with it. As I said at the meeting a few weeks ago, I wouldn't want to formally endorse the approach without spending a substantial amount of time carefully surveying the relevant literature to make sure that it is indeed at the limits of the current "state of the art." My guess, though, is that the approach would still seem very reasonable to me aeven after I had completed that literature review.

2. One problem which occurs to me, however, is that the approach as outlined in your paper doesn't seem to account for the substantial number of commuters who live in North Jersey but work within the New York metropolitan area. One possible way of handling this which comes to mind is computing a separate (and presumablyumore dispersed) JORD curve for major urban areas. New York/Newark should almost certainly have such a separate curve and also probably Philadelphia/Camden. I'm not sure about Trenton.

3. I'm not sure whether you mention this in your paper or not, but it seems to me that you have to somehow build into your model the possibility of serious physical constraints on how much more housing some communities can handle.

4. With regard to the "1.4" parameter in your equation, this value seems reasonable, but if I were doing a full-scale evaluation of the paper I'd want more details about how it was estimated.

5. With regard to estimating the B parameter for actual distributions, instead of arbitrarily drawing the straight line to go through F = .05 (page 2 of your paper), it might be more reasonable to use a more formal curve fitting technique such as minimizing the squared distance between observation points and the fitted line.

6. With regard to the functional form of equation (1), this form seams reasonable, but as you correctly point out, it is arbitrary. Given its arbitrariness, it might be better to choose a somewhat simpler form like:

Did you consider this?

I hope the above is useful to you. Let me know if you have any comments or questions.

Yours sincerely,

James C. Ohls
Senior Economist

MATHEMATICA
POLICY RESEARCH
An Equal Opportunity Employer

July 21, 1976

Charles K. Agle
10 Nassau St.
Princeton, N.J. 08540

Dear Charlie,

I have now had a chance to read your July 15 memo about fair share housing, and I am writing to pass along the following comments:

1. With regard to p. 1, second paragraph, it seems to me to be incorrect to look at "New Jersey alone". No matter what the courts have said, no fair share housing plan could ever be actually implemented if it didn't take account of the people commuting from New Jersey to jobs in Philadelphia and New York. If the courts have so far chosen to ignore this, they will ultimately be forced to reverse themselves, should they actually try to develop or assess a full-scale operational plan for the state as a whole.

2. On p. 2, assuming the equation is from Bill Allen's paper, it is incorrectly written in your memo. It should be

$$\Theta F = \frac{1000}{B^{R^{1.4}}}$$

Also, the phrase "Z Ord" in the definition of B should be deleted, and the definition of F should be "is number of employee residences, from 1000 total employees, outside of circle of R". Also, the definition of F should be deleted, since the symbol is not used by itself in the equation. Besides the above changes, I would also suggest footnoting Bill Allen's paper when presenting this equation--otherwise readers will wonder where it came from and will think it very arbitrary.

3. On p. 3, I think your idea of limiting attention to employment centers which are at most 20 miles from a municipality is a good one from the point of view of simplifying things. But you should keep

in mind that between 8 and 16 percent (see p. 2, bottom, of your memo) of the job distributions lie outside of this 20 mile radius. This means that if you use the formula to allocate workers to housing but cut things off after 20 miles, you're going to end up with between 8 and 16 percent too few houses for the people. My advice for handling this (which you could mention in a footnote) would be that for each employment center, you should increase the allocation of that center's employment to communities within the 20 mile radius by the appropriate percentage. (If, for instance, you use a 10 mile radius and have only 84 percent of the necessary housing allocated, you should multiply each municipality's allocation by approximately 1.19, since 1.19 times 84 percent is equal to approximately 100%.)

4. The idea at p. 3 bottom which is illustrated by footnote 6 is probably a good one conceptually, but my guess is that it would be impossible to implement. I would suggest leaving it out.

5. With regard to Step 2 at the top of p. 3, your general idea is probably clear, but exactly how you will go about implementing it is not clear from what you say. If you want readers to understand completely how you are proposing to do things, you should go into considerably greater detail in laying out the methods developed in Bill Allen's paper.

6. I had a lot of trouble understanding what you were doing in Step 4 on p. 4, top, until I did the following little example for myself. I'm passing it along in case you want to consider using it. Suppose that X is an employment center with 4 communities, A, B, C, and D within a 20-mile radius. Suppose that in Steps 2 and 3 you have determined that A has a housing need of -5, B has a need of -4, etc. as shown on the diagram, next pa Suppose, too, that A gets allocated 20% of X's houses, B gets allocated 10%, etc. as shown. Then the net housing need of center X in community A is equal to -1.0 (i.e. 20% times 5). Similarly, that for B is -.4 (10% times -4), etc. Adding over the four communities then gives a total net need for employment center X of -1.3, and this must be allocated among the four communities.

7. In Step 5, it wasn't clear to me what exactly "prorated to each according to its ability to receive" means. How do you measure ability? How do you prorate? A different numerical example might help. The one you give isn't very illuminating, since it deals with an extreme special case where the allocation is obvious.

D	C	X	A	B
5%	30%		20%	10%
-10	+2		-5	-4
-.5	+.6		-1.0	-.4

1st row of numbers = % of X's employment assigned to community
2nd row of numbers = community's net needs
3rd row of numbers = part of community's net needs which are attributable to employment center X.

8. With regard to footnote 8 at p. 4 bottom, it isn't clear to me that exempting "prime farm land and forest land essential for air purification" is a good idea. It raises the major problem of defining these two things. Furthermore, even prime farm land may in some cases be better-used for housing if the need for housing is great enough. Certain areas of Queens in New York City were once prime farm land, for instance, but it surely makes more sense, given the densities in that area, to use them for housing.

9. Similarly, in footnote 8, I'm not sure that criterion "g" is a good thing to include. It again raises definitional problems, and in general better transportation facilities can always be built.

10. Also in footnote 8, shouldn't you exempt publicly-owned park land?

11. In the last line in footnote 8, if high ratios are a good thing as you imply, then you mean "benefit-cost ratio", not "cost-benefit ratio".

12. The wording at p. 6 top seems to imply that the preceding pages are a complete guide to allocating existing housing needs. If you mean them as such, you need some discussion of the tricky problems of (1) multiple workers in the same residence and (2) residences without workers.

13. Those specific percentages which you give at p. 8 bottom appear arbitrary and need more support.

14. On p. 9, I wasn't sure what you meant by "Each ring should then be discounted if...."

15. With regard to point 10 on p. 11, it does not follow from the fact that only half of the population can afford new housing that "The other half must be sibsidized". Many people who can't afford new housing can nevertheless afford perfectly decent used housing and hence need not be subsidized.

16. With regard to point 13 on p. 12, it isn't clear how you are going to divide low income housing needs among the three types of subsidy programs which you list. (One possible answer to this issue, incidentally, is just to tell the communities how many units are needed and to then let each community decide for itself how to divide its necessary units among different subsidy programs.)

17. If this memo is meant as a response to the Governor's executive order, then you should consider acknowledging the fact that you are ignoring certain aspects of the order (for instance the need to take into account fiscal capacity).

I hope the above is useful to you. Call me if you have any questions.

Yours,

James C. Ohls

JCO/dkw

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September 17, 1976

Mr. Frederick C. Conley
Administrator
Township of Bernards
Collyer Lane
Basking Ridge, New Jersey 07920

Dear Fred:

I am about to leave on the one week vacation which I mentioned to you last time we talked on the phone, so I won't be able to get together with you about Bill Allen's paper for at least a week. I have, however, had a chance to look it over, and I thought I'd write and pass along my general reactions.

Overall, the paper seems very good to me. Following your request during our phone conversation, I haven't checked every step in the math completely, but I did read it with some care and I was quite impressed with it. Perhaps my biggest overall comment is that it seemed to me that the procedures for predicting future jobs were a little shakey. Hopefully, though, the work done under our contract with you will help put those numbers on a somewhat more solid footing. In particular with regard to the job projections, it seems to me that extrapolating on the basis of absolute job growth over a four year period is a bit risky in that it is quite sensitive to what was happening with regard to overall macroeconomic employment conditions during that period. My current thinking is that a modification of the kind of shift-share analysis done by the James-Hughes analysis mentioned in our proposal may provide a somewhat stronger basis for such projections.

Following are some more minor comments which occurred to me while reading the paper:

(1) On p. 10, there is an integral sign left out of Equation (5).

(2) On p. 21, the .91729 normalization factor which is used to adjust the Bernards population increases may not be correct. That .91729 factor was computed on p. 20 on the basis of unaccounted workers when

doing a JORD analysis with Bernards Township as the donor. On p. 21, however, it is used in a JORD analysis with Bernards Township as the acceptor. There is no reason why the appropriate ratio with regard to the acceptor analysis should be the same as that with regard to the donor analysis. To make an extreme and unrealistic case just to make my point, suppose that there was a hugh employment center right in the part of Mercer County which is closest to Bernards Township. Then the existence of this employment center would be irrelevant when computing the normalization factor for Bernards as a donor, but it might be extremely important when computing the factor for Bernards as an acceptor. I don't at this point have a good enough sense of the numbers to know whether the above theoretical point is of much practical concern or not. Essentially, it depends on the amount of employment in the omitted counties. Even if Bill would find it too time consuming to add the other counties in on a municipality-by-municipality basis the way the others are included, it might nevertheless be worth doing some quick calculations on a county basis, just to see whether this looks like it is a serious problem.

(3) I found some arguments on pp. 27-29 somewhat unconvincing. The only real reason not to use the state estimates is a belief that they have not been done in an appropriate manner. Hence an argument in support of an alternative method should explicitly indicate why the state estimates appear to be inappropriate. Bill does this a bit towards the end of his point number two on p. 28, but I think this needs to be expanded.

(4) On p. 30, are we talking about six years or eight?

(5) On p. 34, I found the argument in support of taking the weighted averages in computing the percentage of households which are low income to be somewhat weak. The weights being used are residency figures by income, whereas what is needed is job figures by income. I don't see any obvious reason for assuming that the residency figures are a good proxy for assuming that the residency figures are a good proxy for the needed job figures. It seems to me that a much more defensible approach at this step would be simply to take the average percentage low income in the multi-county region in question. I realize that this will lead to a somewhat higher percentage and therefore that it will go in a direction which is less satisfactory for Bernards Township, but it seems to me that it would be much more defensible.

(6) On p. 39, the application of the low income housing for the elderly to the fair share quota needs some more support. The key question which needs to be addressed is whether the fraction of all low income housing in Bernards Township which is to be for the elderly is roughly comparable to the fraction of all low income households who are elderly. If the Bernards Township fraction were significantly higher than the general fraction, you might have trouble defending this part of the paper (since presumably some

municipality has to accept the apparently less desirable non-elderly low income households). On the other hand, if the two fractions are roughly comparable, pointing that out would support your argument.

I hope the above is useful. I am literally writing this on the way out of the building to start my vacation, so some of it may be unclear. If you have questions--or if you want to try to arrange the meeting--give me a call on Monday, September 27 when I'll be returning.

Sincerely yours,

James C. Ohls
Senior Economist

JCO:dn

MATHEMATICA
POLICY RESEARCH, INC.

September 29, 1976

Mr. Frederick C. Conley
Administrator
Township of Bernards
Collyer Lane
Basking Ridge, New Jersey 07920

Dear Fred:

I've been doing some additional thinking about Bill Allen's fair share analysis in connection with my job forecasting work, and I think I've discovered another aspect of Bill's methodology which warrants some further attention. We can talk about it at the meeting this coming Monday, but I thought it might be worth putting it in writing in this letter so that you and he might have time to think about it before that meeting.

On Page 25 Bill adjusts his 1970 employment figures by a correction factor which I will call R where

$$R = \left(\frac{\text{1970 N. J. Population}}{\text{1970 Covered Employment}}\right) \Big/ \left(\frac{\text{1974 N. J. Population}}{\text{1974 Covered Employment}}\right)$$

As he points out, this adjustment factor takes into account both changes in the ratio of covered jobs to total jobs and also changes in the labor force participation rate. It seems to me that it is perfectly proper in this part of the analysis to correct for changes in the ratio of covered to total jobs. But it may not be correct to compensate at this point in the analysis for changes in the labor force participation rate, since such changes have nothing to do with the number of jobs which is the subject of this part of the analysis.

To illustrate what is bothering me, let me make up a simple example. To keep things simple, let's suppose that the ratio of covered to total jobs doesn't change during the period in question--in fact, to keep things even simpler, let's suppose that this ratio is and remains 1. Suppose, though, that the labor force

participation rate changes from 1 in 4 in 1970 to 1 in 3 in 1974. Furthermore, suppose that for some hypothetical municipality, the covered employment estimate was 120 in 1970 and 160 in 1974. (Implicit in the above assumption, of course, is a constant population.)

Under these assumptions, if we follow Bill's methodology from Page 25, we'll adjust the 1970 job figure from 120 up to 160 and we'll therefore estimate that there has been no change in the number of jobs during the period. It is clear from the example, however, that in fact, the conclusion that there has been no job change is incorrect.

At first glance, it is tempting to argue that, while the conclusion of no job change in the past is incorrect, it nevertheless doesn't matter with regard to predicting future population, since it is possible that changes in participation rates will continue into the future and Bill's process will implicitly take them into account. Making an argument of this sort, however, is likely to lead to further problems because it involves an assumption that the participation rate will change in the future and this is inconsistent with Bill's assumption on Page 31 that the future rate will stay constant at the 1974 rate.

The correct thing to do, I think, is to predict job growth and participation rates independently and to then incorporate both of these factors into the final population predictions. Unfortunately, it isn't clear to me how to do a quick patch-up of Bill's procedures here. The problem, of course, is that the data which Bill has on changes in the coverage ratio is also combined with data on changes in the participation rates, and it isn't obvious how to separate the two, given Bill's data base.

It is worth noting that the independent job forecasts which I come up with as part of my work, will eliminate the problem I've outlined above. That will not help, though, if you need to make some estimates before my work is completed.

At any rate, I'll try to do some more thinking about this by Monday evening, but I wanted to let you know about it so that you could give some thought to it.

Yours,

James C. Ohls
Senior Economist

mp
cc: Bill Allen