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Memo	Vice-Pres. Mondale to Pres. Carter, 5 pp. <i>Opened 6/1/82</i>	10/9/78	A

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PERSONAL AND CONFIDENTIAL



OFFICE OF THE VICE PRESIDENT

WASHINGTON

October 9, 1978

MEMORANDUM FOR: THE PRESIDENT
FROM: THE VICE PRESIDENT *WJ*
SUBJECT: THE NEXT 30 DAYS

I. OVERVIEW

On Saturday, I met with Senior Staff to review priorities and planning for the next 30 days. I believe there is broad agreement on priorities for the critical next two weeks and for the remaining period through the November elections.

Above all is, of course, success on your number one legislative priority - energy. At this time, victory is not certain in the House on the crucial vote on the rule, now scheduled to take place on Thursday. Until the energy bill is locked in place, we believe a careful strategy is necessary to limit the amount of time you must spend on other matters, picking up victories where we can and limiting the political damage associated with losses.

Where actions can be taken over the next two weeks to reinforce and build upon your legislative successes, we believe they should be taken. Two or three well-orchestrated signing ceremonies next week could help to maintain and strengthen the momentum of a Democratic Administration and a Democratic Congress compiling a notable record of achievement. In the days immediately following adjournment, through major media events including a network interview and rapid-fire ceremonies for signature of key measures, the dominant story across the country could be the unprecedented successes of your Administration and the Congress in addressing important national problems.

**"DETERMINED TO BE AN ADMINISTRATIVE MARKING
CANCELLED PER E.O. SEC. 1.3 AND
ARCHIVIST'S MEMO OF MARCH 16, 1983"**

~~CONFIDENTIAL~~

Memorandum for the President
October 9, 1978
Page 2

PERSONAL AND
CONFIDENTIAL

In the wake of these victories, you could then proceed to the announcement of your inflation policy with careful advance planning on how we handle to best advantage the response of critical leaders and groups.

Finally, in late October or early November there is potential for two foreign policy successes, which -- if realized -- would overshadow all other matters: the signing of the Egyptian-Israeli Peace Treaty and the announcement of a U.S. - Soviet Summit.

In order to still the voices of those in the Middle East who would like to derail that Treaty and to create a strong positive climate here at home, I believe we should make every effort to press for an early signing.

As you know, from the standpoint of budget, of the economy and of the Congress and traditional Democratic constituencies, next year and the year following could be extremely difficult years. To the extent that the unprecedented success of the Democratic Congress in the mid-year elections is credited to your leadership, I believe that you will have a far greater chance of obtaining the cooperation needed to succeed on inflation, on a SALT treaty and on other priority matters over the next two years.

II. MAJOR PRIORITIES

A. Legislative Strategy

Energy. As noted above, the critical test will be on the rule scheduled to be taken up on the House floor Thursday. In preparation for that vote, the following steps are underway:

1. Phone Calls. We have each received names for contacts over the weekend. Frank's office is continuing to update the list. We would like to do as much as possible, as soon as possible to try to nail down that vote.

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

PERSONAL AND ~~CONFIDENTIAL~~

Memorandum to the President
October 9, 1978
Page 3

2. Conference Call to the Governors. I understand that arrangements have now been made for a conference call Tuesday from you to key Governors, urging their help in contacting House members from their States.
3. Press Conference. For the Tuesday press conference, Stu and Jerry will be working up materials for an opening statement with energy as the lead.
4. Press Event with State and Local Leaders. Jack, Anne and Jerry are looking into the possibility of a press event Wednesday with representatives of State and local elected officials that are supportive, emphasizing the priority attached to this legislation by the Governors, the Mayors, the Counties, and the State Legislatures.
5. Other Activities. Anne Wexler and Stu will be meeting with corporate representatives on Tuesday morning. In addition, we are exploring the pro's and con's of an energy meeting between you and the Speaker and other Members of the leadership, either through the breakfast now scheduled for Tuesday morning or a possible luncheon on the Hill.

Tax Bill. This measure could well consume an important share of your decision time during the course of the next week. As you know, you are currently scheduled to meet with Chairmen Long and Ulman on Tuesday to discuss the major tax issues.

Countercyclical Revenue Sharing. Latest reports indicate that it may be possible to secure final approval of this bill. With it, we would be able to claim a major urban policy victory. Without it, that would obviously be much more difficult to do. It should remain high on the Administration's list of must bills, but we would hope to limit the amount of time you must devote to this measure.

Department of Education. Although consideration by the House floor is currently scheduled for Thursday, Frank Moore's Office reports that there is little hope for passage this year. Of serious concern is the need to avoid political damage to the Administration should the bill fail. Congressional Liaison staff is exploring with the Speaker's Office ways in which I might be of help in maintaining a visible demonstration of the Administration's commitment to the bill. We would hope to minimize any demands on your time for lobbying on this bill.

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

PERSONAL AND ~~CONFIDENTIAL~~

Memorandum to the President
October 9, 1978
Page 4

Hospital Costs. The latest Congressional reports indicate that there is virtually no chance for the bill this year. Even in the remote event that an avenue could be found to bring the bill to conference, there is serious concern about the shape of any final proposal and its impact upon our ability to accomplish more substantial reform next year. We would recommend against any further time commitment on your part for the remainder of this session.

B. Veto Strategy

Apart from the tax question noted above, a number of candidates for veto have been identified (e.g., Highway bill, Ex-Im Bank bill, Sugar bill). Because of the time pressures over the next two weeks, we recommend that none of these bills be vetoed before the Congress adjourns, so that precious time and resources need not be diverted to counter override attempts.

In addition, deferring veto announcements on some minor bills could help to prevent a backlash against priority legislation by interested Congressional Members and private groups.

C. End-of-Session Victory Strategy

1. Media Event. Jerry Rafshoon is already far along in planning for a televised interview which would stress the major accomplishments of the Administration and the Congress following adjournment.

2. Signing Ceremonies. Frank Moore will be recommending a signing ceremony this week on Civil Service Reform.

In addition, you will be receiving a recommendation for a signing ceremony for the Inspectors General bill, which might be coupled with the Ethics and Federal Information Center legislation. If final Congressional action can be completed in time, the wiretap bill might be included in such a reform-of-government package.

On Monday, Anne Wexler will be working with other Senior Staff to pull together a strategy for signing ceremonies over the next two weeks, with recommendations from Frank on minor bills which might be signed next week if needed to help put us over the top on energy.

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

PERSONAL AND ~~CONFIDENTIAL~~

Memorandum for the President
October 9, 1978
Page 5

PERSONAL AND
~~CONFIDENTIAL~~

3. Other Events. Another suggestion that might be explored is the possibility of a visit to Capitol Hill at the close of the session with a walk-through and hand-shaking on the House and Senate floors and brief remarks to the press.

In addition, Jack might explore ways to use the Cabinet in out-of-town events that would help to underscore victories on matters of regional or special constituent significance.

D. Inflation Policy Announcement. As you know, planning is well underway toward an announcement the week of October 16th. We recommend that this be slipped for several days. Last minute decision and preparation time will be necessary in advance of the announcement. With the added time, I would hope that an appropriate working group might focus on the possibility of advance commitments of support from groups aside from business and organized labor: including state and local elected officials, and key constituencies so that any negative reactions could be quickly countered.

E. Farm Policy Announcement. You will shortly be asked to make decisions on the 1979 feed grain program, which are regarded as critical by Democratic candidates from farm states. After a brief meeting with Dick Clark and others, I believe that we may be able to find a way to avoid serious economic and political problems in the farm belt on the one hand, or problems on the inflation side on the other. However, timing and appearance are important, and I am inclined to recommend that any announcement be put off until after your inflation policy is made public. If the final decision is regarded as good news, I think it should probably be announced in the Midwest.

F. Mid-East. As you know, the negotiations resume on October 12th. You are currently scheduled to make an opening statement. Assuming the negotiations move well, I would recommend at this point that we press for a signing within the next 30 days for the reasons noted above.

G. SALT. In advance of Secretary Vance's departure, your personal time will clearly be needed for final decisions and instructions. If we are able to achieve a breakthrough, I would also hope that it might be possible to announce a Summit meeting in late October or early November.

~~CONFIDENTIAL~~

Leontyne Price - 10/9/78

WORLD'S FINEST PERF.
PUB T.V.

LEONTYNE PRICE

OPERA NOT LUXURY / FEW

BEAUTIFUL - NEARLY EVERYONE

LAUREL, MISS. → GRAND OPERA

YOUNG, BLACK, DETERMINED

WH - 11 YRS. 3 YRS OLD
TOY PIANO

CREATIVE ENERGY

FAMILY = LOVE ≠ SUCCESS

RELIGION = WASTE TALENT

ORIGINS / EMOTION / PASSION

LIFE → ART

ACCOMPLISHMENT TRIBUTE TO NATION

TRIBUTE TO HER

LEONTYNE PRICE

THE WHITE HOUSE
WASHINGTON

10/10/78

Tim Kraft
Jim Gammill

The attached was returned in
the President's outbox. It is
forwarded to you for appropriate
handling.

Rick Hutcheson

	FOR STAFFING
	FOR INFORMATION
	FROM PRESIDENT'S OUTBOX
	LOG IN/TO PRESIDENT TODAY
	IMMEDIATE TURNAROUND
	NO DEADLINE
	LAST DAY FOR ACTION -

ACTION
FYI

	ADMIN CONFID
	CONFIDENTIAL
	SECRET
	EYES ONLY

	VICE PRESIDENT
	EIZENSTAT
	JORDAN
	KRAFT
	LIPSHUTZ
	MOORE
	POWELL
	WATSON
	WEXLER
	BRZEZINSKI
	MCINTYRE
	SCHULTZE

	ARAGON
	BOURNE
	BUTLER
	H. CARTER
	CLOUGH
	COSTANZA
	CRUIKSHANK
	FALLOWS
	FIRST LADY
	GAMMILL
	HARDEN
	HUTCHESON
	JAGODA
	LINDER
	MITCHELL
	MOE
	PETERSON
	PETTIGREW
	PRESS
	RAFSHOON
	SCHNEIDERS
	VOORDE
	WARREN
	WISE

	ADAMS
	ANDRUS
	BELL
	BERGLAND
	BLUMENTHAL
	BROWN
	CALIFANO
	HARRIS
	KREPS
	MARSHALL
	SCHLESINGER
	STRAUSS
	VANCE

THE WHITE HOUSE
WASHINGTON

C

October 6, 1978

MEMORANDUM FOR THE PRESIDENT

FROM:

TIM KRAFT *TK*
JIM GAMMILL *Jim G*

SUBJECT:

Advisory Committee for Trade Negotiations

Ambassador Strauss has recommended Wayne E. Glenn for the remaining seat on the Advisory Committee for Trade Negotiations. This seat traditionally has been held by a labor representative.

Wayne E. Glenn (Little Rock, Arkansas):
Acting President of the United Paperworkers International Union. Prior to his election in July 1978, he was Vice President of the International Brotherhood of Pulp, Sulphate and Paper Mill Workers.

RECOMMENDATION:

Appoint Wayne E. Glenn as a member of the Advisory Committee for Trade Negotiations.

approve

disapprove

[Handwritten mark]

BIOGRAPHICAL SKETCH

WAYNE E. GLENN

Wayne E. Glenn is the Acting President of the United Paperworkers International Union, the largest labor organization in the paper industry in the world, with a membership of over 325,000 members. The Paperworkers Union has over 1400 chartered locals throughout the United States and Canada with Headquarters in Flushing, New York.

Mr. Glenn was born in 1924 in Ponca City, Oklahoma, and at the age of four, his family settled in Arkansas where he attended elementary and secondary schools prior to enrolling in the University of Colorado. He also attended Foster Business School and the University of Arkansas, studying labor law and a number of related subjects.

A World War II veteran, Mr. Glenn served as a tailgunner in the U. S. Naval Air Force and later served in the Korean conflict as an airborne radar controller.

Mr. Glenn became a member of Local 355 in Camden, Arkansas when he first went to work at the Camden mill of International Paper Company. His first union office was Recording and Corresponding Secretary of Local 355. His union activity led to an appointment as International Representative for the International Brotherhood of Pulp, Sulphite and Paper Mill Workers on May 1, 1957 and in September of 1965, at the union's convention in New York City he was elected a Vice President.

In Washington, D.C., on July 31, 1978, the Executive Board of the Union elected Mr. Glenn Acting President of the Union.

During his early years in the labor movement, Brother Glenn served as Secretary-Treasurer of the Camden Central Trades and Labor Council, AFL, Vice President and later Secretary-Treasurer of the Arkansas State Federation of Labor and Executive Secretary of the Arkansas State AFL-CIO, an organization he became President of for a two-year term in 1959.

He has been a continuous member of the Arkansas Employment Security Advisory Council since 1953 and serves as Chairman of the Labor Education Advisory Council to the University of Arkansas.

Acting President Glenn is married to the former Gracie L. Gauden. They have two daughters, Deborah Ann Glenn and Linda Gail Frase, and two grandchildren. Mr. Glenn is a member of the Baptist Church in Little Rock.

THE WHITE HOUSE
WASHINGTON

October 9, 1978

MEMORANDUM FOR THE PRESIDENT

FROM: FRANK MOORE *fm*
BILL CABLE
JIM FREE

SUBJECT: ENERGY PHONE CALLS: Previous Question,
Rule and Passage

> Don Edwards (D-Cal) 2

Has been with us on nearly everything we have asked. He is a leader among liberals and may tend to offset Phil Burton's California efforts against us.

R-1
B-1

> Leon Panetta (D-Cal) 3

He usually helps. He has been concerned about deregulation and the consumers. "It's good for the country; I need your help."

R-2
B-1

> Carroll Hubbard (D-Ky) 3

He was very easily moved by the latest phone call. He nearly committed to you on Public Works and Carl Perkins, et al, pulled him off -- he owes no one on this. Governor Carroll is strongly supportive!

R-1
B-2

> John Breckinridge (D-Ky) 2

You sent him a letter that Jim Free read at a luncheon in his honor. He is leaving -- defeated in the Primary. Probably looking for a job, but has not asked to our knowledge.

PA-3→1
R-2→1
B-

opposes dereg

will watch vote - if close, will help(?)

	FOR STAFFING
	FOR INFORMATION
<input checked="" type="checkbox"/>	FROM PRESIDENT'S OUTBOX
<input checked="" type="checkbox"/>	LOG IN/TO PRESIDENT TODAY
	IMMEDIATE TURNAROUND
	NO DEADLINE
	LAST DAY FOR ACTION -

ACTION
FYI

*already
had*

	ADMIN CONFID
	CONFIDENTIAL
	SECRET
	EYES ONLY

	VICE PRESIDENT
	EIZENSTAT
	JORDAN
	KRAFT
	LIPSHUTZ
<input checked="" type="checkbox"/>	MOORE
	POWELL
	WATSON
	WEXLER
	BRZEZINSKI
	MCINTYRE
	SCHULTZE

	ARAGON
	BOURNE
	BUTLER
	H. CARTER
	CLOUGH
	COSTANZA
	CRUIKSHANK
	FALLOWS
	FIRST LADY
	GAMMILL
	HARDEN
	HUTCHESON
	JAGODA
	LINDER
	MITCHELL
	MOE
	PETERSON
	PETTIGREW
	PRESS
	RAFSHOON
	SCHNEIDERS
	VOORDE
	WARREN
	WISE

	ADAMS
	ANDRUS
	BELL
	BERGLAND
	BLUMENTHAL
	BROWN
	CALIFANO
	HARRIS
	KREPS
	MARSHALL
	SCHLESINGER
	STRAUSS
	VANCE

THE WHITE HOUSE
WASHINGTON

October 9, 1978

MEMORANDUM TO PRESIDENT CARTER

FROM:

ANNE WEXLER *Anne*
LOUIS MARTIN
FRANK MOORE *F.M.*

SUBJECT

Meeting with Humphrey-Hawkins Supporters,
Tuesday, October 10, 1978 11:15-11:30 a.m.,
Cabinet Room

I. PURPOSE

To reemphasize the priority which you place on the Humphrey-Hawkins Bill, to briefly discuss the actions you have taken, and to review the legislative situation and further actions.

II. BACKGROUND, PARTICIPANTS, AND PRESS PLAN

A. Background:

1. As you know, we met with approximately 25 key Humphrey-Hawkins supporters on Monday and discussed the status and strategy. The opening of this meeting was filmed by the three networks. We determined that a personal meeting with you with a few of the key leaders would be important to reemphasize your commitment to the Humphrey-Hawkins legislation. In addition, with cloture voted on the tax bill on Monday, the legislative situation became more difficult and your personal involvement is all the more important. (Frank Moore will brief you separately prior to the briefing on the legislative situation).

2. Prior to your arrival, the group will be discussing the legislative situation, and you will enter during this discussion.

B. Participants:

John Carr, Director, Full Employment Council
Coretta King, Chairman, Full Employment Council
Senator Muriel Humphrey
Congressman Augustus Hawkins
Mr. Ed Pena, LULAC
Anne Wexler
Frank Moore
Louis Martin

C. Press Plan:

No White House Press Pool. White House
photographer

III. TALKING POINTS

1. The Humphrey-Hawkins bill would write into law - at long last - a principle for which the Democratic party, and its great leader Hubert Humphrey, fought for so many years: that fulfilling the right to a job at decent wages for all Americans is the fundamental purpose of American economic policy. The bill also recognizes that achieving that goal must be balanced with the search for price stability.
2. We are working to get a fair hearing on the floor of the Senate. Although Senator Byrd is committed to obtaining this and is making extraordinary efforts, the situation is made very difficult by the opposition of certain Republican Senators. I know you have been discussing this situation with Frank this morning.

3. Therefore, it is important that we have:

- Commitments to vote for cloture on the Humphrey-Hawkins bill whenever it comes.
- Opposition to weakening amendments, especially the amendment that Senator Proxmire may offer to write a goal of 3 percent inflation in 1983 into the bill.
- We favor existing language in the Humphrey-Hawkins bill as filed that sets 3 percent inflation as a goal but without specifying a year.
- Opposition to an amendment to limit federal spending to 20 percent of GNP by 1983.
- Support for Majority Leader Robert Byrd in his efforts to work the Humphrey-Hawkins bill to a successful conclusion through thickets of parliamentary maneuvers.

4. As you know, I have asked Anne Wexler and Louis Martin to coordinate our on-going outreach activities on the Humphrey-Hawkins legislation. They have met with you and have worked with all White House offices to bring as much pressure to bear from as many groups as possible. I made telephone calls over the week end to key senators. I am glad we have this opportunity today to discuss the situation and further actions which we might take together.

THE WHITE HOUSE
WASHINGTON

and Mr. KENNETH YOUNG, who
is the associate director
of the legislative department
for the AFL-CIO

11:15 AM

THE WHITE HOUSE
WASHINGTON

October 10, 1978

MEMORANDUM FOR THE PRESIDENT

FROM: LOUIS MARTIN

SUBJECT: Your 11:15 a.m. Humphrey-Hawkins Meeting

I just wanted to let you know that Dorothy Height, President of the National Council of Negro Women, will be joining us at the Humphrey-Hawkins meeting this morning. She was not included in the original briefing memorandum.

11:15

THE WHITE HOUSE
WASHINGTON

October 10, 1978

9

MEMORANDUM FOR THE PRESIDENT

FROM: FRANK MOORE *J.M.*

SUBJECT: HUMPHREY-HAWKINS MEETING

At your 11:15 a.m. dropby of the Humphrey-Hawkins meeting, I suggest you say that you have called 5 senators and have gotten 4 commitments. Although you should not identify the senators, I suggest that you let them know they had been undecided. Also, I suggest you advise them that you are willing to make more calls.

THE WHITE HOUSE
WASHINGTON

October 10, 1978

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MEMORANDUM FOR FRANK MOORE

FROM: DAN TATE

After you and I talked this morning, I went to see Senator Byrd and gave him a report on the President's Humphrey-Hawkins calls. Senator Byrd received that report without any comment and with an indifferent look on his face. I asked him about Humphrey-Hawkins and his strategy. He was non-committal, merely saying that he "hoped to get it up."

I asked him what the President should say to Mrs. King and Her colleagues this morning and he replied that Mrs. King knows the situation in the Senate as a result of her meeting with Senator Byrd yesterday.

Therefore, I recommend that the President merely say that he is following the Majority Leader's lead on the scheduling of Humphrey-Hawkins.

I can get no reading whatever about Byrd's intentions.

THE WHITE HOUSE
WASHINGTON

PRESIDENT DID NOT SEE.

THE WHITE HOUSE

WASHINGTON

October 9, 1978

MEMORANDUM FOR THE PRESIDENT

FROM:

ANNE WEXLER
FRANK MOORE
STU EIZENSTAT

AW
F.M./BR
Stu

SUBJECT:

Meeting on Energy Legislation

At 8:30 a.m. Tuesday, October 10, 1978 in Room 308, OEOB, we will meet with approximately 60 representatives of corporations, trade associations, agricultural-related organizations, and the gas industry. This group represents those most active in assisting us in passing the gas bill in the Senate and now getting the rule adopted in the House.

The purpose of the meeting is to thank them for their efforts, brief them on the non-gas portions of the energy package and discuss strategy.

Because this group has worked so hard for the energy legislation, we think it would be appropriate if you could drop by at anytime between 8:30 and 9:30 for 2 minutes to thank them and to encourage their efforts in the House. The press office advises that White House Press Pool coverage will be difficult because of the 9:30 a.m. event at the DNC. However, we can use the White House photographer to release pictures of the meeting to the Press.

Agenda for the meeting is attached.

Will Attend _____

Will Not Attend _____

THE WHITE HOUSE

WASHINGTON

MEETING ON ENERGY LEGISLATION

October 10, 1978, 8:30 a.m., Room 308

AGENDA

8:30 a.m.	Welcome and Thank You	Anne Wexler
8:35 a.m.	The Energy Package in the Domestic Policy Context	Stuart Eizenstat
8:45 a.m.	Legislative Strategy in the Final Week: The Vote on the Rule and the Importance of Outside Efforts	Frank Moore or Bill Cable
8:55 a.m.	The Energy Legislation	James Schlesinger
9:05 a.m.	Question-and-Answer Period	
9:25 a.m.	Concluding Remarks	Anne Wexler

MEETING ON ENERGY LEGISLATION

October 10, 1978, 8:30 a.m., Room 308

Expected Attendees

- | | |
|---|--|
| 1) Wayne Anderson
Nabisco | 15) Michael Costello
Texas Eastern Transmission |
| 2) Jack Angell
United Gas Pipeline Co. | 16) William H. Darden
Reynolds Metals Co. |
| 3) John Archer
Brown & Root | 17) Lynette Davis
Anaconda Co. |
| 4) K. K. Bigelow
Martin Marietta | 18) Ralph Dewey
Pacific Gas & Electric Co. |
| 5) Kyd Brenner
Corn Refiners Association | 19) William Duke
ARCO |
| 6) David Brome
Burlington Industries | 20) Woody Dunlap
Brooklyn Union Gas Co. |
| 7) George Brown
Public Service Electric & Gas | 21) C. F. Emde
Air Products Co. |
| 8) William Brown
Ford Motor Corp. | 22) Edward Forgotson
Attorney |
| 9) Phillip Buckminster
Chrysler Corp. | 23) Gay Friedman
Southern California Gas Co. |
| 10) Sheldon Bulkin
National Restaurant Ass'n | 24) Terry Gabrielson
Transco |
| 11) Timothy Burns
Society of American Florists | 25) Frank Gorham
R.J. Reynolds |
| 12) Ned Cabot
Equitable Insurance | 26) Robert Harbor
El Paso Natural Gas Co. |
| 13) Victoria Calvert
Nat'l Coun. of Farmer Coops | 27) A. J. Harris II
INA Corp. |
| 14) William Carneal
Texas Gas Transmission Corp. | 28) William Hart
Columbia Gas Sys. Serv. Corp. |

- | | |
|---|--|
| 29) Charles D. Hartman
Nat'l Coun. of Farmer Coops | 47) William Murphy
American Natural Gas |
| 30) Walter Hasty
Proctor & Gamble | 48) Gary Myers
Fertilizer Institute |
| 31) Robert Healy
Anaconda Co. | 49) Hal Newell
Eaton Corp. |
| 32) Melvin Hurwitz
Coastal States | 50) Judy Pond
Ralston Purina |
| 33) Glenn Jackson
Interstate Nat. Gas Ass'n | 51) Richard Quick
Dravo Corp. |
| 34) Joel Jankowsky
N.W. Alaskan Pipeline Co. | 52) Thomas Rodderick
Consol. Natural Gas System |
| 35) Daniel Jerkin
Mining & Reclamation Ass'n | 53) Ted Rodgers
Nationwide Ins. Co. |
| 36) Carl Johnson
Corning Glass Co. | 54) Cheryl Rutledge
Washington Gas Light Co. |
| 37) Thomas Jolly
Attorney | 55) John Ryan
ITT |
| 38) David Lambert
National Grange | 56) Carl Schwenson
Nat'l Ass'n of Wheat Growers |
| 39) Robert Levering
Direct Selling Ass'n | 57) Candy Shy
Ensearch |
| 40) Arnold Levin
Panhandle Eastern Pipelin Co. | 58) David Skedgell
American Gas Ass'n |
| 41) Leonard Lobred
Nat'l Food Processors Ass'n | 59) Lynn Stalbaum
Nat'l Milk Producers Federation |
| 42) Jerry McGrath
Interstate Nat. Gas Ass'n | 60) John Stinson
National Steel |
| 43) Marilee Menard
Nat'l Broiler Council | 61) Dory Teipel
Dravo Corp. |
| 44) Robert Miller
Tenneco | 62) Terry Thorne
American Gas Ass'n |
| 45) Powell Moore
Southern Natural Gas Co. | 63) Glenn Troup
Savings & Loan Ass'n |
| 46) Robert Mulligan
Int'l Ass'n of Ice Cream Mfctrs. | 64) Stuart Van Scoyoc
Dupont |

- 65) Robert Wager
American Bakers Ass'n
- 66) Robert Wait
General Foods Corp.
- 67) Harry Williams
Ashland Oil
- 68) Thomas Zaucha
A & P

THE WHITE HOUSE

WASHINGTON

October 6, 1978

19
1

MEMORANDUM FOR THE PRESIDENT

FROM: HUGH CARTER *HC*

SUBJECT: Weekly Mail Report (Per Your Request)

Below are statistics on Presidential and First Family:

INCOMING WEEK ENDING 9/29 WEEK ENDING 10/6

Presidential	20,350	24,600
First Lady	1,330	1,295
Amy	135	140
<u>Other First Family</u>	<u>85</u>	<u>85</u>
TOTAL	21,900	26,120

BACKLOG

Presidential	2,810	5,745
First Lady	150	215
Amy	0	0
<u>Other</u>	<u>0</u>	<u>0</u>
TOTAL	2,960	5,960

DISTRIBUTION OF PRESIDENTIAL MAIL ANALYZED

Agency Referrals	8%	7%
WH Correspondence	52%	54%
Unanswerable Mail	16%	18%
White House Staff	9%	5%
Greetings Requests	15%	15%
<u>Other</u>	<u>0</u>	<u>1%</u>
TOTAL	100%	100%

NOT INCLUDED ABOVE

Form Letters	6,507	893
Form Post Cards	4,475	4,625
Mail Addressed to White House Staff	17,052	18,329

cc: Senior Staff

MAJOR ISSUES IN
CURRENT PRESIDENTIAL ADULT MAIL
Week Ending 10/6/78

ISSUES	PRO	CON	COMMENT ONLY	NUMBER LETTERS
Support for Appointment of Sarah Weddington	1%	99%	0	702
Support for Treatment of Jehovah's Witnesses in Argentina	0	100%	0	633
Support for Extending the Deadline for the Ratification of the Equal Rights Amendment HJR 638	82%	18%	0	424
Support for Reassessment of RARE II Program (1)	98%	2%	0	417
Support for the Amendments to the Rehabilitation Act of 1973 HR 12467 (2)	99%	1%	0	397
Support for President's Success at Middle East Summit Conference	99%	1%	0	366
Support for Aid to Nicaragua	2%	98%	0	235
Support for Establishment of International Emergency Wheat Reserve HR 13835 (3)	100%	0	0	206
Support for Settlement of Rail Strike (4)	98%	1%	1%	<u>166</u>
			Total	<u>3,546</u>

~~(See Notes Attached)~~

THE WHITE HOUSE
WASHINGTON

10/10/78

Frank Moore

The attached was returned in the President's outbox today and is forwarded to you for your information.

Rick Hutcheson

PHIL BURTON

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	WATSON
	WEXLER
	BRZEZINSKI
	MCINTYRE
	SCHULTZE

	ARAGON
	BOURNE
	BUTLER
	H. CARTER
	CLOUGH
	COSTANZA
	CRUIKSHANK
	FALLOWS
	FIRST LADY
	GAMMILL
	HARDEN
	HUTCHESON
	JAGODA
	LINDER
	MITCHELL
	MOE
	PETERSON
	PETTIGREW
	PRESS
	RAFSHOON
	SCHNEIDERS
	VOORDE
	WARREN
	WISE

	ADAMS
	ANDRUS
	BELL
	BERGLAND
	BLUMENTHAL
	BROWN
	CALIFANO
	HARRIS
	KREPS
	MARSHALL
	SCHLESINGER
	STRAUSS
	VANCE

THE WHITE HOUSE

WASHINGTON

October 6, 1978

CONGRESSIONAL TELEPHONE CALL

TO: Rep. Phil Burton

DATE: Weekend of October 6, 1978

RECOMMENDED BY: Frank Moore
Bill Cable *Bill*
Jim Free *FM*

PURPOSE: To ask him to keep a low profile on the natural gas vote and to thank Burton for his efforts on sustaining the Public Works veto.

BACKGROUND: It is important that this call be placed sometime during the weekend that will not be construed as normal working hours, such as late Saturday afternoon or sometime Sunday. We could not have won the Public Works veto vote without Phil Burton. He will be opposing us on natural gas and if he keeps a low profile, we can win this one.

TOPICS OF DISCUSSION: Thank Phil for all of his efforts on sustaining the Public Works veto. He was extremely important in achieving this victory for the sake of the Country and for Jimmy Carter. You need to ask him to lie low on the natural gas bill. You understand that he is opposed to it, but we really need an energy bill this session. He feels as if we have been depending on him and your recognition of his influence and importance should help ease his opposition to the Rule.

None.
He'll try
not to push
too hard
J

THE WHITE HOUSE
WASHINGTON

10/10/78

Tim Kraft
Jim Gammill

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the President's outbox. It is
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Rick Hutcheson

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	STRAUSS
	VANCE

THE WHITE HOUSE
WASHINGTON

October 6, 1978

MEMORANDUM FOR THE PRESIDENT

FROM:

TIM KRAFT *TK*
JIM GAMMILL *Jim G*

SUBJECT:

Committee for Purchase of Products and
Services of the Blind and Other
Severely Handicapped

The Committee for Purchase of Products and Services of the Blind and Other Severely Handicapped was established by Congress in 1971. The purpose of the Committee is to determine the fair market price of suitable products manufactured by the blind and other severely handicapped and offered for sale to the Federal Government by non-profit agencies for the blind and severely handicapped.

In addition to the eleven members who are officers or employees of various departments and agencies of the Federal Government, there are four positions designated for private citizens. One vacancy occurred in April of this year.

Diane S. Roupe (Washington, D.C.): Formerly of Des Moines, Iowa, is presently the Executive Director of National Rehabilitation Association. She is also a member of the Board of Directors of the National Industries for the Severely Handicapped. Recipient, Distinguished Service Award, International Association of Rehabilitation Facilities (1974); Outstanding Young Woman of Iowa (1970). Author of many publications. She has been highly recommended by Senators Culver and Clark, and Congressmen Smith, Bedell, Harkin and Blouin.

RECOMMENDATION:

Appoint Diane S. Roupe as a member of the Committee
for Purchase of Products and Services of the Blind
and Other Severely Handicapped.

 ✓ approve

 disapprove

A handwritten mark consisting of a horizontal line above a downward-pointing triangle, resembling a stylized signature or a specific symbol.

DIANE S. ROUPE

Current

Address: 800 - 25th Street, N. W.
Washington, D. C. 20037
(202) 333-0293

Birth: Des Moines, Iowa
February 25, 1934

Career Positions and Activities:

Executive Director, National Rehabilitation Association, Washington, D. C., the leading organization of professionals and consumers in the field of rehabilitation of handicapped individuals, with more than 30,000 members, 8 divisions and chapters in all states; directed a national office staff of 17 in program, legislative, regulatory, publications, public relations, and general administrative matters (1975-77).

Board of Directors, National Industries for the Severely Handicapped (since 1976).

Executive Committee, President's Committee on Employment of the Handicapped (1975-77).

Vice Chairman and primary organizer of ADAPT, Inc., NIDA model comprehensive drug prevention and treatment program for central Iowa (1970-75).

Chairman, "Volunteers in Rehabilitation" project sponsored by Goodwill Industries of America and funded by the Rehabilitation Services Administration, HEW; conceived, designed, secured funding, and administered the project resulting in publication of the leading manual (12 vols.) on volunteer administration (1970-74).

Member, President's Citizens Committee for Phase II Economic Plan (1971-72).

Goodwill Industries of America, Government Relations Committee (1970-73); Goodwill Industries of Des Moines, Inc., Board of Directors or Advisory Board (1967-75); Goodwill Industries National Auxiliary, Board of Directors (1965-69), First Vice President (1967-69).

National Junior Tennis League, Des Moines Chapter, Board of Directors and organizer of summer program of instruction and competition for disadvantaged youth (1972-75).

Polk County Federal Savings and Loan Association, Des Moines, Administrative Assistant to the President with responsibility for organizational matters and public relations (1955-64); consultant on advertising, organizational, and personnel matters (1964-75).

Education: B.M.E., Northwestern University, Evanston, Ill. (1955).

Honors:

Distinguished Service Award from the International Association of Rehabilitation Facilities (1974).

Outstanding Young Woman of Iowa (1970).

Pi Kappa Lambda, scholastic honorary for music equivalent to Phi Beta Kappa.

Alpha Lambda Delta, freshman scholastic honorary.

Affiliations:

National Rehabilitation Association
National Rehabilitation Administration Association
Association of Rehabilitation Facilities
Association of Volunteer Bureaus of America
Junior League

Church Affiliation:-

Plymouth Congregational Church (United Church of Christ).

Publications:

"Volunteerism: Reawakening to an Age-Old Truth," Rehabilitation Record (March-April, 1972).

"Dreams" (a discourse on the potential of volunteerism), Volunteer Administration (September, 1972).

"What It Means to be a Volunteer," Volunteers for People in Need, International Association of Rehabilitation Facilities (November 1972).

"What It Means to be a Volunteer," Rehabilitation Record (January-February 1973).

"Volunteers and Free Society," Des Moines Sunday Register (September 1, 1974).

Hobbies: Tennis, primitive canoe camping.

References:

Anthony S. Harrington
Hogan & Hartson
815 Connecticut Avenue, N. W.
Washington, D. C. 20006

Edward A. McDermott
Hogan & Hartson
815 Connecticut Avenue, N. W.
Washington, D. C. 20006

J. N. Corrigan
Assistant Vice President
The Riggs National Bank
Washington, D. C. 20074

F. James Ahlberg
Peat, Marwick, Mitchell & Co.
1025 Connecticut Avenue, N. W.
Washington, D. C. 20036

Senator John C. Culver
United States Senate
Washington, D. C. 20510

Congressman Neal Smith
House of Representatives
Washington, D. C. 20515

Alan H. Toppel
Executive Director
Commission on Accreditation of
Rehabilitation Facilities
4001 W. Devon Avenue
Chicago, Illinois 60646

Harry R. Clements
Executive Vice President
National Industries for the
Severely Handicapped, Inc.
4350 East West Highway, Suite 1120
Washington, D. C. 20014

Jack H. Wesenberg
Executive Vice President
Greater Des Moines Chamber of Commerce
8th and High Streets
Des Moines, Iowa 50309

Lowell E. Green
Past President
National Rehabilitation Association
Division of Rehabilitative and
Visual Services
P. O. Box 25352
Oklahoma City, Oklahoma 73125

THE WHITE HOUSE
WASHINGTON

10/10/78

Tim Kraft
Jim Gammill

The attached was returned in
the President's outbox. It is
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handling.

Rick Hutcheson

ADVISORY COMMISSION ON INTERNATIONAL
COMMUNICATION, EDUCATIONAL AND
CULTURAL AFFAIRS

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	VANCE

THE WHITE HOUSE
WASHINGTON

October 6, 1978

C/

MEMORANDUM FOR THE PRESIDENT

FROM: TIM KRAFT *T/K*
JIM GAMMILL *Jim G*

SUBJECT: Advisory Commission on International
Communication, Educational and
Cultural Affairs

In August we sent you a memorandum recommending new members of the Advisory Commission on International Communication, Educational and Cultural Affairs. At that time you approved Lew Manilow only; there are still five members to be appointed.

Frank Moore has talked with Senator Baker about one of the non-Democratic positions. Senator Baker says that he fully supports Mae Sue Talley who is Congressman Rhodes' candidate. *sh*

Democratic Members:

For two of the Democratic positions, we have candidates who are recommended by John Reinhardt with our full support.

John Hope Franklin (Chicago, Illinois): Former Chairman of the Board of Foreign Scholarships. He is a Black professor of history at the University of Chicago. John Reinhardt and the State Department people who worked with the old commission recommend that we include a nationally respected academic among the members.

Neil Sherburne (St. Paul, Minnesota): Secretary-Treasurer of the Minnesota AFL-CIO and a member of the Board of Regents of the University System, is strongly supported by the Vice President. The legislation lists various interests which should be represented on the Commission, among which is labor.

Lew Manilow has been approved for the final Democratic position.

Non-Democratic Members:

David Mahoney (New York, New York): Chairman of the Board of Norton Simon, Inc., a major international consumer marketing company. He was Chairman of the American Revolution Bicentennial Commission. He is highly recommended by Jerry Rafshoon.

Mae Sue Talley (Scottsdale, Arizona): President of Castle Hot Springs Hotel Corp. in Scottsdale. She was formerly Publisher and Editor of The Arizonian, Executive Vice President of Talco Engineering Company and Director of Interior Design and Research for the Arizona Biltmore Hotel. She has been highly recommended by Minority Leader Rhodes.

Theodore White (New York): Pulitzer Prize winning author. He has also won many other awards, including two Emmys and the Sigma Delta Chi award. He is a member of the Council on Foreign Relations and the Foreign Correspondents Club of which he was President.

In the event that Teddy White is unable to serve, we recommend the following alternates:

Leonard L. Silverstein (Washington, D.C.): Attorney in Washington, D.C. He is a Director of the National Symphony and a Trustee of the Corcoran Gallery. He is the attorney for the Rockefeller Foundation and for the Inaugural Committee. He has been very helpful to this Administration.

Martha Twitchell Muse (New York, New York):
Chairman of the Board and President of the
Tinker Foundation in New York. She is a
Trustee of Columbia University, a member of
the Council on Foreign Relations, and she
serves on the boards and councils of several
other educational institutions and corpora-
tions. She was formerly a member of the
Board of Foreign Scholarships.

J. Irwin Miller (Columbus, Indiana): President
of Cummins Engine Company. He has encouraged
the use of nationally known architects by the
town of Columbus with his financial support.
His contributions toward philanthropic, civic
and cultural projects are numerous. He has
served on the boards of several universities
and foundations, and he has been the President
of the National Council of Churches. He is
recommended by John Reinhardt.

RECOMMENDATION:

Nominate the following slate to be members of the Advisory
Commission on International Communication, Educational and
Cultural Affairs:

John Hope Franklin
Neil Sherburne
David Mahoney

Mae Sue Talley
Theodore White

Alternates:

Leonard Silverstein
Martha Muse
J. Irwin Miller

approve

disapprove

J

SENATE SCHEDULE

The Senate Schedule looks like the following:

Monday

Tax Bill

Utility Rate Reform Conference Report

Conservation Conference Report

Humphrey-Hawkins (possible)

THE WHITE HOUSE
WASHINGTON

October 10, 1978

Frank Moore

The attached was returned in
the President's outbox. It is
forwarded to you for appropriate
handling.

cc: Rick Hutcheson
The Vice President
Hamilton Jordan
Stu Eizenstat
Jack Watson

WEEKLY LEGISLATIVE REPORT

THE WHITE HOUSE

WASHINGTON

October 7, 1978

C
/

ADMINISTRATIVELY
CONFIDENTIAL

MEMORANDUM FOR THE PRESIDENT

FROM: FRANK MOORE

SUBJECT: Weekly Legislative Report

DOMESTIC POLICY ISSUES

1. NATIONAL ENERGY ACT

--Final conference work on the various parts of the energy package is just about complete. The Utility Rate Reform Report was signed Friday night and an energy tax component is possible, although COET will not be included.

--Therefore a 4-part or 5-part National Energy Act should be to the House of Representatives by Thursday, if everything works on schedule in the Senate and there are no major disruptions.

--The House is set to vote on Thursday, but that could slip a day if problems do arise in the Senate. The first major test will be a "vote on the previous question" (this is a procedural vote designed to assure that the rule stays intact). The second test will be the vote to adopt the rule itself. At the present time, vote counts are not encouraging.

*Easier to
call them
without
competition.
Call all
of them.*

--Our lobbying efforts will be hampered a great deal prior to the votes Thursday because of the House schedule: Monday is a holiday, there are no votes Tuesday, and Wednesday is a Jewish holy day, so there will be no votes taken. The effect of all of this is that many Members will simply stay in their districts through Wednesday, returning to Washington just in time for business on Thursday.

--Fall-out from the public works override fight is minimal, but there has been some evidence of defections.

--We appear to be picking up on the energy bill itself, but not on the rule. White House CL is concentrating all of its efforts on the rule, in the belief that winning that is our best hope for the adoption of a comprehensive National Energy Act this year.

--Several activities involving other units in the White House and outside groups -- including the DNC -- were outlined at a meeting Saturday morning and are being put into operation. As in the public works fight, sustained and intense Presidential involvement will be crucial to the outcome; we will be asking you to make several calls and to attend some meetings during the next few days.

2. URBAN POLICY

--Supplementary Fiscal Assistance: The House Rules Committee has not yet granted a rule. Because the Speaker and Chairman Delaney have both committed to move the bill we have decided not to press either of them. If the House acts on the authorization, an appropriation will still be required.

--Urban Volunteer Program: General debate on H.R. 11922, the bill authorizing ACTION's domestic programs and creating the Urban Volunteer Program will occur on Wednesday. Amendments will be offered on Thursday. Bob Michel continues to threaten a filibuster by amendments.

3. HUMPHREY-HAWKINS

--The Humphrey-Hawkins bill came up briefly on the Senate floor last week but was pulled down because of an objection by the Budget Committee. The Committee held that a budget waiver is required. This action occurred because of:
 (1) opposition to floor consideration of Humphrey-Hawkins by some Democratic members of the Budget Committee, and (2) a jurisdictional squabble between the Budget and Joint Economic Committees.

--As of Friday night, a tenuous compromise appeared achievable. Consideration of Humphrey-Hawkins after the tax bill is now possible.

--But, we still face some monumental problems. There still is not a time agreement on the bill despite the earnest efforts of Senators Byrd and Cranston. Thus, there is a possibility of 3 filibusters -- one on the motion to take the bill up, one on the bill itself, and one "by amendment" (similar to last year's natural gas debate) after cloture is invoked.

--Success will depend on the working of some magic by Senator Byrd to get the bill up and on continued hard work by all of us.

--The coalition of labor and civil rights groups which has been pushing the bill is becoming frustrated and somewhat hostile. They have stopped attacking the bill's opponents -- the Republicans and some recalcitrant Democrats -- and have begun criticizing its supporters -- mainly Senator Byrd and you. To meet this criticism, a White House Task Force has been established to work with leaders of the coalition member groups and to evidence the WH involvement in the effort. We will try to focus our efforts and those of the working coalition on the bill's opponents in the next few days. It is important that we are careful to praise Senator Byrd as we step up our efforts.

--We will suggest that you and the Vice President make some telephone calls.

4. HOSPITAL COST CONTAINMENT

--We are still hopeful that we can get an up-or-down vote on our hospital cost containment proposal as an amendment to the Talmadge bill. We are close to having the votes for the Nelson Amendment.

--However, prospects for action on any separate hospital cost containment bill have been diminished because Nelson and Kennedy have decided to move their bills as amendments to the tax reduction bill. Their efforts may prove futile if

cloture is invoked on the tax bill since cloture prevents the consideration of "non-germane" amendments, and the Parliamentarian has indicated that hospital cost containment is not germane to the tax bill.

--WHCL questions the wisdom of the Kennedy and Nelson tactics. We fear that even if hospital cost containment is added as an amendment to the tax bill it will not survive in conference. We also believe that our chances would be better if the issue was considered in a manner separate from the tax bill. Once again, time appears to be against us.

5. PUBLIC WORKS

--Reconsideration of the Energy and Water Development (Public Works) Appropriations Bill began in the Senate on Friday. Charging that the Administration had "escalated" its demands since last weekend, the Senate Appropriations Subcommittee rejected our initial efforts at compromise and sent the vetoed bill to the full committee as an amendment to the continuing resolution on appropriations for Labor, HEW and Interior, which has passed the House.

--Senator Johnston's apparent strategy is to ensure that his committee and the full Senate do not have to take the political heat for cutting back the original bill. His intent is to make all compromises in a conference with the House.

--The advantage of that approach is that it stands a good chance of avoiding a bloody battle on the Senate floor sparked by Senators (e.g., Hart, Huddleston) whose projects would have been deleted by the committee. The principal risk, on the other hand, is that a bill will emerge from conference--attached to a vital continuing resolution -- that is neither so good as to justify your signing it nor so bad that a public defense of your veto would be easy. For example, you might be presented with a bill within your dollar "cap," but with funding for two "hit-list" projects.

--As of Saturday morning, we intend to discuss with Senator Magnuson and his staff the advantages of and prospects for substantive action by the Appropriations Committee when it meets on Monday or Tuesday. Following these discussions, we will seek further instructions from you.

6. TUITION TAX CREDITS

--On Friday Senator Packwood offered the text of the conference agreement on tuition tax credits as an amendment to the tax bill. It would allow a deduction of 35% up to \$100 in '78, \$150 in '79, and \$250 in 1980 for post-secondary tuition.

--Senator Long opposed the amendment and intended to offer a motion to table. He had the votes, but Senator Kennedy offered as an amendment to the Packwood amendment, his \$4 billion middle income tax relief measure. This passed.

--Subsequently the combined Packwood-Kennedy amendment was also accepted by the Senate.

7. TAXES

--We will give you an update on the Tax Bill Monday which will include the Senate's action Saturday.

8. REORGANIZATION

--Department of Education: The outlook for action on our proposed Department of Education is not bright, to say the least. While it appears on the schedule for Thursday, and NEA is intensifying pressure to bring it to a vote, the proposal's opponents are firm in their determination to prevent action this year. However, for political reasons, and in the faint hope that action might yet be possible, we will continue to push for action, as well. A more detailed report with suggested actions will be provided separately.

--Civil Service Reform: The conference report has passed both the House and Senate, and the enrolled bill is expected to be down here by Monday. WHCL is suggesting a signing ceremony for the latter part of this week.

9. SURFACE TRANSPORTATION

--In their first meeting on Friday the House Conferees led by Jim Howard expressed interest in moving from their \$61.1 billion authorization toward the Senate figures.

--They are apparently looking at \$53 billion (the Senate bill is at \$51.1 billion). OMB, DPS and Secretary Adams are meeting this weekend to develop a "firm offer" for the conferees. You will receive their recommendations this weekend.

--The conference will resume on Tuesday.

10. AIRLINE DEREGULATION

--The conference committee completed action on Friday resulting in a bill that surpassed our expectations.

--The final version of the compromise includes:

- strong automatic entry provision;
- reversed burden of proof for new applicants;
- a provision allowing carriers to lower their fares up to 50% without CAB approval;
- the reform of the existing subsidy program to encourage small town service;
- the Senate provisions on labor which the Administration supported;
- a provision disallowing federal payments to airlines unless they suffered a 7-1/2% reduction in employment within one year. The CAB must determine that "the major cause" of the reduction was deregulation. Payments under this provision are not anticipated.
- phasing out of the CAB by 1985;
- narrowing of your review authority in international route cases;
- toughening of CAB merger review standards; and
- A one-house veto provision. DPS is working with the drafters to iron this out.

11. TRADE ISSUES

--Sugar: On Friday the House passed a bill with a 15.5 cent support price plus an escalator clause.

--The Senate Finance bill is at 17 cents -- it also contains a escalator.

--Meat Imports: Consideration began on Friday. USDA reports that the outlook on the Administration's amendment to move the import floor from 1.2 to 1.3 billion pounds is good. The outlook on the Presidential authority issue is not as good -- Vanik is opposing us on this amendment.

12. SBA OMNIBUS AUTHORIZATION AND MINORITY LEGISLATION

--This past week the House passed the Conference Reports for both H.R. 11445, the SBA Omnibus Authorization Bill and H.R. 11318, the Omnibus Minority Small Business Bill. The Senate is likely to act on both this week. SBA and others will recommend that you veto H.R. 11445 and sign H.R. 11318. Small business trade associations strongly favor the authorization bill and feel that the Omnibus bill is a "give away."

--SBA advises that your actions on these two bills will have to be communicated very carefully so as not to offend the small business community.

--Apparently the Congressional Black Caucus is satisfied with the 8(a) set aside language in H.R. 11318.

13. OMNIBUS PARKS BILL

--Last Wednesday Congressman Phil Burton repassed the Omnibus Parks Bill without the items that conflicted with the Senate bill. (Burton has been attaching the dropped items separately or as riders to other bills.) His intention seems to be to avoid a conference at this late date.

--Timing for Senate action remains uncertain. Interior feels that the Senate is likely to amend the bill thereby disturbing Burton's strategy.

14. ALASKA NATIONAL INTEREST LANDS CONSERVATION ACT

--The Senate Energy Committee reported a compromise bill unacceptable to both Alaska Senators, the Administration, and to the Environmental Coalition.

--Secretary Andrus is sending Interior's proposed amendments to the Hill, but there is little likelihood of floor consideration or a conference committee this Congress.

15. ENDANGERED SPECIES ACT EXTENSION

--The House Rules Committee granted a one-hour, open rule Thursday. Passage of an extension is critical as the original authority expired October 1.

--Congressman Robin Beard will attempt to substitute a simple, one-year extension for the Merchant Marine and Fisheries Committee bill on the floor. If this action is successful, it could ensure acceptance of the Senate-passed Culver/Baker bill in conference thereby excluding any of the strengthening provisions in the House committee bill. If unsuccessful in winning a simple extension, Beard has threatened to "filibuster" the bill by calling up 682 amendments.

16. CETA

--Conference work on a good bill is expected to be completed this weekend.

17. MIDDLE INCOME STUDENT ASSISTANCE

--October 5, the House Rules Committee recommended a one-hour open rule on H.R. 11274, the Middle Income Student Assistance Act. We are expecting House action the week of October 9. The Senate has approved similar legislation.

18. APPROPRIATIONS

--Interior: OMB is in the final stages of making a recommendation on this bill.

--Labor-HEW: On Friday the conferees agreed on \$2.6 billion for Middle Income Student Assistance. The conferees also dropped the Senate-passed provision to delay the cotton-dust standards until May 1. The remaining problem is the abortion dispute. If the conferees fail to agree there would seem to be little likelihood that the leadership of either House would permit a series of abortion votes before adjournment.

--Continuing Resolution: Despite OMB's urging to move quickly, the Senate Appropriations Committee will not mark up a resolution until Tuesday.

--OMB reports that payrolls for the Department of Labor are likely to be delayed.

FOREIGN POLICY ISSUES

1. FOREIGN AID APPROPRIATIONS BILL

--The Foreign Aid Appropriations Bill Conference Report has not yet been filed because agreement cannot be reached on language concerning consolidation of refugee programs. The House conferees want AID to have jurisdiction and the Senate prefers the State Department's Office of Refugee and Migration Affairs. State hopes a compromise will be reached Monday and the report filed that evening. The earliest the bill could then go to the House floor is October 12.

--Sixteen amendments, including the High One prohibition and the addition of a Presidential waiver allowing aid to Mozambique and Angola will be voted on separately. Although no debate is expected on any of these amendments, it is probable that there will be considerable debate on the restoration of full funding for Syria.

2. MIDDLE EAST - SYRIA

--There are at least two resolutions being floated on the Hill concerning Lebanon and Syria's role in the Middle East. One resolution will be marked up in the Senate Foreign Relations Committee on Tuesday afternoon. More ominous is

the possibility of a House challenge to the Foreign Aid Appropriations Conference Report, in some way related to the situation in Lebanon.

--This issue is complicated by the issuance of an export license for the civilian version of the C-130 to Syria. State has told interested Members that this is under review by Under Secretary Benson. In spite of the fact that this is strictly a commercial sale of the Lockheed's L-100, we can expect to take a considerable amount of heat for the timing of this decision.

3. AFRICA

--Ian Smith will be wine and dined by Congressional conservatives this week. State reports that the fact his visit is being so visibly managed by the far right may detract from his effectiveness. He will, however, focus Congressional attention on the Administration's southern Africa policy. We can expect probing questions about what Secretary Vance will carry with him to Pretoria.

4. DEFENSE AUTHORIZATION BILL

--The House passed the DoD Authorization Bill Wednesday evening. Both Congressman Downey's one-house veto amendment and Congressman Dornan's abortion amendment were rejected. DoD expects to be able to avoid a conference.

5. DEFENSE APPROPRIATIONS BILL

--Senator Stennis brought the bill to the floor Wednesday afternoon. Floor action continued Thursday with the bill passing 86-3. A Hollings amendment to restore \$85 million for junior enlisted travel allowances was adopted. George McGovern attempted a one percent overall reduction amendment which was soundly defeated by a vote of 74-11. Conference began Friday. Conferees plan to file their report by Wednesday midnight. DoD now anticipates having an Appropriations Bill before adjournment.

MISCELLANEOUS

--Congressman Marty Russo who lobbied against us on the Public Works veto changed his vote in the well of the House the last second of voting to a vote to sustain the veto.

--Congressman George Miller who has been in the hospital and at home in California for 3 weeks because of a painful back problem flew back just to vote to sustain your Public Works veto. He has been a leader on your side on this issue for 2 years.

--Chairman Tom Bevill was disappointed about the veto, but was telling members to vote for the gas bill after the vote to sustain. Members we can identify who have decided to oppose us on energy are: Evans (Colo.), Slack, McKay, Perkins.

FLOOR ACTIVITIES, WEEK OF OCTOBER 9

There will be no votes Monday, Tuesday or Wednesday.
House

Votes on Suspensions will be postponed until Thursday,
October 12.

Suspensions:

1. HR 8595 IRC Amendments for Recipients of Retroactive VA Benefits
2. HR 13092 IRC Amendments re Small Tax Case Procedures
3. HR 9893 IRC Amendments re Income Limitations for the Elderly
4. HR 12532 IRC Amendments re Income Averaging
5. HR 12592 IRC Amendments to Section 4941
6. HR 3553 IRC Amendments re Tax Counseling for the Elderly
7. HR 8222 Duty-free Treatment for Items Produced in U.S. Possessions
8. HR 13719 IRC Amendments re Guam and Virgin Island Taxes
9. S. 3373 U.S. Code, Title 10 Amendments, for Girl Scouts
10. S. 957 Dispute Resolution Act
11. HR 14089 Interstate Horseracing Act
12. HR 14030 U.S. Code, Title 28 Amendments, re Court Interpreters
13. HR 9701 Federal Government Employees' Financial Statements
14. S. 3335 Provide Services for Drug-Dependent Offenders
15. H.Res. 1372 Nobel Peace Prize for Soviet Watchers of Helsinki Agreement
16. H.Con. Res. 720--Concern of Congress for South African Crossroads Community
17. H.Con. Res. 729--Support of Congress for UN Namibian Independence Plan
18. HR 13500 Presidential Records Act of 1978

GENERAL DEBATE ON THE FOLLOWING:

- | | |
|----------|---|
| HR 12511 | Child Nutrition Amendments of 1978 (School Lunch) |
| HR 13611 | Child Health Assurance Act of 1978 |
| HR 12442 | Consumer Product Safety Commission |
| HR 12441 | Toxic Substances Control Act |

Wednesday

GENERAL DEBATE ONLY ON THE FOLLOWING:

HR 12347	Biomedical Research and Training Amendments
HR 12370	Health Services Amendments
HR 12161	Conrail Authorization Act
HR 12577	Railway Safety Authorization Act
HR 11979	Local Rail Service Assistance Act

Thursday

Consent Calendar

~~Conference Report on S. 1566 - Foreign Intelligence Surveillance Act~~
Conference Report on HR 8444 - National Energy Act
Conference Report on HR 6536 - D.C. Retirement Reform Act
HR 2852 -- Countercyclical Assistance (Subject to a Rule being granted)

Votes on Amendments and Bill on the following:

HR 12511	Child Nutrition Amendments of 1978 (School Lunch)
HR 13611	Child Health Assurance Act
HR 12442	Consumer Product Safety Commission
HR 12441	Toxic Substances Control Act
HR 12347	Biomedical Research and Training Amendments
HR 12370	Health Services Amendments
HR 12161	Conrail Authorization Act
HR 12577	Railway Safety Authorization Act
HR 11979	Local Rail Service Assistance Act
HR 11922	Domestic Volunteer Service (ACTION)
HR 13778	Department of Education Organization Act
HR 12533	Indian Child Welfare Act
S. 2727	Amateur Sports Act of 1978
HR 14104	Endangered Species Act
HR 12299	Domestic Violence Act of 1978
H. Res. 85	Remove Limitation on Co-Sponsorship
H.R. 12647	Noise Control Act of 1978, Reauthorization

THE WHITE HOUSE
WASHINGTON

10/10/78

Mr. President:

The VP has asked for 20 minutes
today to discuss your legislative
agenda and schedule after congress
adjourns. Since Byrd and Long have
postponed there is some time.

I suggest 10 am.

approve disapprove

Phil

9
/

THE WHITE HOUSE
WASHINGTON

Phil has
seen

CAMP DAVID
OCT. 7, 1978

*Frank - I
did them all.
Deliver after the
energy vote
JC*

MR. PRESIDENT -

CONGRESSIONAL LIAISON SAID YOU WISHED TO SIGN
PERSONALLY THE THANK YOU LETTERS FOR THE PUBLIC
WORKS BILL.

THEY ARE IN THIS BRIEFCASE.

IF YOU DECIDE NOT TO DO THEM ALL, THE ONES IN THE
RED FOLDERS ARE MOST IMPORTANT.

FRAN *fran*

Rick-

For your
records

Frank
has copy
fran

THE WHITE HOUSE
WASHINGTON
October 8, 1978

*Jim talk
to Frank/Stu
J*

TO: The President
FROM: Frank *fran*
RE: Highway Bill - Request for Meeting

The Conferees on the Mass Transit/Highway Bill meet Tuesday morning at 10:00 a.m. Stuart and Frank think it would be very helpful for you to meet briefly with them upon your return today.

Background:

Dollars: House Bill \$61 billion

Senate Bill \$51 billion

Congressman Jim Howard is willing to come down; initially to the \$55 b range, now leaning toward \$53 b.

OMB & Stuart's office have been negotiating for \$52-52.5 b.

This is a major bill left that we have a chance of avoiding a veto on. You were so successful in talking to the Conferees on Veterans Preference that staff believes it would help tremendously if you personally gave them your bottom line and asked them to resolve their differences quickly.

Other problems: The last time there was a major highway bill (two years ago), there was such antagonism between House & Senate that it took 42 conference meetings to settle.

On this bill, there are 270 differences which they hope to address in the briefest amount of time, report out, and pass this week.

Jim Howard personally feels you have not expressed much interest in his work on this bill over the last two years.

Essential

Participants:

Senators Bentsen & Randolph
Congressmen Howard & Bizz Johnson
Secretary Adams (wants the meeting badly)
McIntyre
Eizenstat
Moore

_____ set up brief meeting on return

_____ no meeting

NOTE: Stuart will send up more detailed information later this morning if you agree to meeting. I'll bring it to helicopter for review on ride home unless you want it earlier.

5012
5045

THE WHITE HOUSE
WASHINGTON

October 9, 1978

Stu Eizenstat

The attached was returned in the President's outbox today and is forwarded to you for appropriate handling.

The signed enrolled bill has been given to Bob Linder for appropriate handling.

Rick Hutcheson

cc: Bob Linder

Last day - Saturday, October 7

THE WHITE HOUSE

WASHINGTON

October 6, 1978

MEMORANDUM FOR THE PRESIDENT

FROM: STU EIZENSTAT *Stu*
JOE ONEK

SUBJECT: Enrolled Bill H.R. 12598
Foreign Relations Authorization

Stu - See
Note on
HR 12841
J

You must decide by Saturday, October 7, 1978 whether to sign or veto this bill.

THE BILL

The bill authorizes fiscal year 1979 appropriations for the State Department, International Communication Agency, and the Board for International Broadcasting; contains a number of Foreign Service personnel provisions, including the "high one" retirement authority; and sets forth other policy revisions.

THE VOTES IN CONGRESS

House - 240-124

Senate - Voice Vote

AGENCY RECOMMENDATIONS

Every agency except OMB recommends approval. OMB recommends a veto because the legislation provides a "high one" retirement authority for about 821 Foreign Service executives. OMB argues that the high one provision contradicts your pay freeze on federal executives and, despite Congressional assurances to the contrary, would constitute a precedent for other employees.

The State Department argues that the high one would save some \$5.6 million in '79 and '80 by early retirement of Foreign Service employees who would not be replaced. State

ACTION
Last Day - Saturday, October 7

THE WHITE HOUSE
WASHINGTON
October 6, 1978

*Stu - It is
ridiculous to
send me a bill
like this the
last night for
action -*

MEMORANDUM FOR: THE PRESIDENT
FROM: STU EIZENSTAT *Stu*
SUBJECT: Enrolled Bill H.R. 12841 Taxation
of Fringe Benefits (Sponsored by
Representative Ullman)

*Tell everyone con-
cerned not to let
it
happen
again -
JC*

THE BILL

The principal provisions of the enrolled bill would: (1) prevent the IRS from issuing before 1980 final regulations which might subject fringe benefits to taxation; and (2) exempt from income tax for the years 1970-1977 (but not for the future) cash meal allowances received by certain state police officers. The bill would cost the Treasury approximately \$8 million.

Treasury believes that item (1) is unnecessary since they did not intend to issue the regulations before 1980 in any case. Item (2) is of greater concern to them, however.

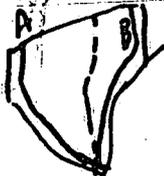
The IRS has long taken the position (the validity of which has been recognized by Congress in the past) that cash meal allowances constitute income. The beneficiaries of this enrolled bill decided to challenge this position in court and therefore in order to obtain judicial review they did not pay taxes on their meal allowances pending the court's decision. The Supreme Court ruled against them, making them liable for back taxes. This bill exempts the officers from those unpaid taxes. It does not exempt them from future taxes on their meal allowances About half of the beneficiaries are from the State of New Jersey.

ARGUMENTS FOR VETO

o The bill retroactively exempts a small number of taxpayers from a tax burden the government has consistently maintained they owe, and which other taxpayers in similar circumstances have paid.

o Treasury argues that this kind of legislative action may encourage other taxpayers to challenge Treasury rulings.

*ps Tell Mike to collect all
such taxes in the future &
to make this clear to all. JC*



THE WHITE HOUSE
WASHINGTON

10-9-78

Huckaby

Rule 1

B. 11 3-4

J.C.

THE WHITE HOUSE
WASHINGTON

Phil has
seen

THE WHITE HOUSE
WASHINGTON

10/5/78

Mr. President:

Sec. Blumenthal has requested a meeting with Sen. Long and Cong. Ullman on the tax bill for early next week.

Frank Moore approves.

approve disapprove

Phil

10:15 pm.

J

~~California signed~~

THE WHITE HOUSE
WASHINGTON

OCTOBER 7, 1978

MR. PRESIDENT -
ROSALYNN CALLED AT 10:00 TO
SAY HI. SHE WON'T HAVE A
CHANCE TO CALL AGAIN BUT IS
EXPECTED HERE BETWEEN 8 AND 9
THIS EVENING.

FRAN

1:30 p.m. meeting 10/10/78
vance/andy young/brzezinski/vice president

THE WHITE HOUSE
WASHINGTON

Rhodesia: → UN if no movement

Namibia: 4/79 elections, 3100+1500

S Africa: Mtg w/ Botha provided.

1) help w/ Rhodesia = Botha
re A/P plan

2) Settle Namibia

3) Moves re apartheid

THE WHITE HOUSE
WASHINGTON

October 10, 1978

The Vice President
Frank Moore
Jim McIntyre

The attached was returned in the
President's outbox today and is
forwarded to you for your information.

CEQ and Interior have been notified
of the President's decision by Stu
Eizenstat's office.

Rick Hutcheson

NONGAME WILDLIFE GRANTS

<input type="checkbox"/>	FOR STAFFING
<input type="checkbox"/>	FOR INFORMATION
<input checked="" type="checkbox"/>	FROM PRESIDENT'S OUTBOX
<input type="checkbox"/>	LOG IN/TO PRESIDENT TODAY
<input type="checkbox"/>	IMMEDIATE TURNAROUND
<input type="checkbox"/>	NO DEADLINE
<input type="checkbox"/>	LAST DAY FOR ACTION -

Interior & CEQ already notified per Jorum

ACTION
FYI

<input type="checkbox"/>	ADMIN CONFID
<input type="checkbox"/>	CONFIDENTIAL
<input type="checkbox"/>	SECRET
<input type="checkbox"/>	EYES ONLY

<input checked="" type="checkbox"/>	VICE PRESIDENT
<input checked="" type="checkbox"/>	EIZENSTAT (has)
<input type="checkbox"/>	JORDAN
<input type="checkbox"/>	KRAFT
<input type="checkbox"/>	LIPSHUTZ
<input checked="" type="checkbox"/>	MOORE
<input type="checkbox"/>	POWELL
<input type="checkbox"/>	WATSON
<input type="checkbox"/>	WEXLER
<input type="checkbox"/>	BRZEZINSKI
<input checked="" type="checkbox"/>	MCINTYRE
<input type="checkbox"/>	SCHULTZE

<input type="checkbox"/>	ARAGON
<input type="checkbox"/>	BOURNE
<input type="checkbox"/>	BUTLER
<input type="checkbox"/>	H. CARTER
<input type="checkbox"/>	CLOUGH
<input type="checkbox"/>	COSTANZA
<input type="checkbox"/>	CRUIKSHANK
<input type="checkbox"/>	FALLOWS
<input type="checkbox"/>	FIRST LADY
<input type="checkbox"/>	GAMMILL
<input type="checkbox"/>	HARDEN
<input type="checkbox"/>	HUTCHESON
<input type="checkbox"/>	JAGODA
<input type="checkbox"/>	LINDER
<input type="checkbox"/>	MITCHELL
<input type="checkbox"/>	MOE
<input type="checkbox"/>	PETERSON
<input type="checkbox"/>	PETTIGREW
<input type="checkbox"/>	PRESS
<input type="checkbox"/>	RAFSHOON
<input type="checkbox"/>	SCHNEIDERS
<input type="checkbox"/>	VOORDE
<input type="checkbox"/>	WARREN
<input type="checkbox"/>	WISE

<input type="checkbox"/>	ADAMS
<input type="checkbox"/>	ANDRUS
<input type="checkbox"/>	BELL
<input type="checkbox"/>	BERGLAND
<input type="checkbox"/>	BLUMENTHAL
<input type="checkbox"/>	BROWN
<input type="checkbox"/>	CALIFANO
<input type="checkbox"/>	HARRIS
<input type="checkbox"/>	KREPS
<input type="checkbox"/>	MARSHALL
<input type="checkbox"/>	SCHLESINGER
<input type="checkbox"/>	STRAUSS
<input type="checkbox"/>	VANCE



THE WHITE HOUSE
WASHINGTON

10/10/78

Mr. President:

Congressional Liaison
concurs with Stu.

Rick

THE WHITE HOUSE

WASHINGTON

October 9, 1978

C
1

MEMORANDUM FOR

THE PRESIDENT

FROM

STU EIZENSTAT *Stu*
KATHY FLETCHER

SUBJECT:

Nongame Wildlife Legislation

The attached memorandum from Jim McIntyre presents options on pending nongame wildlife legislation. This cover memo presents my recommendation but does not substitute for Jim's analysis.

Up to this point, the Administration has opposed legislation to establish a State grant program designed to protect nongame wildlife. Nevertheless, the Senate has passed a three-year, \$120 million program and a similar bill has been reported out of the House Committee. The bill might pass the Congress this week, although the Speaker is reportedly holding it. Even if it does not, it will likely pass next year. Environmental groups strongly support this legislation, as does Senator Gary Hart, and it is considered relatively non-controversial in the Congress.

The Administration's position on this bill has puzzled Congressional sponsors and the environmental community. We have responded by pointing out our reluctance to establish yet another grant program and our feeling that the needs in this area are not well defined.

Recently, both the House and the Senate have indicated a willingness to compromise on the pending legislation in order to pass some form of nongame wildlife bill. Because of our stance up to this point, we have some leverage to help forge a compromise -- perhaps more leverage than we would have next year. You indicated that you would like to avoid a veto of this bill, and I agree that it would be preferable to modify the bill rather than to veto it this year or possibly next.

The essence of the compromise position in the attached memorandum would be to authorize and fund a planning phase so that the needs can be better defined. Implementation money would require subsequent authorization. The Congressional sponsors may not feel this is enough. They may be unwilling to cut out all implementation from the program although they have indicated a willingness to cut the authorized level of implementation. However, I think we have a better chance of achieving a minimal, planning-only bill this year than next. I recommend that you approve Option 2A in the attached memorandum and that we quickly move to see whether this compromise can be reached.



EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON, D.C. 20503

ACTION

MEMORANDUM FOR: THE PRESIDENT

FROM: JAMES T. McINTYRE, JR. *Jm*

Subject: Nongame Wildlife Grants

BACKGROUND

You have twice decided against supporting a nongame categorical grant, preferring that States apply existing wildlife funds to benefit nongame as well as game species (latest decision memorandum attached).

Nevertheless, bills which would authorize a three-year \$100 to \$120 million categorical grant to States, from General Treasury funds, for nongame wildlife management have passed the Senate and been reported out of House Committee. Speaker O'Neill has reportedly withheld a House vote on this bill in order to avoid forcing you into a decision on whether to veto it.

In light of the continued Congressional and constituent group interest in this legislation, the Department of the Interior and the Council on Environmental Quality seek your reconsideration on this issue.

ISSUES

1. Should the Administration continue to oppose establishment of a new nongame wildlife grant program now, or should we move to support it?
2. If we continue to oppose now, should we offer to accept a planning grant authorization or take other compromise steps to help head off the present legislation?

Issue #1. Should we oppose or accept a new grant program?
The substance of this issue is the same as presented in the earlier decision memorandum, attached.

Interior and CEQ continue to believe that the substance of the issue, the public support and the Congressional interest justify the new program.

They also expect that we will get an enrolled bill this Congress, thus pushing you to the sign or veto decision. They further believe a bill will be enacted in the next Congress if it fails this year.

OMB continues to believe that the substance of this issue does not justify a new Federal financing program, especially as we confront the difficult budget years of 1980, 81 and 82. The only way to avoid growing funding for new programs is to oppose their authorization. Thus, OMB would recommend continuing to oppose any new legislation this Congress, and facing the veto decision if we are unable to prevent enrollment of a bill.

If, on reconsideration, you wish to support the pending bills, we will so advise the House. If you continue to oppose, two other options are presented for your consideration.

Issue #2. Should either legislative or administrative compromises be offered?

Option A

Offer now compromise legislation that funds a limited, three-year grant program to the States for planning and survey work for nongame programs, at the level of \$3 to \$8 million per year, depending upon the amount of survey work undertaken, but which specifically excludes authorization for implementing grants.

Pros:

- May be the best chance to forestall legislation to authorize immediate implementation grants.
- Will show positive action.
- Will support planning which should precede a decision on implementation programs anyway.

Cons:

- May not be feasible for enactment this year.
- Will build up demand for future implementation grants among constituent groups, thus merely postponing the issue.
- Adds a new planning grant for work that could be done with present programs and projected funding.

Option B

Continue to oppose any legislation but explain to supporters of the legislation that we will offer administrative remedies. Option would include such actions under existing Department of the Interior authorities as:

- study the nongame issue, including the magnitude of the problem, the role of the States, and alternative courses of action;
- begin planning aimed at consolidating the numerous existing categorical grants into a block wildlife grant to be used by the States to benefit both game and nongame wildlife;
- exert active leadership to induce States to benefit nongame species, perhaps as a condition of project approval for obtaining Federal aid in fish and wildlife grants;
- support State preparation of comprehensive fish and wildlife plans within existing funds.

Pros:

- May aid in forestalling legislation this session.
- Use of extant authorities display Administration's leadership on this issue while balancing its concern for fiscal responsibility and sound program evaluation of proposed new programs.
- Consistent with your earlier decisions.

Cons:

- May not be sufficient to stop legislation this session.
- States and constituent groups will be displeased by constraints or redirections placed on existing programs -- they would prefer new funds.
- CEQ believes the last two of the above actions are not politically possible or feasible from a wildlife management standpoint.

Restatement of Substantive Arguments. The enclosure restates CEQ's rationale for supporting a nongame wildlife grant program. Most of those points and the counter-arguments thereto are set forth in your previous decision memorandum (attached) prepared by CEQ, Interior and OMB.

RECOMMENDATIONS

Issue #1. Continue to actively oppose enactment of the pending nongame grant bill.

Yes. Recommended by OMB.

No. Switch to supporting the bill. Recommended by Interior and CEQ.

Issue #2.

Option A. Support compromise legislation to create a limited grant to fund planning and survey work by the States.

Yes. Recommended by Interior and CEQ, if their alternative is not accepted in Issue #1.

No. Recommended by OMB.

Option B. Continue to oppose any legislation but offer administrative remedies.

Yes. Recommended by OMB.

No.

ATTACHMENT

Attachment

THE WHITE HOUSE
WASHINGTON

March 13, 1978

Jim McIntyre

The attached was returned in
the President's outbox. It is
forwarded to you for appropriate
handling.

Rick Hutcheson

cc: Stu Eizenstat
Jack Watson

NEW NON-GAME WILDLIFE GRANT

*Cutter
Cutter
Harris*



THE PRESIDENT HAS SEEN.

EXECUTIVE OFFICE OF THE PRESIDENT

OFFICE OF MANAGEMENT AND BUDGET

WASHINGTON, D.C. 20503

Jim
Q
1

MAR 6 1978

ACTION

MEMORANDUM FOR:

THE PRESIDENT

FROM:

JAMES T. McINTYRE, JR.

W. L. Carter
(12)

Subject:

New Non-Game Wildlife Grant

This memorandum summarizes the attached issue paper, prepared by Interior and CEQ staff, presenting for your decision what position the Administration should take toward congressional initiatives to establish a new grant to States for non-game wildlife management.

BACKGROUND

There are four bills pending in Congress authorizing a new grant to States for management of non-game wildlife. Grant levels of \$11 to \$40 million per year, requiring 10- to 25-percent State match, would be authorized. One bill would be financed by a new excise tax on camping equipment.

House mark-up is scheduled for March 14, forcing us to take a position now, even though Administration witnesses have urged postponement of action during hearings in both Houses.

The issue of proposing such a grant program arose during preparation of your May 1977 Environmental Message. At that time, you decided to urge States to use existing wildlife grant funds (mostly now used for game management) and defer consideration of specific proposals until alternatives were studied and until preparation of the 1979 Budget.

As of this time, there has been no marked change in States' allocation of Federal grants toward non-game management; studies to date have looked at alternative grant programs but not the basic need; and Interior requested no 1979 funds for a non-game management program, and none were budgeted.

With congressional action imminent, an alternative proposal has been developed by Interior and CEQ that would authorize, from general funds, \$10 million in FY 1979 and \$20 million per year thereafter to:

- identify needs and plan management programs for non-game fish and wildlife (\$10 million per year, 90-percent Federal, 10-percent State);
- fund State demonstration projects included in management plans (average \$10 million per year, 75-percent Federal, 25-percent State).

ISSUES

Primary: Should the Administration support establishment of a new grant program?

Secondary: If so, which proposal?

Agency arguments for a new grant program are summarized as:

- There is widespread public interest in non-game wildlife, evidenced by growing numbers of bird watchers, photographers, hikers, observers, and members of wildlife groups.
- State wildlife management agencies strongly support a new Federal grant.
- There is organized public support for such a program.
- Wildlife habitat is being diverted to other uses.
- State laws and political obstacles prevent both sufficient use of existing Federal grant funds for non-game wildlife management and appropriation of sufficient State funds.
- Agencies believe a new grant bill will be enacted, regardless of an Administration position, thus the political cost of opposition will be high and unsuccessful.

Arguments against a new grant program are summarized as:

- There is no quantitative assessment of--
 - ° Whether any significant problem exists for which enhanced expenditures for wildlife management is the solution;
 - ° The benefits of enhanced management by States;
 - ° The need for a new Federal grant to generate those benefits.

- States could use existing Federal wildlife grants or their own appropriations to enhance non-game species should they consider it sufficiently important to do so. Sufficient public support should change the political climate within States.
- State administrative agencies will virtually always support additional Federal grant funds, either to bypass or exert leverage on their legislatures, thus this is no test of program merit.
- Once a new State grant program is started, it tends to grow, regardless of merit.
- Achievement of fiscal policy goals and of improved management objectives mandate that the Administration (a) oppose new restricted categorical grants when existing broader grants can be used, and (b) oppose creation of new grant programs at all unless they are clearly justified and carefully designed to achieve solutions to major social problems.
- Administration opposition, properly applied, could head off enactment.

RECOMMENDATIONS

DECISION

1. Should the Administration support establishment of a new grant program for non-game wildlife?

Yes: Recommended by Interior, Agriculture, and the Council on Environmental Quality, Watson

No: Recommended by OMB, DPS

2. If a new grant program is supported, what should it be?

Interior and CEQ strongly support the Interior alternative program (\$10 million in 1979, \$20 million per year thereafter). Agriculture believes it acceptable.

Agriculture's first choice is to support one of the pending congressional bills.

OMB would defer on this question.

Attachment

I prefer that within existing states have right to support non-game wildlife programs

NON-GAME WILDLIFE STATE GRANTS

ISSUE

What position should the Administration take on bills to authorize a new program of grants to States to plan and implement programs to manage non-game species and to facilitate public benefit from such species?

BACKGROUND

There are four bills pending in Congress authorizing a non-game grant program. Three of the bills (H.R. 8606, H.R. 10255, and H.R. 10915) require comprehensive fish and wildlife planning at 90-percent Federal funding as a basis for obtaining implementation grants at 75-percent Federal funding. S. 1140, the fourth bill, authorizes 75-percent operational grants with 90-percent Federal funding for multi-State projects. The bills provide for authorizations as follows (dollars in millions):

<u>Bill</u>	<u>FY 1</u>	<u>FY 2</u>	<u>FY 3</u>	<u>Average Per Year</u>
S. 1140	20.0	30.0	40.0	30.0
H.R. 8606:				
Planning	3.0	3.0	3.0	3.0
Operating	25.0 total for 3 years			8.3
Total				11.3
H.R. 10255:				
Planning	10.0	10.0	10.0	10.0
Operating	90.0 total for 3 years			30.0
Total				40.0
H.R. 10915	11 percent excise tax on certain camping and bird-related equipment (revenues unknown)			

Hearings have been held in both the House (September 30, 1977 and February 16, 1978) and Senate (August 3, 1977) on this legislation, and further action is imminent. Administration witnesses requested the Committees to defer action pending completion of a review of

alternative approaches to ". . . improve the conservation of non-game wildlife" as directed in your Environmental Message of May 23, 1977. Committee action on these proposals is scheduled for March, and a bill will probably pass both Houses this spring.

The issue of proposing such a grant program arose during preparation of your 1977 Message. At that time, you decided to:

- defer development of a specific proposal for conserving non-game wildlife until after the Council on Environmental Quality (CEQ) had completed a wildlife law codification study; and
- review the funding issue in connection with the FY 1979 Budget.

In your Message, you urged States to apply existing Federal funds to non-game programs and directed the Secretary of the Interior to study alternative measures for improved conservation of non-game wildlife.

Status of actions resulting from your previous decisions is as follows:

- Interior has written to the States informing them that existing Federal Aid to Wildlife Restoration Act funds can be used for non-game purposes.
- The Council on Environmental Quality's wildlife codification study is only in draft form; it includes a specific recommendation for a categorical grant non-game program.
- Interior did not request funds for any non-game grants, and none were included in the FY 1979 Budget.
- Interior's Fish and Wildlife Service completed a study that addressed alternatives to be considered in development of a program of non-game grants to the States.

DISCUSSION

There is widespread interest in non-game and support for a Federal/State non-game grant program.

Interior estimates that 70 million were involved in non-game activities in 1975 and, of these, one-half were hunters and fishermen. About 96 million Americans 9 years or older participated in various wildlife-related activities in 1975. Approximately \$500 million was spent on

the enjoyment of non-game birds in 1974. In addition, memberships in nature-oriented societies and subscriptions to nature magazines continue to grow rapidly. Memberships in the National Audubon Society expanded from 41,000 in 1963 to 321,000 in 1975. Subscriptions to the National Wildlife Federation's National Wildlife grew from 60,000 in 1963 to 600,000 in 1977. Studies have documented loss of habitat and consequent declining populations of non-game wildlife. Surveys by the Council on Environmental Quality, Interior, and Agriculture indicate unanimous State support for a non-game grant program. The House Merchant Marine and Fisheries Committee has letters from 35 States urging enactment of legislation.

However, there is some question as to the need for such a program. There is no complete quantitative assessment of (a) whether any significant problem exists for which enhanced expenditures for non-game wildlife is a solution, (b) the need for enhanced management of non-game species by the various States, or (c) the need for a new Federal grant to States for non-game wildlife management purposes.

Information needed for such assessments which is not now available includes:

- the identification of major non-game wildlife species of significant cultural, educational, esthetic, or ecological value, their present status, and population dynamics;
- determination of the costs and benefits of enhanced management of each;
- identification of existing non-Federal, non-game planning or protection programs, the non-Federal expenditures, and the sources of additional funds if needed, including trade-offs with the levels of game species management.

Existing Federal fish and wildlife grants to States (estimated total of \$78 million in outlays for Federal Aid in Wildlife Restoration Act funds (Pittman-Robertson program) and \$26 million in outlays for Federal Aid in Fish Restoration Act funds (Dingell-Johnson program) in FY 1979) may be applied for comprehensive plans and their implementation. Only Pittman-Robertson funds could be specifically used for non-game programs. Eleven percent of the FY 1978 Pittman-Robertson funds are being used for non-game species. Officials tend to focus on game species since there are strong political, legal, or policy obstacles in most States to the

use of hunting and fishing based funds for non-game purposes. Many State game and fish agencies are operated solely with license fees and related Federal funds. Additional funds for non-game species provides an opportunity to break this cycle.

OPTIONS

1. Support enactment of one of the four non-game bills currently pending in Congress.

Pros

- Agriculture, Interior, and CEQ have significant public interest in non-game management.
- CEQ, Interior, and the environmental community generally believe that the benefits of such programs will exceed their costs but acknowledge the lack of quantified studies in this area.
- The conservation community, States, Agriculture, CEQ, and Interior believe that new Federal funds must be made available to States to assure adequate management of non-game species by them.
- Interior, CEQ, and Agriculture believe the State fish and wildlife agencies have been unable to allocate sufficient amounts from existing funds for non-game programs, and their legislatures have not appropriated sufficient funds from other revenue sources.
- Agriculture believes such a program will be extremely popular with the Western States.

Cons

- There is no complete quantitative assessment which indicates either the need for such a new program or what benefits would result from it on a nationwide basis.
- States could use existing Federal wildlife grants or their own appropriations to enhance non-game species should they consider it sufficiently important to do so.
- Achievement of fiscal policy goals and of improved management objectives mandate (a) that the Administration oppose new

restricted categorical grants when existing broader grants can be used, and (b) that the Administration oppose creation of new grant programs at all unless they are clearly justified and carefully designed to achieve solutions to major social problems.

2. Propose a non-game grant program as follows:

- Provide 90-percent Federal matching money from general funds for States to survey, inventory, and develop management plans for non-game fish and wildlife.
 - ° Authorize funds to be appropriated at an amount not to exceed \$10 million per year for 3 fiscal years, beginning in FY 1979 and ending in FY 1981. Funds appropriated to remain available until the close of the succeeding fiscal year.
- Provide for 75-percent Federal matching money from general funds for States to implement demonstration projects pursuant to approved plans for non-game fish and wildlife.
 - ° Authorize funds to be appropriated at an amount not to exceed a total of \$20 million for the 2-year period beginning in FY 1980 and ending in FY 1981. Funds appropriated to remain available until the close of the succeeding fiscal year.

Pros

- Provides the means necessary to identify, in quantitative terms, non-game needs.
- Ninety-percent funding for surveying, inventorying, and planning, coupled with project implementation funds upon plan approval, will provide incentives for States to obtain appropriate authority and/or funding.
- Two-year authorization for implementing projects provides flexibility to propose appropriation in each of the two outyears based on needs identified in the initial planning stage, States' ability to provide matching funds, and overall Federal priorities.
- Consistent with directives in your Environmental Message.

Cons

- Same as under option 1.

3. Oppose enactment of new Federal categorical grant program.

Pros

- For same reasons as given under "Cons" of option 1.

Cons

- Will not provide constructive Administration input into anticipated congressional passage of non-game legislation.

DECISION

Option 1. Support enactment of any one of the four bills.

° Agriculture strongly supports option 1.

° Interior and CEQ could accept option 1.

Option 2. Support enactment of the modified grant program.

° Interior and CEQ strongly support option 2.

° Agriculture could accept option 2.

Option 3. Oppose enactment of all legislation.

° The Office of Management and Budget strongly opposes enactment of a new Federal grant program and supports option 3.

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CEQ'S REASONS TO RECOMMEND RECONSIDERATION OF ADMINISTRATION POSITION
ON NONGAME PROGRAM

I. Need for Nongame Legislation

- More than 80% of the 3,699 vertebrate species of fish and wildlife in the United States receive little or no attention from present Federal or state management programs.
- A significant number of nongame species are declining in the United States due, in part, to the lack of attention that they receive.
- Existing Federal and state cooperative funds are needed to support present fish and wildlife programs. Only 8% of such funds are being directed exclusively toward nongame. Extensive diversions of such funds for nongame programs would encounter serious opposition from hunters and fishermen who pay for these programs.
- According to the 1975 National Survey of Hunting, Fishing and Wildlife-Associated Recreation, more than 70 million people spent nearly 1 billion dollars in 1975 on nongame-related activities.

II. Benefits of Nongame Legislation

- Major legislative initiative to encourage coordinated management, at the state level, of all wildlife within natural environments before they reach endangered or threatened status.
- Maintenance of vital food web relationships essential to the welfare of all species, game as well as nongame.
- Fulfillment of a campaign commitment that, "I strongly favor legislation to establish federal-state nongame wildlife programs to accompany existing federal-state game wildlife programs." (Leaders, For a Change. Jimmy Carter On Endangered Species.)
- Demonstration of an environmental commitment by supporting legislation which is unique in having the united support of hunters and fishermen, state conservation agencies, ecologists, and environmental groups.

Notes to Major Issue Tally

Week Ending October 6, 1978

(1) SUPPORT FOR REASSESSMENT OF RARE II PROGRAM (98% Pro)

Contending that the second Roadless Area Review and Evaluation program is not being carried out "fully, fairly and correctly," writers ask that more consideration be given to the preservation of our wilderness areas.

(2) SUPPORT FOR HR 12467 (99% Pro)

Strong support is expressed for the enactment of the Amendments to the Rehabilitation Act of 1973 which will authorize or extend much needed programs to educate and train the handicapped.

(3) SUPPORT FOR ESTABLISHMENT OF EMERGENCY WHEAT RESERVE (100% Pro)

Writers urge the President to encourage the Congress to pass legislation establishing an international emergency wheat reserve to alleviate world hunger.

(4) SUPPORT FOR SETTLEMENT OF RAIL STRIKE (98% Pro)

Prior to the President's action, various industries sent telegrams, urging an immediate settlement of the rail strike and suggesting that the President appoint an emergency board to settle the dispute.

THE WHITE HOUSE
WASHINGTON
10/10/78

Secretary Adams

The attached was returned in
the President's outbox. It is
forwarded to you for appropriate
handling.

Rick Hutcheson

AVIATION REGULATORY REFORM

THE WHITE HOUSE
WASHINGTON

10/10/78

Secretary Marshall

The attached was returned in
the President's outbox. It is
forwarded to you for appropriate
handling.

Rick Hutcheson

Weatherization Demonstration

Project Plan

**Community
Services
Administration**

**National Bureau
of Standards**

**CSA WEATHERIZATION
DEMONSTRATION
PROJECT PLAN**

**Richard Crenshaw
Roy Clark
Robert Chapman
Richard Grot
McClure Godette**

**Report to
Community Services Administration**

**Center for Building Technology
National Engineering Laboratory
National Bureau of Standards
Washington, D.C.**

TABLE OF CONTENTS

	<u>PAGE</u>
INTRODUCTION	1
DEMONSTRATION DESIGN	3
SELECTION OF DEMONSTRATION SITES	5
ACQUISITION OF EVALUATION DATA ON DEMONSTRATION HOMES	5
SELECTION OF ARCHITECTURAL AND MECHANICAL OPTIONS	9
CALCULATION OF BALANCE POINT OF EACH HOUSE	11
SELECTION OF DEMONSTRATION HOMES	12
INSTALLATION OF UTILITY METERS AND THERMOMETERS	14
SELECTION OF MECHANICAL OPTIONS	15
SELECTION OF ARCHITECTURAL OPTIONS	20
INSTALLATION OF WEATHERIZATION OPTIONS	30
MONITORING COSTS OF OPTIONS DURING INSTALLATION	32
COLLECTION OF UTILITY DATA	41
COLLECTION OF BUILDING DIMENSIONS	41
RECORDING OCCUPANCY CHARACTERISTICS	42
TESTING OF BUILDING ENVELOPE	43
TESTING OF MECHANICAL SYSTEM	47
ANALYZING COLLECTED DATA	48
DISSEMINATION OF RESULTS	50

LIST OF FIGURES, TABLES AND APPENDICES

	PAGE
Figure 1 - Proposed Sites for Demonstration	6
Figure 2 - Selected Sites for Demonstration	7
Figure 3 - Balance Point Graph	13
Figure 4 - Mechanical Options Selection Worksheet	17
Figure 5 - Optimal Level of Investment	21
Figure 6 - Life-Cycle Cost of Architectural Options Work Sheets	25
Figure 7 - Required Cost Data	34
Figure 8 - Dwelling Unit Cost Data Form	36
Figure 9 - Indirect Labor Costs Data Form	38
Table 1 - Estimates of the Frequency of Replacement of Several Mechanical Options to Achieve a 20-Year Physical Life	19
Table 2 - Estimates of the Frequency of Replacement of Several Architectural Options to Achieve a 20-Year Physical Life	24
Table 3 - Real Rates of Fuel Price Escalation Used in Economic Analyses	28
Table 4 - Factors to Be Considered in Evaluating and Predicting the Life of Building Materials	31
Appendix A Installation of Utility Meters and Thermometers	54
Appendix B Mechanical Systems Tests	56
Appendix C Calculations for Mechanical Options	69
Appendix D First Cost Pricing Assumptions	74
Appendix E Calculations for Architectural Options	78
Appendix F Building Measurements for Thermal Analysis	83

SI Conversion Units

In view of present accepted practice in this technological area, U.S. customary units of measurement have been used throughout this report. It should be noted that the U.S. is a signatory to the General Conference on Weights and Measures which gave official status to the metric SI system of units in 1960. Readers interested in making use of the coherent system of SI units will find conversion factors in ASTM Standard Metric Practice Guide, ASTM Designation E 380-72 (available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103). Conversion factors for units used in this paper are:

Length

$$1 \text{ in} = 25.4 \text{ millimeters}^*$$

$$1 \text{ ft} = 0.3048 \text{ meter}^*$$

Area

$$1 \text{ ft}^2 = 9.29 \times 10^{-2} \text{ square meter}$$

Volume

$$1 \text{ gal} = 3.785 \text{ liters}$$

Mass

$$1 \text{ oz} = 28.35 \text{ grams}$$

Equivalent temperature value

$$t_{\text{°F}} = 9/5 t_{\text{°C}} + 32$$

Temperature interval

$$1 \text{ °F} = 5/9\text{K or } 5/9\text{°C}$$

*Exact value

Energy

$$1 \text{ Btu} = 1.055 \text{ kilojoules}$$

$$1 \text{ therm (10}^5\text{Btu)} = 105.5 \times 10^3 \text{ kilojoules}$$

Heat (energy) flow rate

$$1 \text{ Btu}/(\text{ft}^2 \cdot \text{yr}) = 27.6 \text{ watts per square meter}$$

Coefficient of heat transfer (U value)

$$1 \text{ Btu}/(\text{ft}^2 \cdot \text{h} \cdot ^\circ\text{F}) = 5.678 \text{ Watts per square meter Kelvin}$$

Thermal resistance (R value)

$$1 \text{ } ^\circ\text{F} \cdot \text{h} \cdot \text{ft}^2/\text{Btu} = 0.176 \text{ square meter Kelvin/watt}$$

INTRODUCTION

The Community Services Administration (CSA), in order to better evaluate how it might best help low-income families cope with the high and increasing costs of energy, wants to know the maximum dollars that can be saved through weatherization of the homes occupied by the poor in all parts of the United States. This information about optimal weatherization of such homes and the energy-saving results will allow CSA to: 1) more effectively distribute Federal funds across the country, 2) avoid the extra expenses incurred by going back to houses for additional weatherization, 3) predict the savings in fuel and money that can be achieved by the weatherization program, and 4) consider initiating a loan program as a source of additional money for weatherization. Because wide variation has been observed between calculated and field measured data on possible energy savings, CSA is conducting a national demonstration and research project to determine energy savings through weatherization of low-income owner-occupied homes.

The National Bureau of Standards (NBS) has designed the experimental plan and will provide technical support to this demonstration. This support will include selecting demonstration sites, individual homes and weatherization options; supervising the collection of data from the demonstration homes before and after weatherization; and analyzing the data and evaluating the homes in relation to that data. Utility bills for the individual homes will be the basic measure used to evaluate energy savings. Although the project will provide CSA with the best data available on energy saving through applying energy conservation to existing buildings, its main contribution may be the methods it presents for monitoring and evaluating weatherized houses. With these methods CSA and other agencies could develop the capability to improve

the data collected by this project and evaluate new energy conserving techniques as they are proposed.

In FY 78 CSA/NBS plans to weatherize houses in sixteen cities throughout the U.S. (see Figure 2), and to evaluate the cost effectiveness of weatherization in Portland, Maine. In FY 79, based on the experience in Portland, Maine, CSA/NBS intends to evaluate the cost effectiveness of weatherization in the other fifteen cities.

There are two questions which will be answered in this demonstration. The first is, what is the typical energy consumption, in BTU's per square foot, of unweatherized and optimally weatherized homes in various climates? The second is, what are the savings, expressed as a percent, that can be expected from optimally weatherizing low-income homes? The answer to the first question will be very useful in estimating the minimum energy use achievable in a given type of building in a given climate zone. The answer to the second will be useful for understanding the range of expected savings that can be achieved independent of behavioral and other variables.

Energy consumption will be measured by reading utility bills and fuel meters. A record of utility bills (gas, oil, electricity, and water), since April of 1975, is to be available for each house in the demonstration. Gas, electricity, and/or oil meters will be read on a weekly basis throughout the weatherization of the buildings until enough data has been collected to record any change in energy consumption as a result of weatherization. Variations across houses will be initially explained through differences in floor area, balance point, orientation, and occupant activities. If these variables are unable to explain variations in energy consumption, more detailed studies on infiltration, amount of glass area, temperature distribution, heating system operations, and conductive heat losses will be conducted.

DEMONSTRATION DESIGN

The NBS/CSA demonstration will install "optimum" weatherization in several houses in each climate zone and measure the energy consumption of those houses before and after weatherization. The selection of sites, houses, and weatherization options, and the analysis of the houses and of the data will be done by NBS. The installation of the options and the collection of data will be done by CSA.

The houses to be employed for the demonstration will be selected from houses submitted to NBS by local CSA offices. The houses submitted by CSA are to meet the criteria listed on pp. 6-8. In order to select the set of demonstration houses, NBS will evaluate the characteristics of each house and its occupants and the accuracy of the submitted fuel data. (See balance point calculations - p. 11.)

Once the houses have been selected by NBS, the local CSA groups will be sent a list of the demonstration houses, and instructed to find a local heating contractor to install meters and thermometers and to perform mechanical test on the heating and hot water systems. Reading of fuel meters and thermometers will start as soon after the installation of meters and thermometers as possible.

When the results of this testing have been received at NBS, architectural and mechanical options will be selected from the lists of options on pp. 8-10 of this report. The architectural options will be selected on a house-by-house basis, depending on the heating balance point of each house. The package of options is expected to be the same over a wide range of balance points in each climate, and to differ only for a few houses that may be at the upper and lower limit of this range. Optimization of the options will be achieved by incrementally examining the cost effectiveness of options

which pay for themselves in 11 years and recommending that increment which saves the most money, for the dollars spent, over 20 years.

The mechanical options will also be selected on a house-by-house basis. Based on an evaluation of the mechanical systems tests, a list of options will be made for each house, with the options ranked on the basis of generally accepted savings associated with each option. Using this list, a combination of options will be selected which will raise the overall performance of the heating system from the measured value to 65 percent for oil, 70 percent for gas, and 100 percent for electricity. This set of options will then be evaluated to insure that it will save enough energy within 11 years to cover the cost of the options. Savings and cost over the 20-year period will also be evaluated.

Once the options have been selected by NBS, they will be installed by CSA using contracted and CSA labor. It will be CSA's responsibility, with guidance from NBS, to make sure that the options are installed using appropriate materials and methods of installation. CSA will also be responsible for inspecting each house before any options are installed, to identify and remedy any fire or health hazards, or potential code violations.

While the options are being installed, cost data will be collected by CSA as described on pp. 29-38. After the options have been installed, various other types of data on the building and its occupants will be collected by CSA, as described on pp. 38 and 39. When all of this data and the weekly utility bills have been received by NBS, NBS will calculate the savings achieved by the demonstration and make recommendations for further testing to explain variations in the results. When these tests have been performed and data collected from them, preliminary results

of the demonstration will be re-evaluated and recommendation made to CSA for optimizing weatherization throughout the continental U.S.

SELECTION OF DEMONSTRATION SITES

The sites for the demonstration were selected by NBS based on climate. This is considered the major variable in residence energy consumption, so it was removed as a variable from the demonstration by proposing demonstrations in a variety of climates. The climates selected represent all of the important inhabited climates of the United States. They were selected on the basis of the climatic parameters which are important to buildings, including temperature, humidity, sunlight and wind. A map which divides the country into eleven temperature zones of 1000 degree days width was used as a base map. Subdivisions within the degree day zones were then made, based on classification systems which consider other climatic variables* and the availability of climate data. From this study 16 cities were proposed to Regional CSA offices as sites for the demonstration (see Figure 1).

Some of these cities were not able to meet other program requirements of the demonstration, such as being able to install the options in a short period of time. As a result, those cities in Figure 2 were finally selected.

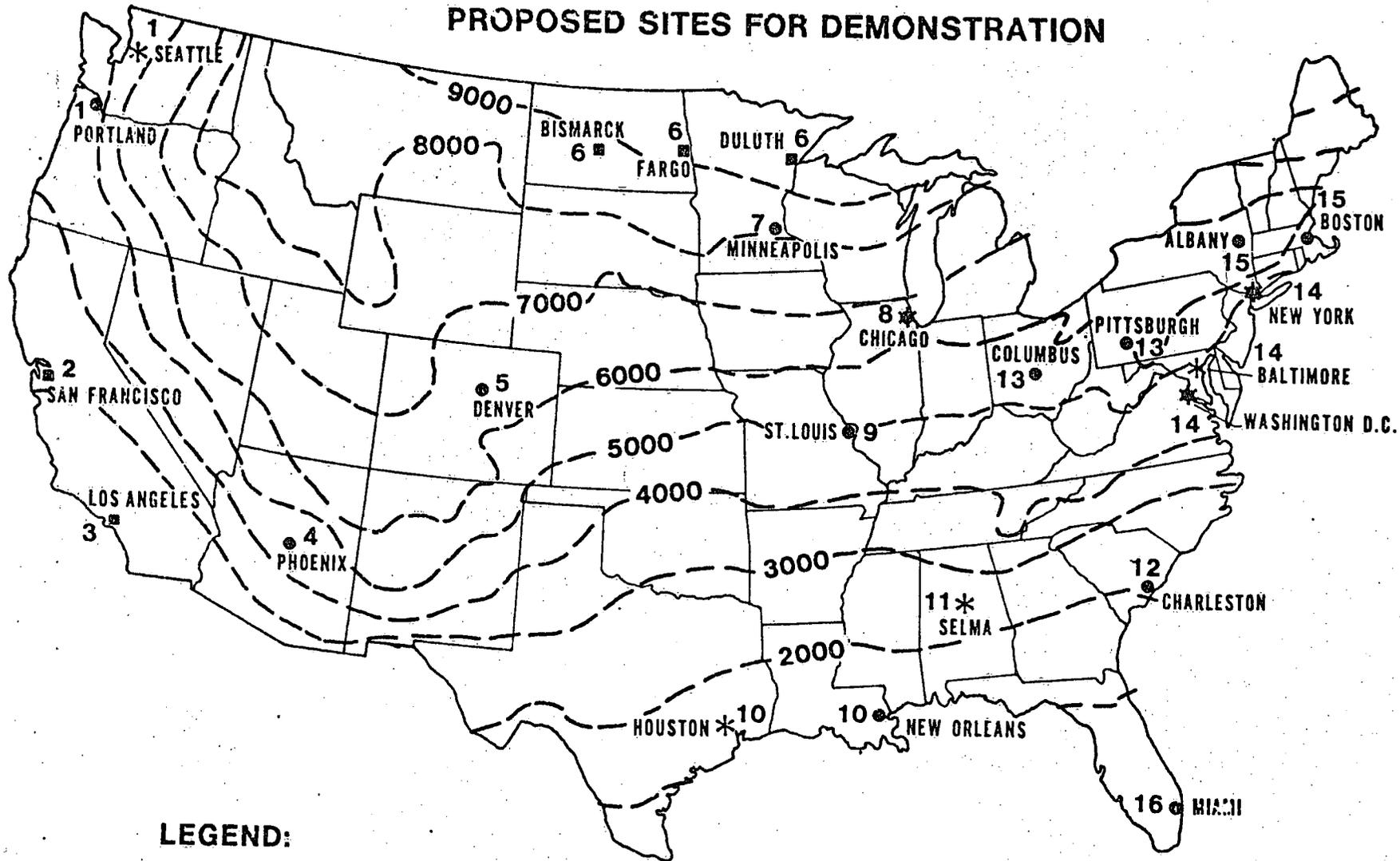
ACQUISITION OF EVALUATION DATA ON DEMONSTRATION HOMES

A local CSA agency in each of the 16 cities selected as a site was requested to submit data to NBS on 27 to 50 homes which meet the following criteria and from which demonstration homes could be selected by NBS.

1. All homes should be simple rectangular or square homes. Two-thirds of them could have unheated porches or spaces attached to them.

* Reference American Institute of Architects, House Beautiful/A.I.A Climate Control Project, AIA Bulletin, 1950.

PROPOSED SITES FOR DEMONSTRATION

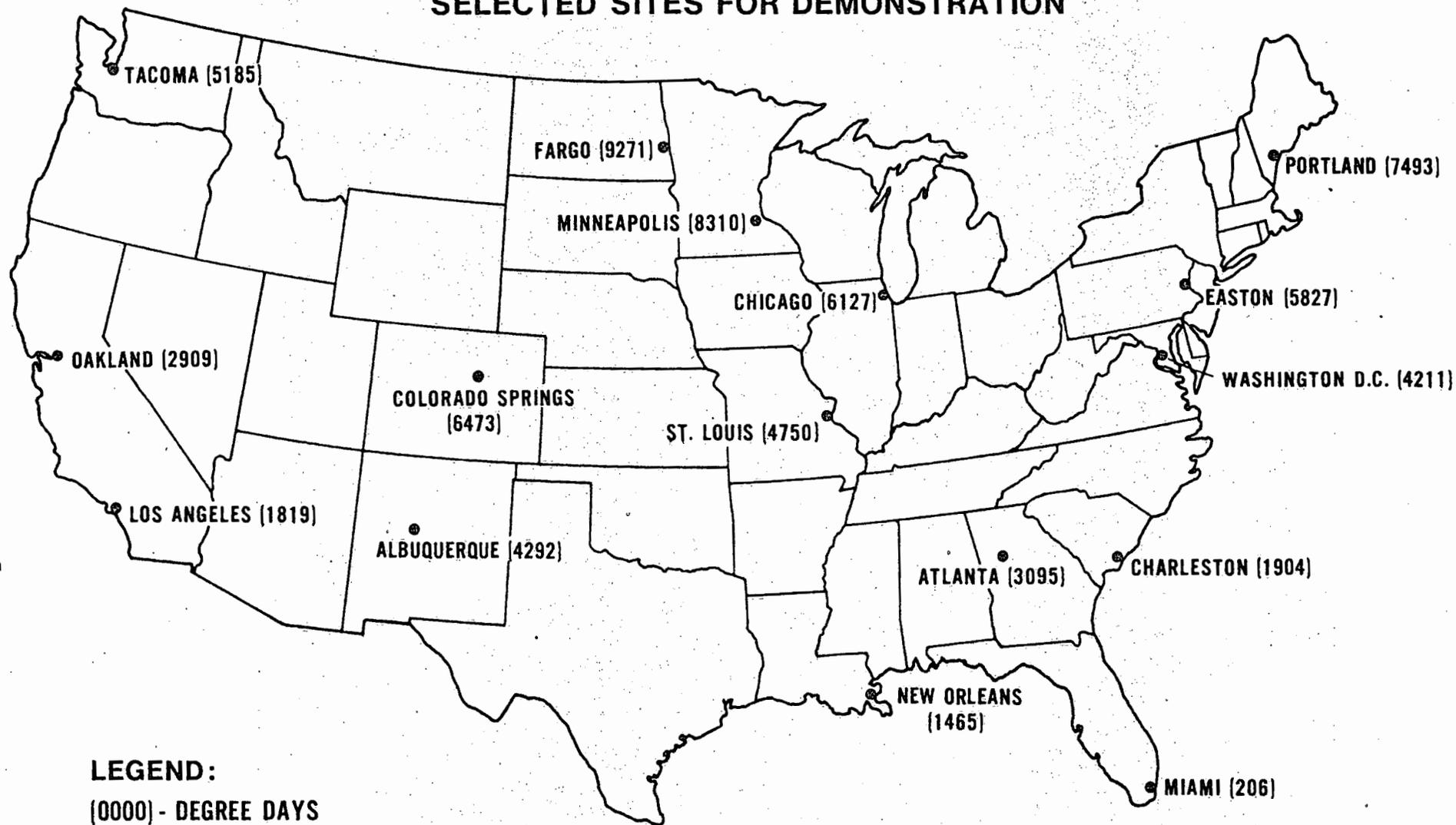


LEGEND:

- AIA CLIMATIC SUMMARY AVAILABLE.
- * USWB CLIMATIC GUIDE OR HANDBOOK AVAILABLE.
- OTHER RECOMMENDED SITES.

FIGURE 1

SELECTED SITES FOR DEMONSTRATION



LEGEND:

(0000) - DEGREE DAYS

FROM NATION CLIMATIC CENTER'S
1941-70 HEATING DEGREE DAY
YEARLY NORMALS

FIGURE 2

2. The homes should be composed of an even distribution of:
 - a) Building Types: 1-story detached, 2-story detached, and 2 or 3-story attached.
 - b) Construction Types: wood, 8" masonry or adobe, and masonry veneer.
 - c) Heating Systems: central hot water, central hot air and space heaters.

3. The homes should represent a variety of periods in history.

At least two should have been built before World War I, two between World War I and World War II and two after World War II.

4. All homes should be in reasonable condition, i.e., roof waterproof, doors in place, mechanical systems in working condition, etc.

5. All homes should have an accurate way of measuring fuel consumption on a weekly basis.

6. All homes should not have had any major changes made to the shell or mechanical system since April 1975.

7. All homes should have had the same occupant since April 1975.

8. The homes should include a variety of occupants and household characteristics that are typical of the locale, including variations in size of family, age of occupants, ethnic origin of household members, etc.

Sample building types not covered by the specific request were asked to be submitted in addition to the following information on each house:

1. A complete and accurately prepared Building Weatherization Plan (CSA Form No. 116 RQ 305).
2. Certification that the household is program eligible.
3. Photographs of all sides of the building.

4. Utility bills (water, gas, oil, electricity, wood, etc.) since April 1975 and authorization to obtain access to future records of energy consumption.

5. Authorization from occupants to make extensive measurements and administer questionnaires.

6. The location of the house shown on a typical gas station road map.

7. A summary on one sheet of how the houses met the various requirements of the demonstration.

The local CSA groups at the demonstration sites were also asked to submit fuel bills typical of their area, and to assure us that they could install the weatherization options within six weeks after they were given the go-ahead.

SELECTION OF ARCHITECTURAL AND MECHANICAL OPTIONS

Based on experience in Chicago with Multi-family Weatherization and a search of the literature for viable weatherization options for low-income housing, the following options were selected by NBS and approved by CSA for consideration in the demonstration.

ARCHITECTURAL OPTIONS

INFILTRATION

1. Replace broken glass
2. Reset glazing in windows
3. Replace threshold
4. Seal structural cracks
5. Weatherstrip windows
6. Caulk windows
7. Weatherstrip doors

8. Caulk doors
9. Weatherstrip attic hatch

WINDOWS

10. Install storm windows
11. Install insulating drapes (R = 1.14)
12. Install insulating shutters (R = .7.8)
13. Install low emissivity films
14. Install triple glazing

DOORS

15. Install storm door
16. Install second wood door (R = 2.18)
17. Replace exterior door with insulating door (R = 6)

INSULATION

18. Install attic insulation (R = 11, 19, 30, 38)
19. Install wall insulation (R = 11+ vapor barrier where possible)
20. Install first floor insulation (R = 19, 30)
21. Install carpet on floor
22. Install basement wall insulation (R = 7)
23. Install perimeter slab insulation

MECHANICAL OPTIONS

Before mechanical options are selected, the heating systems in each house is tested and cleaned. When the heating system is tested and cleaned (see Mechanical Systems Tests, p. 16) the furnace is tuned, the distribution system is balanced, non-functioning traps, flow valves and air valves are replaced, and a barometric damper is installed as required. The mechanical options listed below are beyond this basic service and will be selectively implemented if

they are found to be in compliance with state and/or local codes or if a code variance can be obtained.

FURNACE

1. Install flue or vent damper
2. Install flue or vent restrictor
3. Install electronic ignition
4. Install two-stage gas valve
5. Derate furnace - downsize orifice or nozzle size and install diverter
6. Replace burner
7. Replace furnace (change distribution system when required)

DISTRIBUTION & CONTROL SYSTEM

8. Insulate ducts and pipes
9. Install reflectors behind radiators
10. Install night setback thermostat
11. Relocate thermostat

HOT WATER HEATER

12. Insulate water heater
13. Replace water heater
14. Reduce temperature setting on water heater
15. Install flow restrictor on shower
16. Install timer on electric water heaters

CALCULATION OF BALANCE POINT OF EACH HOUSE

The heating balance point (outside temperature in °F at which heating system comes on to maintain the interior thermostat setting) and the K-factor (rate at which each house consumes energy in BTU/degree day) will be determined

by NBS for each house in the demonstration, before and after weatherization, by applying standard correlation and regression techniques to fuel consumption and weather data. Given these two measures, the number of degree days associated with a house in any year, and the fuel consumption of that house for the same year, the fuel consumption of a house can be accurately calculated from temperature data, provided the other variables associated with energy consumption such as construction, and thermostat setting remain constant. The balance point (base temperature) and K-factor (slope of the best fit line) are arrived at by graphing energy consumption data taken from utility bills against degree days for the same billing periods at different base temperature to see which make the best fit to a straight line. Base temperatures from 45° to 85° will be evaluated on this project to see which gives the best fit. Figure 3 (on page 13) represents a typical computer printout of a balance point calculation. T_0 is the balance point of the house. B_1 is the slope or K-factor of the best fit line (least square line). B_0 is the base load per degree day or that portion of the fuel consumption which can not be attributed to weather variations.

By making these same balance point calculations before and after optimum weatherization, and normalizing these calculations for differences in degree days between the two sets of data, NBS will be able to accurately calculate the energy savings achieved through optimum weatherization.

SELECTION OF DEMONSTRATION HOMES

From the sample of homes supplied by CSA, NBS will select the demonstration homes. Only part of the data submitted with the homes will be used in the selection process. The homes for the demonstration will be selected: firstly, on the accuracy of their submitted fuel data; secondly, on their

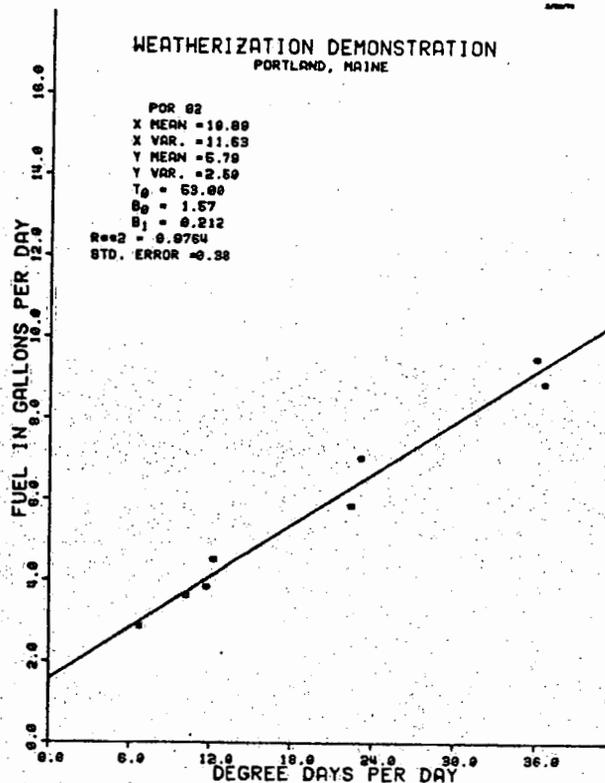


FIGURE 3

ability to represent a broad range of the variables which affect energy consumption; and thirdly, on having been occupied by the same family since April, 1975. The accuracy of the fuel data will be examined using the regression ("best fit") calculations previously described. The broad range of variable other than climate which affect energy consumption have been identified as: building size, construction type, building type, building shape, building age, percent of wall area in glass, orientation, and occupant behavior.

Some of these variables are expected to vary naturally across a sample of 27 to 50 homes at each site; some will have their variability restricted, and others will require an effort on our part to insure that a natural range of variation for low-income housing is included in the sample. Orientation,

size, glass area, and occupant behavior are variables which are expected to show sufficient natural variation. Building shape is a variable which will be limited to simple rectangular buildings with unheated porches or appendages. The distribution of building types, construction types, age and heating system types are variables which will have to be controlled. In order to control this distribution, local CSA groups will be asked for a sample of 5 houses of each building type - construction type combination, 2 houses of each age category, and an even distribution of heating systems that are typical of each site. The building types requested will be 1-story detached, 2-story detached, and 2 and 3-story attached. The construction types requested will be frame, masonry or adobe, and brick veneer. The age categories requested will be pre-World War I, World War I to World War II and post-World War II. The heating systems suggested will be forced air, gravity air, space heaters, water and steam.

INSTALLATION OF UTILITY METERS AND THERMOMETERS

Meters, thermometers and other measuring devices will have to be installed in the demonstration homes by CSA according to NBS specifications. These will be installed as early as possible, so that detailed data both before and after weatherization can be collected.

The type of meter installed will depend on the type of fuel used for space heating and domestic hot water in each house. All furnaces or space heaters will have a run time meter and a cycle counter installed in order to determine the total amount of time the furnace or space heater is operating and the number of times its cycles on and off. On gas and electric furnaces or space heaters an appropriate utility meter will be installed in order to read the total amount of gas consumed for space heating. In houses with

propane or bottled gas, a gas meter will be installed between the gas tank and the furnace.

It should be noted that for bottled gas and oil, the past two years use data will be limited to measurements made by delivery truck meters when the storage tanks were filled completely, while for natural gas and electricity consumption monthly or bimonthly readings of the utility meters are available and should continue to be available from the same meters during the demonstration.

In order to get accurate information on indoor temperatures and humidity, thermometers will have to be installed. Dry bulb thermometers should be installed near the center of the house on each floor including the basement. A sling psychrometer will be used by the local CSA coordinators to determine the humidity in the house when making weekly site visits.

In order to assess the effectiveness of the weatherization options related to reducing the energy required for water heating, a gas or electric meter will be installed on the water heater and a water meter will be installed on the cold water supply. Detailed requirements for installing these meter are contained in Appendix A.

SELECTION OF MECHANICAL OPTIONS

The types of mechanical options which are being considered by NBS for installation in each weatherized house can be classified as those that affect a) the control system, b) the efficiency of the furnace, c) the efficiency of the heat distribution system and d) the efficiency of the domestic hot water service. The mechanical options intrinsically differ from the architectural options. First, the cost of installing the option is usually load independent, while the savings they produce are dependent on the

dwelling heating load or the hot water consumption. Secondly, the amount of savings that can be obtained from most mechanical options depends on the existing condition of the mechanical system. Therefore, it is not possible for NBS to predict the savings that would result from installing various mechanical options unless the present efficiency of the heating system is known.

In order to simplify the selection processes, the architectural options and the mechanical options have been separated. This is acceptable as long as optimum weatherization is defined as that combination of architectural and mechanical options which leads to a marginal benefit/marginal cost ratio greater than one. The two types of options can be dealt with separately by assuming a conservative overall mechanical efficiency of 65 percent for oil, 70 percent for gas, 100 percent for electricity in doing the calculations to select architectural options, and assuming a conservative 50 percent reduction in building load when selecting the mechanical options.

Figure 4 presents a worksheet used for displaying the costs and savings associated with various options. The method of calculating the percent of savings associated with these options is presented in Appendix C.

Based on the equations in Appendix C and Table 1, savings and costs associated with each mechanical option are calculated for an 11-year and 20-year period. The approach used in selecting the mechanical options requires that each option be able to pay for itself in 11 years. A decision criterion based on payback is valid as long as the retrofit decision is an all or nothing one. In the event that an incremental retrofit is possible, it is necessary to determine that level which maximizes net savings over the 20-year life cycle subject to the 11-year payback criterion.

FIGURE 4

MECHANICAL OPTION SELECTION WORKSHEET

House Number	1	2	3	4	5	6	7	8	9	10
Flue or Vent Damper										
Flue or Vent Restrictor										
Electronic Ignition										
Two Stage Gas Valve										
Derate Furnace										
Replace Burner										
Replace Furnace										
Insulate Ducts & Pipes										
Radiator Reflector										
Night Setback Thermostat										
Relocate Thermostat										
Insulate Water Heater										
Replace Water Heater										
Reduce Temp Water Heater										
Shower Flow Restrictor										
Timer on Water Heater										

Some of the mechanical options may not have a 20-year physical life. In order to make the present costs of all the options compatible with an assumption of a 20-year life, the first costs of the options must be adjusted to reflect the present value of costs of any replacements needed within a 20-year period according to the values listed in Table 1. Those options not listed in Table 1 will not require any replacement before the 21st year. The replacement assumptions listed in Table 1 will be included in the present cost estimates, using a 6 percent real discount rate. A zero real price increase in the cost of the mechanical options will be assumed.

SELECTION OF HEATING SYSTEM-RELATED OPTIONS

In order to decide what heating system options are to be installed in a given house, a series of tests will be performed (see Appendix B) and the efficiency of the existing system determined. In order to perform the test a local heating contractor will have to be hired and approved by NBS. Each option that can be added to the existing system is then assigned a percentage efficiency improvement value (EIV) based on the efficiency of the existing system. The efficiency improvement value is then multiplied by the load of the building after its load has been reduced 50% for architectural retrofit and the energy savings determined. These are in turn multiplied by the (present value) fuel cost over eleven years and compared to the cost of the option.

The resulting list of possible options for the particular house is ranked by efficiency improvement values, with the largest EIV first. Working down from the top of the list, options are selected until the reduced load

TABLE 1

ESTIMATES OF THE FREQUENCY OF REPLACEMENT OF SEVERAL
MECHANICAL OPTIONS TO ACHIEVE A 20-YEAR PHYSICAL LIFE

Options Not Having 20-Year Life	Replacement Estimate
Flue or Vent Damper	Replace Full Cost with Furnace
Flue or Vent Restrictor	Replace with Furnace
Electronic Ignition	Replace with Furnace
Two Stage Gas Valve	Replace at End of 15th Year
Gas Furnace	Replace at End of 15th Year
Oil Furnace	Replace at End of 10th Year
Electric Warm Air Furnace	Replace at End of 15th Year
Water Heater	Replace at End of 10th Year
Water Heater Timer	Replace with Heater
Water Heater Insulation	Replace with Heater
Shower Flow Restrictor	Replace at End of 10th Year
Burner	Replace with Furnace

on which successive options are calculated is no longer large enough to support the cost of that option over 11 years.

Thus the savings accrued for applying the j^{th} mechanical option is calculated by the relation:

$$(1) \quad S_j = N_j F_{j-1}$$

$$\text{where} \quad F_j = F_{j-1} - S_j = (1 - N_j) F_{j-1}$$

$$\text{and} \quad F_0 = .5F$$

where F is the annual fuel cost for the space heating from preweatherization fuel bills and N_j is the percentage of saving attributed to the j^{th} numbered option.

SELECTION OF WATER HEATER-RELATED MECHANICAL OPTIONS

The water heater is the second largest energy user in a typical residence without air conditioning. In some dwellings in which electricity is used for water heating, the amount of money annually spent to heat water may actually exceed the annual expenditure for space heating. The types of water heaters considered in the demonstration are individually-fueled gas, electric, or oil, storage type water heaters, and water heaters integral with a gas or oil furnace, either of the tankless coil type or with a small storage tank (aquaboosters). See Appendix B for a description of the tests to be carried out on existing water heaters.

SELECTION OF ARCHITECTURAL OPTIONS

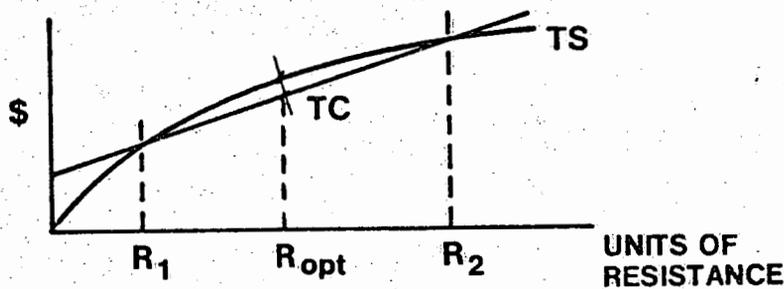
Since a major objective of the demonstration program is to demonstrate maximum energy savings per dollar spent, NBS will select architectural options by weighing future energy savings against costs, using a life-cycle benefit/cost analysis approach. This approach permits the identification of not only those weatherization options which are cost effective, but also that level of weatherization which is optimal (i.e., will give the greatest return in saved fuel costs for the dollars spent on weatherizing). The basic approach is simple and straight-forward. Where various levels of an option are feasible (e.g., insulation), NBS wishes to maximize the net savings (over the 20-year life cycle) associated with that type of architectural option. (Net savings is equal to total savings minus total costs.) The principle is illustrated in Figure 5.

In the figure, the total cost curve, TC, rises steadily as more units of heat-flow resistance are installed. It can be seen that the first resistance

units are the most expensive, due to high start-up costs (set up, labor, equipment, etc.). The total savings curve, TS, first rises quickly and then levels off. This is due to the fact that heat flows are inversely related to the number of units of resistance. Both curves assume a definite life cycle over which both savings and costs are calculated (a 20-year life cycle is being used in the demonstration program analysis). Notice that the two curves intersect at levels R_1 and R_2 of resistance.

FIGURE 5

OPTIMAL LEVEL OF INVESTMENT



At all levels of resistance less than R_1 the total cost of the option exceeds its life-cycle energy savings. Similarly, at all levels of resistance above R_2 total cost exceeds life-cycle energy savings. Therefore, the number of units of resistance to be installed will have to be between R_1 and R_2 if it is to pay for itself over the life cycle. Clearly the number of years it will take for the option to pay for itself will depend on how many resistance units between R_1 and R_2 are installed. Generally speaking, the first units above R_1 will pay for themselves fastest. Although there are many levels of investment which pay for themselves, there is only one optimum. The optimum is the point at which net savings are maximized, R_{opt} . Graphically, it is the point where the slope of the total savings curve

is equal to the slope of the total cost curve. (By differentiating both the total cost and the total savings functions, the mathematical requirement is obtained for maximizing net savings of marginal cost equal to marginal savings.)

In order to determine the optimal level of investment in an architectural option, the following information is needed:

1. The life-cycle cost of the architectural option
2. Annual energy savings from the architectural option
3. Fuel costs
4. The present value factor for future energy savings.

LIFE-CYCLE COST OF ARCHITECTURAL OPTIONS

FIRST COSTS

Attached to this section are the life-cycle cost work sheet (Figure 6), and the assumptions for a life cycle of 20 years. The first cost pricing assumptions for selecting the optimum combinations of weatherization options are in Appendix D. The data for first cost will be collected from a variety of sources, including local community action groups, Building Weatherization Data Sheets (CSA Form 481), construction suppliers' catalogues, department store catalogues and the 1977 Means Building Construction Cost Data guide. The cost data will be broken down into a component for labor and a component for materials.

Two sets of cost estimates will be developed. The first will be based on the assumption that the weatherization options are installed by the local community action group. The second set will assume that the weatherization options are installed by a commercial building contractor. The cost for preparing an unusual condition prior to installing a weatherization option

is not considered in selecting optimum combinations of weatherization options for the demonstration. This cost will be included in an analysis of the cost data generated by actual demonstration weatherization.

ASSUMPTIONS FOR A LIFE CYCLE OF 20 YEARS

Some of the architectural options are not expected to have a 20-year physical life. In order to make the present costs of all the options compatible with an assumption of a 20-year life, the first costs of the options must be adjusted to reflect the present value of costs of any replacements needed within a 20-year period according to the values listed in Table 2. Those options not listed in Table 2 will not require any replacement before the 21st year. The replacement assumptions listed in Table 2 will be included in the present cost estimates, using a 6 percent real discount rate. A zero real price increase in the cost of the architectural options will be assumed. Option costs, with necessary replacements factored in, will be summarized on the form shown as Figure 6.

ANNUAL ENERGY SAVINGS OF ARCHITECTURAL OPTIONS

Several methods may be used to calculate the reduction in energy use (actually, decrease in building thermal load) that can be achieved with the various weatherization options. Of these, three have been considered: use of the BLAST computer program, the NBSLD computer program, or the standard ASHRAE degree day calculations. From these, ASHRAE degree day calculations have been selected as a means of calculating savings associated with each architectural option, and the BLAST computer program has been selected to calculate savings associated with combinations of options. However, a number of problems have been encountered with BLAST which still need to be resolved before BLAST can be used satisfactorily for the demonstration. Among the types of problems

TABLE 2

ESTIMATES OF THE FREQUENCY OF REPLACEMENT OF SEVERAL ARCHITECTURAL OPTIONS TO ACHIEVE A 20 YEAR PHYSICAL LIFE

OPTIONS NOT HAVING 20 YEAR PHYSICAL LIFE	REPLACEMENT ESTIMATE
Replace broken glass	Replace 2.5% of glass area at end of 10th year.
Reset glazing	Replace 10% of glazing at end of 10th year.
Low emissivity film	Replace 100% of film at years 9 and 18.
Weatherstrip windows	Replace 25% of weatherstripping at end of 10th year.
Caulk windows	Replace 25% of caulking at end of years 8 and 16.
Insulating drapes	Replace 100% of drapes at end of year 10.
Storm door	Replace 25% of door cost at end of year 10.
Weatherstrip doors	Replace 25% of weatherstripping at end of years 5, 10, and 15.
Caulk doors	Replace 50% of the caulking at the end of the 10th year.
Replace threshold	Replace 100% of the threshold at the end of the 10th year.
Attic insulation	Replace 25% of blown-in insulation at end of 15th year.
Weatherstrip attic hatch	Replace 100% at end of 15th year.
Carpet floor	Replace 100% at end of years 7 and 14.

FIGURE 6

LIFE CYCLE COSTS OF ARCHITECTURAL OPTIONS WORKSHEET
 (ASSUMES A 6% REAL DISCOUNT RATE)

ARCHITECTURAL	11 YEAR		20 YEAR	
	IN HOUSE	CONTRACT	IN HOUSE	CONTRACT
Replace Broken Glass in Window Reset Glazing in Window Install New Threshold Seal Up Structural Cracks Masonry Seal Up Structural Cracks Wood or Asbestos Seal Up Structural Cracks Veneer Weatherstrip Window Caulk Window Weatherstrip Exterior Door Caulk Exterior Door Weatherstrip Attic Hatch Install Standard Storm Window Install Plastic Storm Window Install Insulating Drapes Install Insulating Shutter Install Low Emissivity Films Install Standard Triple Glazing Install Plastic Triple Glazing Install Storm Door Install 2nd Wood Door Replace Exterior Door W/Insulating Door Install - Attic Insulation (R = 19) Install - Attic Insulation (R = 30) Install - Attic Insulation (R = 38) Install Wall Insulation Masonry Wall -- Interior (R = 11) Install Wall Insulation Masonry Wall -- Exterior (R = 11) Install Wall Insulation Wood Frame (R = 11) Install Wall Insulation Veneer Wall (R = 11) Install - Floor Insulation (R = 19) Install - Floor Insulation (R = 30) Carpet Floor Install Basement Wall Insulation Install Perimeter Slab Insulation				

that we have had to deal with have been: 1) "bugs" in the program--that is, the program did not perform as its original programmer intended; 2) selection of proper input data--for example, how thick should the earth be between basement floor and a fixed ground temperature; 3) inadequacies in the program--for example, no building energy analysis program properly handles managed drapes. Nevertheless, we know of no other valid way of calculating the effect of combinations of options, and BLAST is the best choice from existing programs. If the program is not running properly when required by this project, architectural options will be selected on the basis of their ASHRAE calculations and the effects of combinations of options will have to be evaluated in the demonstration. See Appendix E for the ASHRAE calculations which may be used to estimate energy savings.

FUEL COST

In order to convert energy savings expressed in BTU's to dollars, information on the cost of fuel per BTU is required. Since fuel prices vary both with time and as a function of the region of the country, reliable up-to-date fuel cost estimates are necessary. This task will be accomplished in two stages. In the first stage, data from the latest available fuel bills as received for the demonstration houses will be compiled. These data will be compiled by site, and averaged over the sample of dwelling units submitted by the local CSA groups. It should be noted that these data are likely to come from several local fuel companies, so that they should be representative of the prices charged within the demonstration region. In the second stage, representatives of CSA and fuel companies will be contacted to check these figures and determine if more up-to-date prices are called for.

PRESENT VALUE FACTOR

The present value factor for future energy savings is a means by which cost savings which occur in the future can be brought back to the present (or "recovered") so that they can be compared to the present cost of an option. The present value factor includes the real rate of fuel price escalation, the real discount rate, and the length of the life cycle under study. The combination of these three inputs yields the present value factor, PVF. The present value factor may be expressed by the following formula:

$$\text{PVF} = \frac{1 + P}{D - P} \left[1 - \left(\frac{1+P}{1+D} \right)^L \right] \quad \text{if } D \neq P$$
$$= L \quad \text{if } D = P$$

where P = the real rate of fuel price escalation,

D = the real discount rate, and

L = the length of the life cycle in years.

REAL FUEL PRICE ESCALATION

An important ingredient in the present value factor is an estimate for the long term rate of fuel price escalation. Past experience has shown that estimates of the long term (20-25 year) rate of fuel price escalation are extremely variable. Ranges of real rates between 0 (constant energy costs) and 12 percent (more than tripling every 10 years) have been used in recent economic studies. Although ranges might be useful to see how sensitive a weatherization option is to rising fuel prices, they do not provide us with enough precision to reliably make trade-offs. In order to do this, a specific estimate within the range is needed. Several Federal agencies which own and operate buildings are required to perform economic analyses of potential energy conserving options which are available to them prior to construction or renovation. The Department of Defense is one

Federal agency which has made public the forecasts it uses for long term, real rates of fuel price escalation. These rates are summarized in Table 3.

TABLE 3
REAL RATES OF FUEL PRICE ESCALATION
USED IN ECONOMIC ANALYSES

FUEL	RATE
Oil	8%
Coal	5%
Natural Gas	8%
LPG	8%
Electricity:	
New England	7%
Pacific	7%
All Others	6%

Source: Assistant Secretary of Defense (Installations and Logistics) Memorandum, Energy Conservation Investment Program Guidance, March 24, 1977.

REAL DISCOUNT RATE

Future savings, like future costs, must be discounted. Discounting is accomplished by means of the real discount rate. A discount rate is that rate of interest which reflects the time value of money. (The time value of money is the difference between the value of a dollar today and its value at some future time if invested at a stated interest rate.) That is to say, a dollar today is worth more than a dollar in ten years, apart from inflation. The discount rate may be used to bring any future costs and

savings back to the present so that all options can be compared on an equivalent basis. A real rate is a value expressed in constant terms (e.g., "constant dollars" have been adjusted to take out the reduction in purchasing power due to inflation). Therefore, a real discount rate may be thought of as that rate which treats future costs and savings in terms of constant dollars (1977 dollars will be assumed in the analysis of option savings). Since low-income families tend to be borrowers, the rate chosen to reflect their time value of money should be tied to lending rates. Furthermore, since lending rates for home improvements tend to be somewhat lower than those for other goods and services, these rates are the most appropriate for use as a reference point. The anticipated long term (20-25 year) rate of inflation (12%) is then subtracted from this interest rate (18%) to get the real discount rate (6%).

LENGTH OF LIFE CYCLE

The cost of an option over the life cycle is equal to the first cost (i.e., the installation cost) plus any future costs resulting from maintenance, repair or replacement, discounted to a present value. Using a 20-year life and a 6 percent real discount rate, the life-cycle cost of an option, C , may be expressed mathematically as

$$C = C_0 + \sum_{t=1}^{20} \frac{C_t}{(1.06)^t}$$

where C_0 = the installation cost, and

C_t = the costs for maintenance, repair, or replacement occurring in year t (C_t may be equal to zero).

Combining the information on life-cycle cost with life-cycle savings provides us with a means of comparing alternative weatherization options. If the option, such as caulking or weatherstripping windows, produces greater life-cycle savings than costs, then it is economically viable (i.e., it pays for itself). For programmatic purposes it has been decided that the life-cycle to be examined will be a 20-year period. Therefore in addition to a previous criteria that techniques should pay for themselves in 11 years, its costs over 20 years should not exceed the savings over that period.

Table 4 presents a list of environmental conditions, materials properties and functional requirements which are essential for evaluating the performance and predicting the life of building materials.

Using this table, a materials technologist has reviewed published literature, surveyed other authorities in the field and referenced existing standards to arrive at Table 3. Table 3 presents replacement estimates for each of the options that can be used in life-cycle costing.

INSTALLATION OF WEATHERIZATION OPTIONS

Once the architectural and mechanical options have been selected by NBS, they will be telephoned to the local CSA coordinator responsible for working with NBS. The coordinator will take the list of options and prepare a CSA Summary of Work Program and Budget Sheet and a CSA Program Account Budget Sheet. These sheets will list the cost of each option on each house and total cost for weatherizing each house separately. Once these sheets have been prepared, they will be checked with NBS by telephone, and then sent to NBS and CSA in Washington for approval and signature. Once the coordinator receives approval of the options, he will have to work with local contractors or CSA work crews to get the options installed and the required cost data collected. Although NBS will provide guidelines on

TABLE 4

FACTORS TO BE CONSIDERED IN EVALUATING AND PREDICTING
THE LIFE OF BUILDING MATERIALS

ENVIRONMENTAL CONDITIONS:

Moisture
High temperature
Low temperature
Cycling conditions
Pollution
Mold
Occupant Exposure
Solar radiation

MATERIAL PROPERTIES:

Hardness
Strength
Flexibility
Permeability
Acidity
Alkalinity

FUNCTIONAL REQUIREMENTS:

Resist ultraviolet radiation
Insulate
Resist impact
Open, close
Resist abrasion
Resist corrosive environments
Expand - contract

how to select the materials to be used in various weatherization options, how to install the options, and potential hazards in the work, it will be the responsibility of the local CSA coordinator to see that the options are properly installed and that they meet local codes. In order to accomplish this it is suggested that the local CSA coordinator have each house inspected for potential code problems and hazards before any work is done.

MONITORING COSTS OF OPTIONS DURING INSTALLATION

The collection of cost information is of crucial importance in the weatherization demonstration program. A good set of detailed cost information is needed for verifying the weatherization options selection process and to provide a sound basis for future weatherization planning and budgeting. The "optimum" weatherization package weighs expected energy savings against the estimated cost of the option. However, the "optimum" weatherization packages actually being installed are based on forecasts which of necessity have been simplified. Similarly, the expected energy savings figures are based on calculations which include additional simplifying assumptions. Consequently, the information collected in the field by CSA and analyzed by NBS on both actual cost and actual energy savings, may show that greater cost effectiveness could be achieved if a different combination of weatherization options were installed. In order to improve the chance of identifying the most cost-effective combination of weatherization options for future programs, it is necessary to develop a cost estimation procedure which permits "real world" considerations to enter into the cost calculations, such as the size of the dwelling unit, the condition of the different building elements, and the wage rates paid to workers doing the weatherization job. The use of this procedure should permit the ultimate achievement of more weatherization per dollar spent. This should permit field offices to operate with greater flexibility in the future budgeting and forecasting of program costs, so that more houses can have the most cost-effective combination of weatherization options installed.

TYPES OF COST DATA TO BE COLLECTED: COST DEFINITIONS

Before the cost data collection forms are explained, it is useful to identify the types of cost information the project will collect.

The cost of installing a weatherization option includes payments to labor, payments for materials, equipment rentals, and any overhead costs that should in principle be assigned to that task. The difference between the bid price, i.e., the contract amount for which the contractor agreed to do the work, and the total labor, materials, equipment and overhead costs represent the contractor's pretax profits.

Those costs that the contractor incurs if he undertakes a specific job (i.e., labor costs, including fringe benefits, social security, workmen's compensation, and unemployment insurance, and the cost to the contractor for materials and equipment purchase/rental) are called direct costs. Note that the direct cost for installing a weatherization option is by definition equal to the sum of the labor costs, material cost, and any special equipment costs. Direct costs include preparation cost, installation cost, and other miscellaneous costs. Labor costs, however, may be divided into two parts: 1) direct labor costs which can be associated with one particular weatherization option (such as caulking around windows) and 2) indirect labor charges that cannot be associated with any particular weatherization options, but can be associated with a particular contract. Examples of indirect labor costs are travel time and time spent picking up building materials at the warehouse or lumber yard.

Those costs that the contractor incurs regardless of whether he undertakes a specific job or not, (e.g., rental payments, debt service payments, payments for equipment, payments for clerical and secretarial staff, and payments for management) are called overhead costs. Also of interest is the size of the contractor's markup. The bid price divided by the sum of the direct costs in the contract yields the percentage markup. Markup,

therefore, includes both overhead costs and pretax profits. Figure 7 summarizes the cost data required. Our past experiences indicate that better quality cost information can be collected if one member of the project is assigned as coordinator, and meets with contractors on a regular basis. This facilitates control of the operation and helps in determining the appropriate action to be taken if any cost information is found to be lacking. It is not desirable to wait until the contract has been completed to request the cost data, since the reliability of the data will then depend more on the contractor's memory than on documented figures.

FIGURE 7
REQUIRED COST DATA

TYPE OF COST	REPORTING REQUIREMENTS
Bid Price	Each Contractor*
Direct Costs**	
Labor	
Direct Labor	Each Option, Each Dwelling Unit
Indirect Labor	Each Contract
Materials	Each Option, Each Dwelling Unit
Equipment	Each Option, Each Dwelling Unit

* Contracts should be numbered, for example from 1 to N, so that all direct costs associated with that contractor can be traced back to the parent contract.

** Direct costs include preparation costs, installation costs and other miscellaneous costs.

FORMS FOR COST DATA COLLECTION

Two basic cost data collection forms will be used. The first form is concerned with direct labor, material, and equipment charges (Figure 8). This form will be filled out for each weatherization option and for each dwelling unit. The second form is concerned with indirect labor charges (Figure 9). This form will be completed for each contract.

First consider the form for recording the direct costs for labor, materials, and special equipment. On this form there is a space for the address of the dwelling unit (a contract ID number should also be entered), when the work was started and when it was finished, the building element to which the option was applied, and the name of the option. Beneath this information are listed three types of work which can be performed:

1) preparation, 2) installation, and 3) other. Associated with each of these types of work are direct labor charges, materials used, and/or equipment rented. Direct labor charges are identified by skill type, for example, carpenter, painter, laborer. The number of hours expended on a task for each type of skill is entered on the same line, for example 8 hours for the carpenter, 3 hours for the painter, 10 hours for the laborer. Hourly wage rates are entered in the third column, for each type of skill. (It is not intended that any individual be identified; our focus is on determining the role that labor inputs play in causing costs to vary, and not on the wage or productivity of any individual.) Also associated with each of the three types of work are material and special equipment usage. This information will make it possible to identify the material and equipment needs associated with the installation of the various weatherization options. In the first column, the type of material or equipment is identified, for example, caulking compound. In the second column the unit size is recorded,

Address _____

Date Started _____

Date Finished _____

Building Element _____

Method Used _____

Type of Work	DIRECT LABOR USE			MATERIALS & EQUIPMENT USE			
	Labor Skill	Hours	Rate	Materials/Equipment Type	Unit Size	Time in Use or Quantity	Unit Cost
Preparation							
Installation							
Other							

DWELLING UNIT COST
DATA FORM

FIGURE 8

FIGURE 8 (CONT.)

TYPE OF WORK DEFINITIONS

PREPARATION

Those tasks which must be done prior to the actual installation of the weatherization option. This category includes tasks such as job set up and any necessary repairs or replacement of building elements. Preparation should not include indirect labor costs.

INSTALLATION

Those tasks that are involved in the normal installation process for the particular weatherization option. This includes such activities as finish painting and clean up.

OTHER

Those tasks which are not normally involved in the installation of the particular weatherization option. This category is different from "preparation" in that it includes such tasks as equipment repairs and work stoppage.

FIGURE 9 (CONT.)

INDIRECT LABOR COSTS DATA FORM

Indirect labor costs are those costs which cannot be linked to a specific weatherization option. Below is a list (not exhaustive) of the kinds of indirect labor costs that may be associated with the installation of the weatherization options.

CONTRACT SPECIFIC INDIRECT COSTS

1. Travel Time
2. Down time
3. Clean-up time (if not attributable to a specific weatherization option)
4. Equipment costs (if not attributable to a specific weatherization option)

for example, 20 oz. tube. In the third column the time in use (for special equipment, such as blowers or heaters) or the quantity used is entered, for example, 7 tubes. In the final column the unit cost, or rental rate, for the material or equipment is entered, for example, \$2.00 per tube. Additional information about filling out the form is given on the back of the form (see Figure 8 Cont.).

Figure 9 displays the data collection form for recording "indirect labor costs." This form will not have to be separately completed for each option and each dwelling unit. It will only be necessary to fill in one indirect labor cost form for each contract. However, since indirect labor costs will occur irregularly (for example, down-time because the dwelling unit occupants may not be at home), these costs should be recorded on the form when they happen, in order to avoid reporting errors due to faulty recall. The first column of the indirect labor cost data form asks for a brief description of the indirect cost time. Also, if possible, a dwelling unit ID number should be reported along with the brief description, for example, travel time between dwelling units 34 and 35. The following three columns labeled "labor" with sub-headings for wage rates and hours enable differing labor rates to be associated with the described time. If more than three categories of labor are involved the next line can be used. A fourth column headed by "other" is included in order to capture related costs other than labor. For example, travel-time between dwelling units 34 and 35, may involve the cost of operating a vehicle used in that period. On the back side of this form (see Figure 9 Cont.), a brief definition of indirect labor cost is given. Also on the back are a few examples of indirect labor costs that are likely to arise.

COLLECTION OF UTILITY DATA

Energy usage, water usage, furnace run times and cycles, and interior temperatures and humidity will be recorded and submitted to NBS on a weekly basis by CSA on forms supplied by NBS starting as soon as the sample homes are selected and necessary meters, are installed, as described on p. 14. These readings will be reported to NBS on a weekly basis until sufficient data has been collected to evaluate the effect of weatherization on energy consumption. Data on amount of gas or oil delivered and electricity used and the reading dates (similar to data collected on the house before weatherization) will also be collected from utility and fuel companies on a monthly basis and reported to NBS. These two types of data, those collected by the CSA coordinator and those collected by the utility company should provide a check on energy consumed. In order to insure comparability of data collected this year with data collected last year, the occupants will be requested to keep the house at the same temperature as they had last year. In cases where significant temperature changes occur because of change in thermostat setting or nighttime setback as determined by interior temperature readings, a method for normalizing the data for this temperature change will be derived. One suggested normalization method is to raise or lower the base temperature at which the balance point calculations are done to correspond the change in interior temperature.

COLLECTION OF BUILDING DIMENSIONS

In order to compare the savings in one house to those in another, several normalizing factors have to be used to allow for differences between these houses. One of these factors is the design load for each of the houses. This factor takes into account the square footage of the house, the volume

of the house, as well as the type of construction used in the house. The design load for each house will be calculated, using standard ASHRAE type calculatons. In order to perform these calculations, the data called for in Appendix F will be collected by CSA on each house at each site and modified where appropriate based on the thermographs made on each building.

RECORDING OCCUPANCY CHARACTERISTICS

NBS knows from other studies that quite similar homes can vary widely in their energy consumption, apparently as a consequence of the activities of the respective occupants and the different ways that they operate the energy-using systems (e.g., space heating, appliances, lights) in a building. The Twin Rivers Program on Energy Conservation in Housing, being conducted by researchers at Princeton University, has documented a range of 2 to 1 between high and low space heating fuel usage for virtually identical townhouses.*

This being so, we must assume that the activities of poor occupants can have significant influence on the fuel consumption of their homes -- perhaps even effects large enough to partially "mask" the effects brought about by weatherization.

When NBS makes pre- to post-weatherization comparisons on a house-by-house basis to see what percentage reduction in fuel consumption has been achieved, the effects of occupant activities on the comparisons will be minimized if the same household is occupying each building during the period of post-weatherization fuel use measurements as during the pre-weatherization period (i.e., the previous two years for which fuel consumption data is used). This situation would lend support to the assumption that the same individuals

* Reference: Socolow, R.H. and Sonderegger, R.C., The Twin Rivers Program on Energy Conservation in Housing: Four-Year Summary Report, Center for Environmental Studies, Princeton University, August 1976.

were residing in the house during both measurement periods, and that they were using the energy-affecting systems in substantially the same ways. There could still be differences that could significantly affect energy consumption, even within the same household: A parent/grand-parent could join -- or leave -- the household. A household member could be employed at one time -- leaving no one at home during the daytime -- and unemployed, and in the home daytimes, at another time. In making the pre- to post-weatherization comparisons, NBS will take note of whether the same household occupies the building during the entire measurement period in order to avoid "confounding" the results with differences caused by occupant activities.

To help in this effort, NBS will be seeking some additional information about dwelling occupants and their activities. More detailed information about household members: ages, and living patterns (e.g., employed daytimes, in school, preschool, housewife/mother), day and night thermostat settings, use of appliances, and use of hot water will be needed. In order to collect this information a questionnaire will be developed by NBS. The questionnaire will probably be administered in face-to-face interviews by local CSA personnel rather than by having the occupant complete the form on their own.

TESTING OF BUILDING ENVELOPE

Building envelope tests will be conducted by NBS with the help of CSA on each sample dwelling after weatherization in order to determine the effectiveness of the architectural weatherization options. On at least 5 dwellings per city, these tests will be conducted before as well as after weatherization. These tests will consist of thermography, infiltration tests, fan pressurization tests, temperature stratification tests, and a test for determining the existence of heat by-pass mechanisms.

Test procedures have been developed as follows:

THERMOGRAPHIC SURVEY TO LOCATE HEAT LOSSES FROM THE DWELLING

An exterior thermographic survey is to be performed in order to locate the heat losses from the exterior building walls and roofs. This survey should be done in the evening (2 hours after sunset on a sunny day) or on a cloudy day and with a temperature difference of at least 15°F between the interior of the dwelling and the outside. The heating system should be operating during the time the survey is performed in order to assist in localizing possible mechanical system losses. (This can be accomplished by raising the thermostat 10°F so that the furnace comes on and stays on). Photographs of thermograms covering approximately 15' x 15' areas should be taken such that a complete thermo-image of the walls and roofs can be constructed.

The location of each thermogram should be noted on a corresponding normal photograph of the dwelling section. The day, the time, the interior temperature, the exterior temperature, wind speed and wind direction (from Weather Service records) should be recorded. A data form will be supplied by NBS for each dwelling.

DETERMINATION OF ACTUAL AIR LEAKAGE RATES

The actual air leakage rates existing in the sample homes will be determined using a sample bag-tracer gas technique developed by NBS. This technique consists of introducing a small amount of a harmless tracer gas into a dwelling and then determining the rate of decay of the tracer gas by analyzing sample bags filled at times separated by about one hour. This test will be performed in 5 dwellings in each city before weatherization and in all dwellings after weatherization. Since the rate of air leakage

is weather dependent, this test will be done under several weather conditions (hopefully at 2 week intervals throughout the heating season).

NBS will provide specifications for the purchase of sample bags and SF₆ tracer gas bottles. The conditions under which the test is to be performed will depend on the type of heating system in the building:

1. Forced warm air

The furnace fan should be turned on and the tracer gas bottle opened in front of the return air register. Wait approximately 20 minutes for the gas to distribute uniformly into all parts of the building (to a level of approximately 30 parts per billion, if the occupant asks). Then fill a sample bag labeled "initial reading, dwelling number _____, time to the minute _____." After the sample bag is filled, turn furnace fan to its normal position. Approximately 2 hours later return to the building, turn the furnace fan on for 10 minutes and then fill a sample bag labeled "final reading, dwelling number _____, day _____, time to the minute _____." Be sure to use the same watch for both readings.

2. Other types of Heating Systems (no furnace fan)

A bottle of tracer gas should be opened on each floor of the dwelling, being certain that all interior doors are open (a door from the interior to an enclosed porch should be left in its normal position for heating the building). Small portable fans should be placed in the doorways between rooms and turned on for approximately 1/2 hour in order to distribute the tracer gas as well as possible. A sample bag should then be filled for each floor and labeled "initial reading, dwelling number _____, floor number _____, day _____, and time to the minute _____." The fans should then be turned off. In approximately 2 hours return to the dwelling, turn on the fans for

10 minutes and then fill a sample bag labeled "final reading, dwelling number _____, floor _____, day _____, and time _____."

During these tests it is important that exterior doors or windows be left closed, except for normal entering and leaving of the building.

DETERMINATION OF THE TIGHTNESS OF THE BUILDING ENVELOPE BY PRESSURIZATION

A second method for assessing the tightness of the building envelope is the fan pressurization test. A large fan and a pressure gauge will be required for performing this test. Each site will have to construct an assembly to fit in a door according to NBS specifications. The tightness of the building will be determined in this test by measuring the pressure drop across the building for various flow rates of the fan. This test will be done in each home once before and once after weatherization during the milder seasons of the year when little or no heating is required.

DETERMINATION OF INTERIOR TEMPERATURE STRATIFICATION

The temperature in each room should be measured 6" above the floor (T_F), 3 ft. above the floor (T_M) and 6" below the ceiling (T_C) during the heating season. This data should be reported on a floor plan of the dwelling, for example:

Front
Door

Living Room $T_C = 72$ $T_M = 70$ $T_F = 63$	Dining Room $T_C =$ $T_M =$ $T_F =$
Recreation Room	Kitchen

1st Floor Plan

Bedroom $T_C = 80$ $T_M = 75$ $T_F = 70$	Bedroom
$T_C = 80$	

2nd Floor Plan

PRESSURIZATION - INFRARED TEST PROCEDURE FOR LOCATING AIR LEAKAGE PATHS

While the test procedures described in Determination of Actual Air Leakage Rates and Determination of the Tightness of the Building Envelope by Pressurization determine the amount of air leakage the house is experiencing, they do not identify the location of the leakage paths. This will be accomplished by depressurizing the building using a blower fan, and using an inside infrared inspection procedure to find air leaks. This test can aid in the caulking of a house and serve as a means for determining the effectiveness of the caulking in sealing air leakage paths. This test should be done in houses which, after weatherization, still exhibit high air leakage rates according to the results of tests described under Determination of Actual Air Leakage Rates and Determination of Tightness of the Building Envelope by Pressurization p. 41-43.

TEST TO DETERMINE THE EXISTENCE OF HEAT BY-PASS MECHANISM INTO THE ATTIC

Previous studies, such as those done at Twin Rivers, New Jersey, have shown that there exist many paths by which heat can escape from a dwelling and, in effect, by-pass insulation. A good portion of this heat ends up in the attic and its presence can be determined by making night-time temperature measurements in the attic, outdoors, and on the floor adjacent to the attic. By comparing this temperature data with what is predicted by standard heat load calculations for the level of insulation in the attic, the presence of such paths can be detected.

TESTING OF MECHANICAL SYSTEM

After weatherization a test will be performed on the heating system in each dwelling in order to determine the seasonal efficiency of each heating system after weatherization. This test basically consists of the standard

steady-state efficiency test described in Appendix B plus the additional measurement of the stack temperature at specific times in the heating and cool down cycle of the heating system. This data will be used in computer programs developed by NBS to determine the seasonal operating efficiency of the system.

ANALYZING COLLECTED DATA

The design of this demonstration lends itself to analysis of collected data which can lead to an understanding of the major parameters which affect energy savings and the cost of weatherization options. The parameters affecting energy savings which will be examined are infiltration, conductive heat losses, radiant heat gains, mechanical efficiency, internal loads, interior temperature and interior humidity. The parameters affecting cost which will be examined are preparation cost, material and labor cost associated with the installation of weatherization options, and frequency of replacement.

Measurement of these variables will be used to explain variations in savings and costs between houses and sites.

Information on the pre- and post-retrofit condition of demonstration homes will be used to assess differences in savings and costs (especially preparation costs) between demonstration sites as well as houses in the same site.

The data on cost will be collected using the forms in Figure 8 and 9. A preliminary analysis will involve comparison of estimated cost and actual cost. The installation of each option will also be carefully examined and the frequency of replacement values contained in Table 4 reevaluated. Formulas based on regression analysis will then be derived from the

collected data. These formulas will permit costs to be accurately predicted based on a small number of key factors. The cost estimation procedure will be designed so that it is flexible enough to deal explicitly with labor, material and preparation costs for each option at each site.

The primary measures of the savings of each dwelling will be the K-factor, the energy consumption per degree day, and the balance point, the outside temperature °F at which the heating system cuts on. These two parameters for the pre- and post-weatherization fuel usage of each dwelling allow an accurate assessment of the savings accrued for each dwelling.* They do not in themselves, however, explain the reason for the savings. Building envelope tests and mechanical systems tests will provide additional data for understanding dwelling performance (see p. 44 and p. 48).

Statistical regression and correlation analysis of the data gathered from these test will be undertaken to obtain the fundamental relation, f , between B_1 and T_o and H_c , H_a , EFF, S_g , and E

$$\left. \begin{matrix} B_1 \\ T_o \end{matrix} \right\} = f (H_c, H_a, \text{EFF}, S_g, E)$$

$$\text{where } H_a = C_p \times V \times \Delta I$$

This type of analysis will be performed on both the pre- and post-weatherization dwelling data, as well as assessing the differences in B_1 and T_o resulting from weatherization. From this analysis of the data, average percent savings and energy consumption before and after weatherization will be derived for each option of each site.

* Reference Mayer, Lawrence S., Benjamini, Yoau, Modeling Residential Demand for Natural Gas as a Function of the Coldness of the Month, Center for Environmental Studies, Princeton University.

- B_1 = K-factor or slope of best fit line (least square fit) from balance point calculations. Its dimensions are BTU consumption per degree day using the balance point of the house in question as the base temperature for calculating degree days.
- T_o = Balance point or the outside temperature in °F at which the heating system comes on.
- H_c = Conductive heat loss factor or the sum of the areas of various types of construction times their respective U-value.
- H_a = Infiltration heat loss factor.
- C_p = The specific heat of air.
- V = Volume in cubic feet of the house in question.
- AI = Air infiltration rate in cubic feet per hour derived from tracer gas test or fan pressurization test.
- EFF = the efficiency of the heating system
- S_g = solar heat gain related to each house derived from calculating using the best available solar data for each site.
- $E.$ = energy usage for non space heating purposes.

DISSEMINATION OF RESULTS

A quarterly report with an executive summary will be delivered to CSA on the progress of the project. Six NBSIR reports, with executive summaries as listed and described below will be delivered in draft form at various points during the project and in final report form with an executive summary at the end of the project. These reports will also be provided to the community action agencies for use by such agencies.

REPORTS

1. Weatherization Retrofit Options - This report will provide a complete list of weatherization retrofit options along with a discussion of the estimated costs, maintenance problems, durability problems and safety problems associated with each.
2. Predicted Optimum Combination of Weatherization Retrofit Options Throughout the U.S. - This report will describe optimum packages of retrofit options for each of the climate areas identified in Figure 2. The selection of options for these packages will be based on estimated costs, professional judgment, computer modeling, and the best state-of-the-art knowledge.
3. Cost of Materials, Labor, and Job Preparation for Installing Weatherization Retrofit Options Throughout the U.S. - This report will provide CSA with a method of estimating in the field, the cost of various retrofit options. It will also report on installation problems and costs for various weatherization retrofit options based on field observation in the 16 climate areas identified in Figure 2.
4. Technique for Field Evaluation of Energy Conservation - This is a plan for research that will take place in FY 79. This report will describe and discuss various techniques, such as fan pressurization tests and thermography, which can be used in the field for identifying the magnitude of energy consumption due to infiltration, transmission, mechanical system inefficiencies, and poor energy conservation management of houses. Past experience with these techniques will be reported along with

recommendations on how they should be used for this project next year.

5. A Study of Mechanical Options for Weatherization - This report will address all aspects of weatherizing mechanical systems in single-family housing. Based on the field measurements collected during the project by CSA contractors and NBS, it will discuss durability, maintenance, and cost. It will estimate and provide field measurements of costs and energy savings associated with a broad range of retrofit options.
6. Optimum Weatherization Throughout the U.S. - This is a major report resulting from one year of intensive research. It will provide a list of optimum combinations of weatherization options for each climate area identified in Figure 2. The list will be based on field measurements representing the best data available on savings, costs, and durability of various weatherization options. A methodology will be described in part of the report for implementing this data into a possible loan program.

WORKSHOPS

1. Workshop to Kick-off Demonstration - As soon as CSA has made the money available to the demonstration sites, NBS will conduct a workshop to explain the demonstration. The workshop will present this project plan and discuss problems experienced in Portland, Maine.
2. Workshop to Exchange Experience Between Demonstration Sites - Once all the sites have partial completed installing the options,

a workshop will be held to exchange information on installation, levels of weatherization, cost, etc.

3. Conduct Regional Conferences on Energy Conservation - Once the demonstration is complete, a series of conferences will be conducted in each region to disseminate the information collected by CSA/NBS and local CAP agencies which were part of the demonstration. These conferences will present energy conservation findings of the demonstration and other available research and will explain how local groups can conduct their own research in order to evaluate the efforts of their weatherization.

BRIEFING

NBS will sponsor jointly with CSA a briefing on the findings of this research and demonstration project for the Department of Energy, the Department of HUD, Farmers Home Administration, and other such agencies.

APPENDIX A

INSTALLATION OF UTILITY METERS AND THERMOMETERS

In view of the lack of accurate measuring devices on some homes selected for the demonstration, meters, thermometers and other measuring devices have to be installed. The following instruments should be installed.

FURNACES AND SPACE HEATERS

1. A gas meter in the gas supply piping to the furnace or heater.
2. A kilowatt hour meter in the branch circuit of an electric furnace or individual electric space heaters. (Meter constant should not be larger than 3.6 watt-hours.)
3. Oil consumption of oil fired furnaces will be determined by an oil meter on the line between the oil tank and furnace.
4. A furnace running time meter with a one minute resolution in the hot air fan circuitry or hot water circulatory pump circuitry. In gravity circulating systems or steam systems, the running time meter will be installed in the branch circuit to the furnace.
5. A cycle counter in the gas valve circuitry of gas furnaces (coordinate installation with the local gas company representative).
6. For oil fired furnaces, the cycle counter shall be installed in the oil pump circuitry and the circuit shall also include a run time meter with a one minute resolution.

WATER HEATERS

1. A gas meter in the gas supply piping to the gas fired water heater.
2. An oil meter on the line between oil tank and water heater.
3. A kilowatt-hour meter in the branch circuit of electric hot water heaters (meter constant should not be larger than 3.6 watt-hours).
4. Water meter on the cold water supply to each hot water heater shall have 0.1 gallon resolution.

ROOM TEMPERATURES

A thermometer having at least a 1°F resolution shall be installed on an interior wall at center of house to read temperature within:

basement
first floor

second floor
third floor

HUMIDITY

A sling psychrometer should be provided to determine first floor wet-bulb and dry-bulb readings.

APPENDIX B

INSTRUCTIONS FOR TESTING MECHANICAL SYSTEMS

The following tests are to be performed on the heating and hot water systems by a local heating contractor or CSA group as approved by NBS.

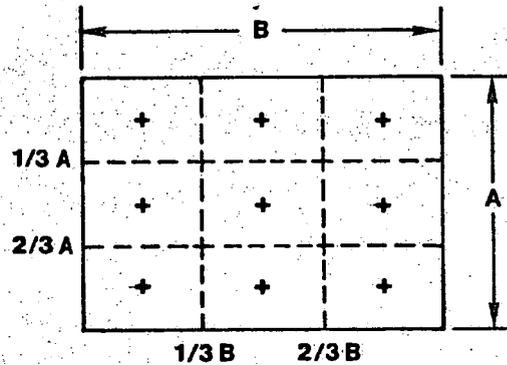
FURNACE

1. Measure steady-state efficiency of the furnace by normal CO₂ and flue gas temperature measurements both before and after cleaning and adjusting the furnace. Record the flue gas temperature, CO₂ percentage, the Backarach smoke number, and the draft above the fire (if possible) and at the flue sample hole on the data sheet "A" provided.
2. Determine before cleaning and adjusting of the furnace the temperature in the plenum at which the fan turns on and off (air system). Record the temperature on the appropriate data sheet (B, C, D, or E).
3. Cleaning and adjusting should consist of:
 - a) Clean the heat exchanger
 - b) Replace any defective nozzle and inoperable burners.
 - c) Adjust the fan controls such that the temperature in the plenum is 110°F when the fan turns on, and 80°F when it turns off (forced warm air system).
 - d) Change air filter (warm air).
 - e) Check for air leaks in the furnace.
4. Record input and output ratings of the furnace, the rated capacity of the blower or circulating pump and the nozzle size (oil in GPH) on data sheet "A".
5. Supply a picture of the furnace and the distribution system if possible and attach data sheet "A".
6. Report the condition of the fire box on data sheet "A" and repair if necessary.
7. Report the condition of the heat exchangers on data sheet "A".
8. Make any professional comments and recommendations on data sheet "A" that you feel will lead to better performance of the heating system.

DISTRIBUTION SYSTEM

1. Determine steady-state air flows and temperatures in plenum and at each register as used by the occupants. Allow system to operate continuously for at least 10 minutes before measuring (air system).

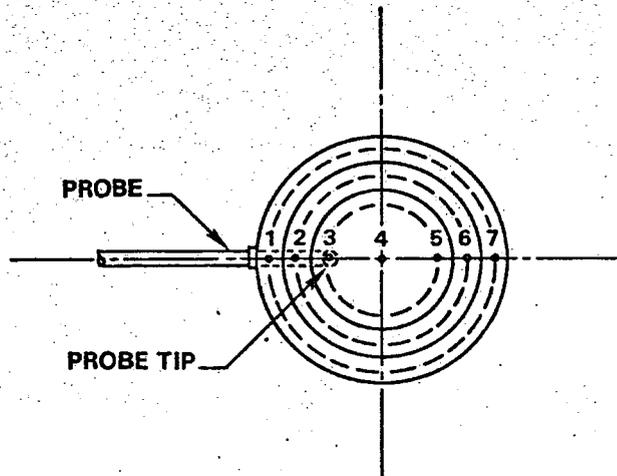
Techniques: At a rectangular plenum, the temperature and air flow should be measured by probing the supply duct at nine points forming a grid as shown in the following figure.



AT + MEASURE TEMPERATURE & AIR FLOW

Record the data on Data Sheet "B".

At a circular plenum the temperature and air flow should be measured by probing at seven points along the plenum diameter as shown in the following figure and Table B-1.



Positions for PITOT tube tip when making a 7 point traverse of a circular plenum (See Table One)

Record data on Data Sheet "C".

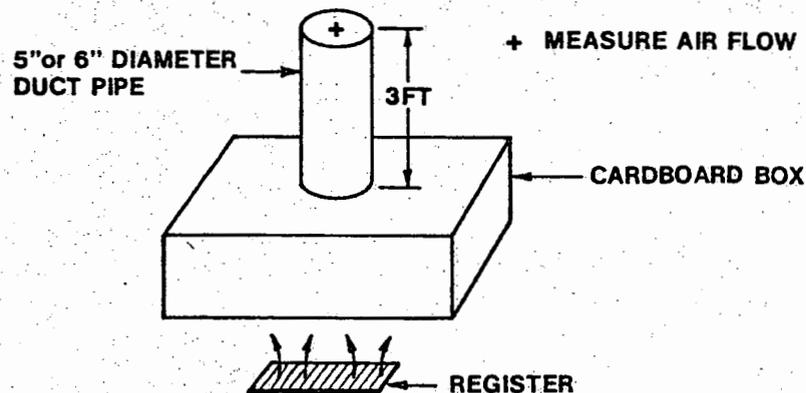
TABLE B-1
 LOCATION OF PITOT TUBE TIP ON
 PLENUM DIAMETER

LOCATION NUMBER & DISTANCE ON DIAMETER - INCHES							
DIAMETER OF PLENUM INCHES	1	2	3	4	5	6	7
6	1/4	1	1 3/4	3	4 1/4	5	5 3/4
7	1/4	1	2	3 1/2	5	6	6 3/4
8	1/4	1 1/4	2 1/4	4	5 1/2	6 3/4	7 3/4
9	1/4	1 1/4	2 3/4	4 1/2	6 1/4	7 3/4	8 1/2
10	1/4	1 1/2	3	5	7	8 1/2	9 1/2
11	1/2	1 1/2	3 1/4	5 1/2	7 3/4	9 1/4	10 1/2
12	1/2	1 3/4	3 1/2	6	8 1/4	10 1/4	11 1/2
13	1/2	2	3 3/4	6 1/2	9 1/4	11	12 1/4
14	1/2	2	4	7	10	12	13 1/4
15	3/4	2 1/4	4 1/4	7 1/2	10 1/2	12 3/4	14 1/4
16	3/4	2 1/4	4 3/4	8	11 1/4	12 3/4	15 1/4
17	3/4	2 1/2	5	8 1/2	12	14 1/2	16 1/4
18	3/4	2 1/2	5 1/4	9	12 3/4	15 1/4	17 1/4
19	3/4	2 3/4	5 1/4	9 1/2	13 1/4	16 1/4	17 1/4
20	1	3	6	10	14	17	19
21	1	3	6 1/4	10 1/2	14 3/4	18	20
22	1	3 1/4	6 1/2	11	15 1/2	18 3/4	21
23	1	3 1/4	6 3/4	11 1/2	16 1/4	19 1/2	22
24	1	3 1/2	8	12	17	20 1/2	23
25	1	3 3/4	8	12 1/2	17 1/2	21 1/4	24
26	1	3 3/4	7 3/4	13	18 1/4	22 1/4	25
27	1 1/4	4	8	13 1/2	19	23	25 3/4
28	1 1/4	4	8 1/4	14	19 3/4	24	26 3/4
29	1 1/4	4 1/4	8 1/2	14 1/2	20 1/4	24 3/4	27 3/4
30	1 1/4	4 1/4	9	15	21	25 1/2	28 3/4

Temperature and air flow should be probed in the centers of individual supply ducts near the furnace hot air discharge section for distribution systems not using a plenum. Record data on Data Sheet "D" for circular ducts; on Data Sheet "E" for rectangular ducts.

A cardboard box sufficient to cover a 16" x 16" register should be constructed with a 6" or 5" section of duct (seal all holes and cracks in the box such that there are no leaks) and the flow and temperature measured at the duct section (+) (see diagram following).

Record data on appropriate data sheet "B", "C", "D", or "E" depending on the type of hot air distribution system design.



2. For the water systems, measure the return and outlet water temperature when the boiler has been operating for at least 10 minutes by measuring the surface temperature of the metal pipe along an insulated portion of the supply pipe (if the pipe is uninsulated, wrap the pipe with insulation before making the measurement). The temperature measurement should be made through a small hole in the insulation using a heat sink compound on the tip of the thermometer. (Dow Chemical heat sink compound 340). Record data on Data Sheet "F".
3. Inspect each radiator and make note of the percentage of inoperable cells (water or steam system). Record data on either Data sheet "F" (water systems) or Data Sheet "G" (steam systems).
4. On steam systems, check for inoperable steam traps or air vents on single pipe systems. Report inoperable traps or vents on Data Sheet "G" comments.
5. Supply a photograph of any covered or blocked (by furniture, curtains etc.) register, radiator or baseboard heaters.

WATER HEATER

1. Perform CO_2 , flue gas temperature, and Backarach smoke number measurements for oil and gas water heaters, at steady-state conditions.
2. Measure the temperature of the exterior jacket (using heat sink compound) on the hot water heater, temperature in the space containing the hot water heater, and temperature of the hot water at the nearest faucet.
3. With the shower valves fully opened, measure the time it takes to fill a five gallon bucket (in seconds) using both hot and cold water together. (Do this measurement three times, recording results separately).
4. Measure temperature rise:
 - a) Draw water until water heater begins to heat.
 - b) Wait until the heating stops and shut off heater.
 - c) Immediately withdraw 20 gallons (four 5-gallon bucketfuls).
 - d) Record the length of time (minutes and seconds) needed to regain shutoff temperature (heater "on" to heater "off").
 - e) Record the wattage rating on electric heater, the burn rate on gas or oil heaters.
 - f) Make general comments on overall condition of water heater and supply a picture of it, if possible.

Record water heater data on Data Sheet "H".

BUILDING HEATING SYSTEM DATA
DATA SHEET "A"

HOUSE REFERENCE NO: _____

DATE: _____

TYPE OF HEATING SYSTEM (CHECK)

Circulated Water, Gravity Water, Steam, Forced Air, Gravity Air
 Venter Space or Room Heater, Hot Water Heater Integral with Furnace,
 Unvented Space or Room Heater.

TYPE OF FUEL (CHECK)

Natural Gas, Bottled Gas, Oil, Kerosene, Coal, Electricity.

COMBUSTION EFFICIENCY OF THE FURNACE

BEFORE CLEANING FURNACE

_____ %
_____ °F
_____ %
_____ in. H₂O

AFTER CLEANING FURNACE

_____ % CO₂ in flue gas
_____ °F Flue gas temperature
_____ % Combustion efficiency
_____ in. H₂O Draft above fire
_____ Bacharach smoke number

RECORD FROM FURNACE NAME PLATE

FURNACE MANUFACTURER'S NAME _____

INPUT RATING _____ BTU/HR OUTPUT RATING _____ BTU/HR BLOWER RATING _____ CFM

Rated Capacity of Circulating Pump _____ gpm

Nozzle Size (oil) _____ gph

TAKE A PHOTOGRAPH OF THE FURNACE (Attach 1 photo & negative to the back of this sheet)

CONDITION OF FIRE BOX (CHECK)

_____ Excellent, _____ Good, _____ Poor, _____ Was Repaired.

CONDITION OF HEAT EXCHANGER (CHECK)

_____ Excellent, _____ Good, _____ Poor.

ANY COMMENTS/RECOMMENDATIONS

Contractors Name, Address, and Telephone Number.

AIR DISTRIBUTION SYSTEM (PLENUM WITH
RECTANGULAR CROSS SECTION)
DATA SHEET "B"

HOUSE REFERENCE NO. _____

DATE: _____

1. STEADY STATE AIR FLOWS AND TEMPERATURES IN PLENUM AT NINE POSITIONS ACROSS PLENUM
(see instruction)

(1) _____ ft/min	_____ °F	(2) _____ ft/min	_____ °F
(3) _____ ft/min	_____ °F	(4) _____ ft/min	_____ °F
(5) _____ ft/min	_____ °F	(6) _____ ft/min	_____ °F
(7) _____ ft/min	_____ °F	(8) _____ ft/min	_____ °F
(9) _____ ft/min			

2. STEADY STATE AIR FLOWS AND TEMPERATURES AT EACH REGISTER USED BY OCCUPANTS.
DETERMINE BY USING CARDBOARD AIRFLOW SECTION (see instructions).

<u>LOCATION</u>	<u>AIR TEMPERATURE</u> °F	<u>AIR VELOCITY</u> FT/MIN
(1) Kitchen		
(2) Living Room		
(3)		
(4)		
(5)		
(6)		
(7)		

ATTACH ONE PHOTOGRAPH AND NEGATIVE TO THE BACK OF THIS SHEET OF ANY COVERED OR BLOCKED
(BY FURNITURE, CURTAINS, ETC.) REGISTERS. ALSO ON THE BACK OF THIS SHEET MAKE ANY
COMMENTS OR RECOMMENDATIONS.

DETERMINE BEFORE CLEANING AND ADJUSTING OF THE FURNACE THE TEMPERATURE IN THE PLENUM
AT WHICH FAN TURNS ON _____ °F, AND OFF _____ °F.

CONTRACTOR'S NAME, ADDRESS AND TELEPHONE NUMBER

AIR DISTRIBUTION SYSTEM (PLENUM
WITH CIRCULAR CROSS SECTION)

DATA SHEET "C"

HOUSE REFERENCE NO. _____

DATE: _____

1. STEADY STATE AIR FLOWS AND TEMPERATURE IN PLENUM CROSS SECTION AT TEN POSITIONS
ALONG A DIAMETER (see instructions)

DIAMETER OF PLENUM _____ inches

(1) _____ ft/min	_____ °F	(2) _____ ft/min	_____ °F
(3) _____ ft/min	_____ °F	(4) _____ ft/min	_____ °F
(5) _____ ft/min	_____ °F	(6) _____ ft/min	_____ °F
(7) _____ ft/min	_____ °F		

2. STEADY STATE AIRFLOWS AND TEMPERATURES AT EACH REGISTER USED BY OCCUPANTS.
DETERMINE BY USING CARDBOARD AIRFLOW SECTION (see instructions).

<u>LOCATION</u>	<u>AIR TEMPERATURE °F</u>	<u>AIR VELOCITY FT/MIN</u>
(1) Kitchen		
(2) Living Room		
(3)		
(4)		
(5)		
(6)		
(7)		

ATTACH ONE PHOTOGRAPH AND NEGATIVE TO THE BACK OF THIS SHEET OF ANY COVERED OR
BLOCKED (BY FURNITURE OR CURTAINS, ETC.) REGISTERS. ALSO ON THE BACK OF THIS SHEET
MAKE ANY COMMENTS OR RECOMMENDATIONS.

DETERMINE BEFORE CLEANING AND ADJUSTING OF THE FURNACE THE TEMPERATURE IN THE PLENUM
AT WHICH FAN TURNS ON °F, AND OFF °F.

CONTRACTOR'S NAME, ADDRESS, AND TELEPHONE NUMBER.

AIR DISTRIBUTION SYSTEM (NO PLENUM AND EACH
DUCT OF CIRCULAR CROSS SECTION ATTACHED TO FURNACE AIR
DISCHARGE SECTION)

DATA SHEET "D"

HOUSE REFERENCE NO: _____

DATE: _____

1. RECORD INDIVIDUAL DUCT SIZE, STEADY STATE AIRFLOWS, AND TEMPERATURES IN THE CENTER OF EACH DUCT OF CIRCULAR CROSS SECTION (see instructions)

(1) _____ ft/min _____ °F _____ dia.in.	(2) _____ ft/min _____ °F _____ dia.in.
(3) _____ ft/min _____ °F _____ dia.in.*	(4) _____ ft/min _____ °F _____ dia.in.
(5) _____ ft/min _____ °F _____ dia.in.	(6) _____ ft/min _____ °F _____ dia.in.
(7) _____ ft/min _____ °F _____ dia.in.	(8) _____ ft/min _____ °F _____ dia.in.
(9) _____ ft/min _____ °F _____ dia.in.	

*Diameter of Duct in inches.

2. STEADY STATE AIRFLOWS AND TEMPERATURES AT EACH REGISTER USED BY OCCUPANTS. DETERMINE BY USING CARDBOARD AIRFLOW SECTION (see instructions).

<u>LOCATION</u>	<u>AIR TEMPERATURE</u> °F	<u>AIR VELOCITY</u> FT/MIN
(1) Kitchen		
(2) Living Room		
(3)		
(4)		
(5)		
(6)		
(7)		

ATTACH ONE PHOTOGRAPH AND NEGATIVE TO THE BACK OF THIS SHEET OF ANY COVERED OR BLOCKED (BY FURNITURE, CURTAINS, ETC.) REGISTERS. ALSO ON THE BACK OF THIS SHEET MAKE ANY COMMENTS OR RECOMMENDATIONS

DETERMINE BEFORE CLEANING AND ADJUSTING OF THE FURNACE THE TEMPERATURE IN 1 DUCT ATTACHED TO FURNACE AIR DISCHARGE SECTION AT WHICH FAN TURNS ON °F AND OFF °F.

CONTRACTOR'S NAME, ADDRESS, AND TELEPHONE NUMBER

AIR DISTRIBUTION SYSTEM (NO PLENUM AND EACH DUCT
OF RECTANGULAR CROSS SECTION ATTACHED
TO FURNACE AIR DISCHARGE SECTION)
DATA SHEET "E"

HOUSE REFERENCE NO: _____

DATE: _____

1. RECORD INDIVIDUAL DUCT SIZE, STEADY STATE AIRFLOWS, AND TEMPERATURES IN THE CENTER OF EACH DUCT OF RECTANGULAR CROSS SECTION (see instructions)

(1) _____ ft/min	_____ °F	_____ H*	_____ W*	(2) _____ ft/min	_____ °F	_____ H	_____ W
(3) _____ ft/min	_____ °F	_____ H	_____ W	(4) _____ ft/min	_____ °F	_____ H	_____ W
(5) _____ ft/min	_____ °F	_____ H	_____ W	(6) _____ ft/min	_____ °F	_____ H	_____ W
(7) _____ ft/min	_____ °F	_____ H	_____ W	(8) _____ ft/min	_____ °F	_____ H	_____ W
(9) _____ ft/min	_____ °F	_____ H	_____ W	(10) _____ ft/min	_____ °F	_____ H	_____ W

*H = Duct Height, W = Duct Width

2. STEADY STATE AIRFLOWS AND TEMPERATURES AT EACH REGISTER USED BY OCCUPANTS. DETERMINE BY USING CARDBOARD AIR SECTION (see instructions).

LOCATION	AIR TEMPERATURE °F	AIR VELOCITY FT/MIN
(1) Kitchen		
(2) Living Room		
(3)		
(4)		
(5)		
(6)		
(7)		

ATTACH ONE PHOTOGRAPH AND NEGATIVE TO THE BACK OF THIS SHEET OF ANY COVERED OR BLOCKED (BY FURNITURE, CURTAINS ETC.) REGISTERS. ALSO ON THE BACK OF THIS SHEET MAKE ANY COMMENTS OR RECOMMENDATIONS

DETERMINE BEFORE CLEANING AND ADJUSTING OF THE FURNACE THE TEMPERATURE IN 1 DUCT ATTACHED TO FURNACE AIR DISCHARGE SECTION AT WHICH FAN TURNS ON °F AND OFF °F.

CONTRACTOR'S NAME, ADDRESS AND TELEPHONE NUMBER

HOT WATER DISTRIBUTION SYSTEM
DATA SHEET "F"

HOUSE REFERENCE NO: _____

DATE: _____

1. STEADY STATE OUTLET WATER TEMPERATURE FROM BOILER

_____ °F

2. STEADY STATE RETURN WATER TEMPERATURE FROM BOILER

_____ °F

3. INOPERABLE RADIATOR CELLS

<u>LOCATION</u>	<u>NO. OPERABLE CELLS</u>	<u>NO. INOPERABLE CELLS</u>
(1) Kitchen		
(2) Living Room		
(3)		
(4)		
(5)		
(6)		
(7)		

ATTACH ONE PHOTOGRAPH AND NEGATIVE TO THE BACK OF THIS SHEET OF ANY COVERED OR BLOCKED (BY FURNITURE, CURTAINS ETC.) RADIATORS. ALSO ON THE BACK OF THIS SHEET MAKE ANY COMMENTS OR RECOMMENDATIONS.

CONTRACTOR'S NAME, ADDRESS AND TELEPHONE NUMBER

STEAM DISTRIBUTION SYSTEM
DATA SHEET "G"

HOUSE REFERENCE NO: _____

DATE: _____

1. STEADY STATE OUTLET STEAM TEMPERATURE FROM BOILER

_____ °F

2. STEADY STATE CONDENSATE RETURN TEMPERATURES

_____ °F

3. INOPERABLE RADIATOR CELLS

<u>LOCATION</u>	<u>NO. OPERATING CELLS</u>	<u>NO. INOPERABLE CELLS</u>
(1) Kitchen		
(2) Living Room		
(3)		
(4)		
(5)		
(6)		
(7)		

ATTACH ONE PHOTOGRAPH AND NEGATIVE TO THE BACK OF THIS SHEET OF ANY COVERED OR BLOCKED (BY FURNITURE, CURTAINS, ETC.) RADIATORS. ALSO ON THE BACK OF THIS SHEET MAKE ANY COMMENTS OR RECOMMENDATIONS. REPORT LOCATION OF INOPERABLE STEAM TRAPS OR AIR VENTS.

CONTRACTOR'S NAME, ADDRESS AND TELEPHONE NUMBER

HOT WATER HEATER
DATA SHEET "H"

HOUSE REFERENCE NO: _____

DATE: _____

TYPE OF WATER HEATER FUEL (CHECK)

___ Natural gas, ___ Bottled gas, ___ Oil, ___ Kerosene, ___ Coal, ___ Electricity,
___ Heater is integral with Furnace.

COMBUSTION EFFICIENCY

___ % CO₂ in flue _____ Bacharach Smoke Number
___ °F Flue gas temperature
___ % Combustion efficiency

TEMPERATURE ON EXTERIOR JACKET OF HEATER _____ °F
AMBIENT AIR TEMPERATURE IN HEATER ROOM _____ °F
TEMPERATURE OF HOT WATER AT NEAREST FAUCET _____ °F
TIME TO DRAW FIVE GALLONS OF SHOWER WATER (HOT & COLD FULL OPEN)
___ sec. ___ sec. ___ sec.

HEATER RECOVERY AFTER WITHDRAWING 20 GALLONS OF HOT WATER
_____ minutes and _____ seconds.

RECORD FROM HEATER NAME PLATE

Manufacturer's Name _____
Model Number _____
Size of Storage Tank _____
Rating of heater _____ Btu/hr or _____ watts _____ gph

TAKE A PHOTOGRAPH OF THE HOT WATER HEATER (Attach 1 photo & negative to the back of
this sheet)

COMMENTS/RECOMMENDATIONS CONCERNING HOT WATER HEATER.

CONTRACTOR'S NAME, ADDRESS, AND TELEPHONE NUMBER.

APPENDIX C

CALCULATIONS FOR MECHANICAL OPTIONS

VENT OR FLUE DAMPERS & RESTRICTORS

The savings for a flue damper or restrictor can vary from system to system; however a relatively conservative estimate can be obtained by using the equation (1) with $N = 0.07$.

ELECTRONIC IGNITION

The savings for an electronic ignition is estimated by equation (1) with $N = 0.07$.

TWO STAGE GAS VALVES

DERATE FURNACE

Field studies have shown that nozzle and orifice reduction, where possible, can lead to a savings of approximately 4.6%, though this will vary greatly from system to system. If it is possible to reduce excess air at the same time as reducing nozzle size, an average savings of 8% would be possible according to field studies. At present, a 4.6% savings will be assumed. ($N = .046$)

REPLACEMENT OF BURNER AND/OR FURNACE

The replacement of burners and furnaces may be necessary in many situations where 1) the steady state efficiency of the system is below 65%, 2) the smoke number is above 2, 3) the heat exchanger or fire box is in bad condition and 4) the unit is very old and requires large maintenance costs. The savings from replacing the burner or furnace can be obtained from the equation

$$\text{Savings} = 0.5 \times \text{Fuel} \times \left(\frac{1}{e_b} - \frac{1}{e_a} \right)$$

where e_b is the annual efficiency before replacement and e_a is the annual efficiency after replacement. The mechanical testing of the furnace gives the steady state efficiency e_{ss} of the system and the balance allow the determination point calculation of the oversizing factor by the equation

$$\alpha = \frac{K}{B} \frac{T_o - T_d}{24} - 1$$

where T_o is the balance point of the dwelling, K is the K-factor, T_d is the design temperature and B is the nozzle or orifice burner rate in the same units as K . The seasonal efficiency of the furnace can be approximated by

$$e_s = 0.8 \times e_{ss} - 4 \times \alpha$$

where e_{ss} is the steady state efficiency of the furnace. By performing the above calculations before and after replacement, an estimate of the savings can be made.

INSULATE DUCTS & PIPES

All hot water and steam pipes will be insulated in unheated spaces. Ducts will be insulated where there is more than a 20°F drop between the plenum and the register as determined in the preliminary test.

RADIATOR REFLECTORS

These will be installed on all exterior wall radiators where the number of degree days is greater than 4,000.

NIGHT SETBACK THERMOSTAT

The potential saving for a night setback thermostat can be obtained from the equation

$$S_{NS} = 0.5 \times F \times \eta / 100$$

where η is given in Table C-1 for each demonstration site for both 5°F and 10°F setback temperatures.

TABLE C-1

PERCENT SAVINGS FOR
NIGHT SETBACK OF THERMOSTAT

	Setback 5° F	Setback 10° F
Portland	6	9
Easton	8	12
Charleston	11	16
Atlanta	11	15
Chicago	7	11
Colorado Springs	7	11
St. Louis	8	12
Minneapolis	5	9
Tacoma	8	12
Oakland	10	14
Fargo	5	8
Miami	11	16
New Orleans	11	16
Albuquerque	8	12
Washington	9	13

RELOCATE THERMOSTAT

Savings for relocated thermostats will be estimated based on anticipated savings from reduced temperatures in overheated spaces.

INSULATE WATER HEATER (R = 7)

Electric Water Heater	365 KWH/yr
Gas Water Heater	36.5 Therms/yr
Oil Water Heater	25.5 Gal/yr

INSTALLATION OF AQUABOOSTER ON TANKLESS COIL FURNACE-WATER HEATER SYSTEMS

In most tankless coil systems the only manner in which a nozzle can be reduced is by installing a hot water storage tank (aquabooster). The expected savings from this option is 12.4%. (N = 0.124)

REPLACE WATER HEATER

Replacement of the water heater will result in estimated savings of

$$13.78 \times 10^6 / \left(\frac{1}{e_{aR}} - \frac{1}{e_{NR}} \right) \quad \text{BTU/yr}$$

with

$$e_{NR} = \begin{cases} 1.0 & \text{electric water heater} \\ .7 & \text{gas or oil water heater} \end{cases}$$

where e_{aR} is the measured recovery efficiency from the mechanical system test data and e_{NR} is the recovery efficiency of a new water heater.

REDUCE WATER HEATER THERMOSTAT SETTING (150-130°F)

Electric Water Heater	365 KWH/yr
Gas Water Heater	36.5 Therm/yr
Oil Water Heater	25.5 Gal/yr

(NBS Measurements)

SHOWER FLOW RESISTORS

Assuming 10 showers of 5 minutes each per week and an equal mixing of hot and cold water, a flow resistor would lead to a savings of 1300 gal of hot water per year for each 1 gal/min reduction in flow rate of the shower head. Therefore, the hot water savings would be

$$1300 (F-2.5) \text{ gallons of hot water per year}$$

where F is the measured flow rate of the existing shower head. This would lead to an energy savings of

$$7.55 (F-2.5) \times 10^5 / e_n \quad \text{Btu per year}$$

Where e_n is the recovery efficiency of the water heater. Using a recovery efficiency of 1.0 for electric water heaters and 0.7 for gas and oil water heaters one would predict an energy savings of

221 (F-2.5) KWH per year for electric water heaters
10.8 (F-2.5) therms per year for gas heaters and
7.70 (F-2.5) gallons of oil per year for oil water heaters.

TIMERS ON ELECTRIC WATER HEATERS

It has been shown that timers on electric water heaters can lead to a savings of approximately 5 KWH per day. Therefore the annual savings would be 1875 KWH per year for a typical household.

APPENDIX D

FIRST COST PRICING ASSUMPTIONS

Since the construction specifications for providing the weatherization options are not part of this appendix, assumptions used in making cost estimates for all options are stated as follows.

All cost estimates for the weatherization options were primarily collected from the local community action groups or local contractors recommended by the community action group and supplemented by construction suppliers catalogues, department store catalogues and the 1977 Means Building Construction Cost Data guide. Each local community action group identified whether the weatherization options will be carried out by the labor forces in the local community itself or furnished and installed by a local building contractor. In particular, it is assumed that infiltration options are installed by local community action groups and that all other options are installed by a local building contractor.

1. All estimates shown are "in-place" prices which include labor, material, overhead and profit.
2. Each estimate shown is the unit price for one option only. There will be some price reduction of the estimate for a large quantity purchase.
3. Estimates are used for selecting energy conservation options only. The estimates are only of the order of magnitude. Actual installation prices will have to be collected and tabulated during the demonstration phase of the weatherization project.
4. Estimates are shown in dollar per square foot or linear foot for each item. These unit prices can be easily compared to the benefit side of energy conservation since the reductions of energy use are also expressed in the same units.

The assumptions for estimating each weatherization option are listed as follows, since technical specifications for each of the weatherization options are not yet available.

1. Replace broken glass in windows: $\$/\text{Ft}^2$
Remove broken glass and old glazing, cut new plate glass to fit existing opening and install glass. It is assumed that 24" x 24" size of glass would be the most common stock size from which the replacement pane is to be cut.
2. Reset glazing in windows: $\$/\text{Ft}$
Apply glazing compound on outside and inside of existing window panes to make them weatherproof. A window size of 3 ft. by 5 ft. is assumed.
3. Install storm windows: $\$/\text{Ft}^2$
Furnish and install a triple track storm window of up to 15 square feet in size. Screen is included. No special preparation on existing surfaces to receive the storm window is required.
4. Provide triple glazing for windows: $\$/\text{Ft}^2$
Install a new storm window 3 ft. by 5 ft. size inside the existing window and storm window.
5. Install low emissivity films: $\$/\text{Ft}^2$
"Lockspraygold" or equivalent applied to the entire glass area of the window.
6. Weatherstrip windows: $\$/\text{Ft}$
Any weatherstripping material which is available in local hardware and specialty stores.
7. Caulk windows: $\$/\text{Ft}$
Use suitable sealant or caulking compound for exterior weatherproof caulking.
8. Install insulating lining over existing window drapes: $\$/\text{Ft}^2$
"Roclon" insulated drapery lining (\$1.80 per yard of 48" width).
9. Install insulating shutters over windows: $\$/\text{Ft}^2$
Install on the interior side of the window to reduce heat losses. Composed of 1-1/2" thick insulation sandwiched between 1/4" thick plywood with R value = 7. Price includes hinges, trim, and finish painting.
10. Install storm door: $\$/\text{Ft}^2$
Furnish and install a storm door of approximately 3' x 7' in size.
11. Install 2nd wood door: $\$/\text{Ft}^2$
Install a standard grade exterior wood door. Installation will be either on the inside or outside of the existing door depending on the direction of swing of the existing door.
12. Replace exterior door with insulating door: $\$/\text{Ft}^2$
Furnish and install a commercially available insulating door. It shall have a minimum of R6 rating.

13. Weatherstrip exterior door: \$/Ft
Any door weatherstripping material which is available in local hardware and specialty stores.
14. Caulk exterior door: \$/Ft
Use suitable sealant or exterior weatherproof caulking.
15. Install new threshold: \$/Ft
Furnish and install a new threshold that is compatible with the exterior door.
- 16A. Install insulation below grade of a first floor slab: \$/Ft²
Excavate, attach 2" styrofoam with adhesive to the edge of slab and footing. Make the exposed surface fireproof. Backfill to existing grade. 18" to 20" deep insulation is estimated.
- 16B. Install interior wall insulation for basement walls: \$/Ft²
Fur out from basement wall. Install 2" styrofoam. Install 3/8" thick drywall. Taping and painting are not included.
- 17A. Install interior wall insulation over solid masonry wall: \$/Ft²
Provide furring, install 2" thick styrofoam or 3-1/2" fiberglass insulation. Install dry wall. Provide wood base. Tape and paint walls with damp-proof paint.
- 17B. Install exterior wall insulation over solid masonry wall: \$/Ft²
Install "Drive-it" over exterior wall.
- 17C. Provide insulation (R-11) in existing wood framed walls: \$/Ft²
Fill frame walls with loose fill or other insulation by inserting an applicator through the interior side of the wall. Plug and paint with two coats of vapor barrier paint.
- 17D. Provide insulation (R-11) in existing veneer wall: \$/Ft²
Similar to assumption for 17C.
18. Insulate attic: \$/Ft²
Furnish and install loose fill or blanket insulation to satisfy R11, R30, R38 values. Install attic vents where needed.
19. Provide floor insulation: \$/Ft²
Provide blanket insulation to satisfy R19 and R30 values.
20. Weatherstrip attic hatch: \$/Ft
Furnish and install locally available weatherstripping to make the attic hatch weather-tight.
- 21A. Seal up structural cracks on masonry walls: \$/Ft²
Provide "tuck-pointing" for a square foot area.
- 21B. Seal up structural cracks on wood siding walls: \$/Ft²
Replace with similar siding and paint to match for a square foot area.

- 21C. Seal up structural cracks on veneer wall: \$/Ft²
Provide "tuck-pointing" for a square foot area.
22. Carpet floor: \$/Ft²
Provide floor carpet.
23. Close-off unused portion of house
Seal and tape existing interior doors.
24. Provide wind barrier around crawl space or basement wall
Design specifically for an individual situation.

APPENDIX E

ASHRAE CALCULATIONS FOR ARCHITECTURAL OPTIONS

INFILTRATION

Replace Broken Glass

$$\text{BTU/ft}^2/\text{yr} = [.018 * x DD_a * x 24 \text{ hrs}] [30 \text{ cfh} * + (22 \text{ cfh} x DD_a / \text{Htg. Days}) *] \quad (1)$$

Reset Glazing

$$\text{BTU/ft/yr} = [.018 x DD_a x 24 \text{ hrs}] x [.1 \text{ AC} x 12000 \text{ cf} / 344 \text{ lf} *]$$

Replace Threshold

$$\text{BTU/ft}^2/\text{yr} = [.018 x DD_a x 24 \text{ hrs}] [300 \text{ cfh} + (22 \text{ cfh} x DD_a / \text{Htg. Days})]$$

Seal Structural Crack

$$\text{BTU/ft}^2/\text{yr} = [.018 DD_a x 24 \text{ hrs}] [300 \text{ cfh} + (22 \text{ cfh} x DD_a / \text{Htg. Days})]$$

Weatherstrip Windows

$$\text{BTU/ft/yr} = [.018 x DD_a x 24 \text{ hrs}] x [.1 \text{ AC} x 12000 \text{ cf} / 344 \text{ lf}]$$

Caulk Windows

$$\text{BTU/ft/yr} = [.018 x DD_a x 24 \text{ hrs}] x [.1 \text{ AC} x 12000 \text{ cf} / 344 \text{ lf}]$$

Weatherstrip Doors

$$\text{BTU/ft/yr} = [.018 x DD_a x 24 \text{ hrs}] x [.1 \text{ AC} x 12000 \text{ cf} / 344 \text{ lf}]$$

Caulk Door

$$\text{BTU/ft/yr} = [.018 x DD_a x 24 \text{ hrs}] x [.1 \text{ AC} x 12000 \text{ cf} / 344 \text{ lf}]$$

Weatherstrip Attic Hatch

$$\text{BTU/ft/yr} = [.018 x DD_a x 24 \text{ hrs}] x [.1 \text{ AC} x 12000 \text{ cf} / 344 \text{ lf}]$$

WINDOWS

Stage 1

Window Uninsulated (R = .88, U = 1.13)

$$\text{BTU/ft}^2/\text{yr} = 1.13 x DD_a x 24 \text{ hrs}$$

*NOTES:

DD_a = Degree Days at balance point of house

.018 = .024 BTU (specific heat) x .075 lbs/cu ft (Density)

30 cfh = Infiltration due to pressure difference with rag in opening

(22 cfh x DD_a / Htg. Days) = Infiltration due to temperature difference

300 cfh = Infiltration due to pressure difference without blocking opening

12000 = Volume of building

344 = Perimeter of doors and window sashes.

Storm Windows (R = 1.79, U = .56)
BTU/ft²/yr = .56 x DD_a x 24 hrs

Managed Insulating Drapes (R = 1.25 U = .80)
BTU/ft²/yr Night = .80 x DD_c * x 24 hrs
BTU/ft²/yr Day = 1.13 x DD_d * x 24 hrs
BTU/ft²/yr Total = Day + Night

Managed Shutters (R = 7.8 including glass, U = .13)
BTU/ft²/yr = .13 x DD_c x 24 hrs
BTU/ft²/yr Day = 1.13 x DD_d x 24 hrs
BTU/ft²/yr Total = Day + Night

Low Emmissivity Films (R = 1.33, U = .75 including glass)
BTU/ft²/yr = .74 x DD_a x 24

Stage 2

Storm Window and Drapes (R = 2.07, U = .48)
BTU/ft²/yr Night = .48 x DD_c x 24
BTU/ft²/yr Day = .56 x DD_d x 24
BTU/ft²/yr Total = Day + Night

Storm Window and Shutters (R = 8.62, U = .12)
BTU/ft²/yr Night = .12 x DD_c x 24
BTU/ft²/yr Day = .56 x DD_d x 24
BTU/ft²/yr Total = Day + Night

Storm Window and Film (R = 2.63, U = .38)
BTU/ft²/yr = .38 x DD_a x 24

Triple Glazing (R = 2.78, U = .36)
BTU/ft²/yr = .36 x DD_a x 24

Stage 3

Triple Glazing and Drapes (R = 3.15, U = .32)
BTU/ft²/yr Night = .32 x DD_c x 24
BTU/ft²/yr Day = .36 x DD_d x 24
BTU/ft²/yr Total = Day + Night

Triple Glazing and Shutters (R = 9.7, U = .10)
BTU/ft²/yr Night = .10 x DD_c x 24
BTU/ft²/yr Day = .36 x DD_d x 24
BTU/ft²/yr Total = Day + Night

Triple Glazing and Film (R = 3.58, U = .28)
BTU/ft²/yr = .28 x DD_a x 24

*NOTES:

DD_c = Degree Days during night at balance point of house.
DD_d = Degree Days during day at balance point of house.

DOORS

Existing 1-3/4" Solid Door (R = 2.18, U = .457)
BTU/ft²/yr = .457 x DD_a x 24

Storm Door (R = 3.23, U = .31)
BTU/ft²/yr = .31 x DD_a x 24

Existing Door + Wood Door (R = 5.04, U = .20)
BTU/ft²/yr = .20 x DD_a x 24

Insulating Door (R = 6, U = .17)
BTU/ft²/yr = .17 x DD_a x 24

ATTIC INSULATION

Attic Uninsulated (Outside Surface .17,
Asphalt Shingles .44, 3/4" Wood .94,
2 x 8 at 16" o.c. .93, Air Space .98,
2 x 8 at 16" o.c. .93, 1/2" Plaster .32,
Inside Surface .61 R = 5.3, U = .19)
BTU/ft²/yr = .19 x DD_a x 24

Attic R = 11 (R = 15.3, U = .065)
BTU/ft²/yr = .065 x DD_a x 24

Attic R = 19 (R = 22.59, U = .044)
BTU/ft²/yr = .044 x DD_a x 24

Attic R = 30 (R = 32.6, U = .031)
BTU/ft²/yr = .031 x DD_a x 24

Attic R = 38 (R = 40, U = .025)
BTU/ft²/yr = .025 x DD_a x 24

WALL INSULATION

Masonry Walls Uninsulated (R = 2.56, U = .39)
BTU/ft²/yr = .39 x DD_a x 24

Masonry Walls R = 11 (R = 12.6, U = .080)
BTU/ft²/yr = .080 x DD_a x 24

Frame Walls Uninsulated (R = 4.55, U = .22)
BTU/ft²/yr = .22 x DD_a x 24

Frame Walls R = 11 (R = 14.6, U = .069)
BTU/ft²/yr = .069 x DD_a x 24

Veneer Walls Uninsulated (Outside Surface .17 +
4" Brick .80 + Air Space .97 + 1/2" Plaster .32 +
Inside Surface .68 x R = 3.03, U = .33)
BTU/ft²/yr = .33 x DD_a x 24

Veneer Walls $R = 11$ ($R = 13$, $U = .077$)
 $\text{BTU}/\text{ft}^2/\text{yr} = .077 \times \text{DD}_a \times 24$

FIRST FLOOR INSULATION

Stage 1

Floor Uninsulated (Inside Surface .61,
3/4" Flooring .94, 2 x 8 at 16" o.c. .93,
Inside Surface .61, $R = 3.09$, $U = .32$)
 $\text{BTU}/\text{ft}^2/\text{yr} = .32 \times \text{DD}_e^* \times 24$

Floor $R = 19$ ($R = 20.38$, $U = .049$)
 $\text{BTU}/\text{ft}^2/\text{yr} = .049 \times \text{DD}_e \times 24$

Floor $R = 30$ ($R = 30.38$, $U = .033$)
 $\text{BTU}/\text{ft}^2/\text{yr} = .033 \times \text{DD}_e \times 24$

Floor Carpet ($R = 3.9$, $U = .26$)
 $\text{BTU}/\text{ft}^2/\text{yr} = .26 \times \text{DD}_e \times 24$

Stage 2

$R = 19 + \text{Carpet}$ ($R = 21.19$, $U = .047$)
 $\text{BTU}/\text{ft}^2/\text{yr} = 0.47 \times \text{DD}_e \times 24$

$R = 30 + \text{Carpet}$ ($R = 31.19$, $U = .032$)
 $\text{BTU}/\text{ft}^2/\text{yr} = .032 \times \text{DD}_e \times 24$

BASEMENT WALLS

Basement Walls Uninsulated Above Grade ($R = 1.28$, $U = .78$)
 $\text{BTU}/\text{ft}^2/\text{yr} = .78 \times \text{DD}_b^* \times 24$

Basement Walls Uninsulated 2'-0" Below Grade ($R = 4.99$, $U = .20$)
 $\text{BTU}/\text{ft}^2/\text{yr} = .20 \times \text{DD}_b \times 24$

Basement Walls Uninsulated 4'-0" Below Grade ($R = 6.98$, $U = .14$)
 $\text{BTU}/\text{ft}^2/\text{yr} = .14 \times \text{DD}_b \times 24$

Basement Walls Uninsulated 6'-0" Below Grade ($R = 8.77$, $U = .11$)

Basement Walls Insulated $R = 7$ Above Grade ($R = 8.28$, $U = .121$)

Basement Walls Insulated $R = 7$ 2'-0" Below Grade ($R = 11.98$, $U = .083$)

*NOTES:

DD_e = Degree Days between basement and living space = $(70^\circ - \text{average basement temperature}) \times \text{number of heating days at balance point of the house}$. (See table below for average basement temperature)

DD_b = Degree Days based on average temperature of basement. (See table below)

Basement Walls Insulated R = 7 4'-0" Below Grade (R = 13.98, U = .071)

Basement Walls Insulated R = 7 6'-0" Below Grade (R = 15.77, U = .063)

AVERAGE BASEMENT TEMPERATURE
DURING THE HEATING SEASON

Albuquerque, N.M.	57
Atlanta, Ga.	62
Charleston, S.C.	65
Chicago, Ill.	50
Colorado Springs, Colo.	49
Easton, Pa.	51
Fargo, N.D.	41
Los Angeles, Calif.	61
Miami, Fla.	76*
Minneapolis, Minn.	46
New Orleans, La.	69*
Oakland Calif.	56
Portland, Ma.	44
St. Louis, Mo.	56
Tacoma, Wash.	57
Washington, D.C.	56

*DD_p for average temperatures over 65°F has its degree days calculated using a base temperature of 65°F.

APPENDIX F

BUILDING MEASUREMENTS FOR THERMAL ANALYSIS

HOUSE NUMBER _____

DATA _____

Draw top view of house with
dimension on outside of walls
and height from grade to under-
side of roof in center of each
part. Give orientation of
house from compass.

SINGLE GLAZED WINDOWS

1.	Height	ft.,	Width	ft.,	Area	sq. ft.
2.	Height	ft.,	Width	ft.,	Area	sq. ft.
3.	Height	ft.,	Width	ft.,	Area	sq. ft.
4.	Height	ft.,	Width	ft.,	Area	sq. ft.
5.	Height	ft.,	Width	ft.,	Area	sq. ft.
6.	Height	ft.,	Width	ft.,	Area	sq. ft.
7.	Height	ft.,	Width	ft.,	Area	sq. ft.
8.	Height	ft.,	Width	ft.,	Area	sq. ft.
9.	Height	ft.,	Width	ft.,	Area	sq. ft.
10.	Height	ft.,	Width	ft.,	Area	sq. ft.
11.	Height	ft.,	Width	ft.,	Area	sq. ft.
12.	Height	ft.,	Width	ft.,	Area	sq. ft.
13.	Height	ft.,	Width	ft.,	Area	sq. ft.
14.	Height	ft.,	Width	ft.,	Area	sq. ft.
15.	Height	ft.,	Width	ft.,	Area	sq. ft.

STORM WINDOWS

1.	Height	ft.,	Width	ft.,	Area	sq. ft.
2.	Height	ft.,	Width	ft.,	Area	sq. ft.
3.	Height	ft.,	Width	ft.,	Area	sq. ft.
4.	Height	ft.,	Width	ft.,	Area	sq. ft.
5.	Height	ft.,	Width	ft.,	Area	sq. ft.
6.	Height	ft.,	Width	ft.,	Area	sq. ft.
7.	Height	ft.,	Width	ft.,	Area	sq. ft.
8.	Height	ft.,	Width	ft.,	Area	sq. ft.
9.	Height	ft.,	Width	ft.,	Area	sq. ft.
10.	Height	ft.,	Width	ft.,	Area	sq. ft.
11.	Height	ft.,	Width	ft.,	Area	sq. ft.
12.	Height	ft.,	Width	ft.,	Area	sq. ft.
13.	Height	ft.,	Width	ft.,	Area	sq. ft.
14.	Height	ft.,	Width	ft.,	Area	sq. ft.
15.	Height	ft.,	Width	ft.,	Area	sq. ft.

WOOD DOORS

1.	Height	ft.,	Width	ft.,	Area	sq. ft.
2.	Height	ft.,	Width	ft.,	Area	sq. ft.
3.	Height	ft.,	Width	ft.,	Area	sq. ft.
4.	Height	ft.,	Width	ft.,	Area	sq. ft.
5.	Height	ft.,	Width	ft.,	Area	sq. ft.

GLASS DOORS

1.	Height	ft.,	Width	ft.,	Area	sq. ft.
2.	Height	ft.,	Width	ft.,	Area	sq. ft.
3.	Height	ft.,	Width	ft.,	Area	sq. ft.
4.	Height	ft.,	Width	ft.,	Area	sq. ft.
5.	Height	ft.,	Width	ft.,	Area	sq. ft.

STORM DOORS + WOOD DOOR

1.	Height	ft.,	Width	ft.,	Area	sq. ft.
2.	Height	ft.,	Width	ft.,	Area	sq. ft.
3.	Height	ft.,	Width	ft.,	Area	sq. ft.
4.	Height	ft.,	Width	ft.,	Area	sq. ft.
5.	Height	ft.,	Width	ft.,	Area	sq. ft.

STORM DOOR + GLASS DOOR

1.	Height	ft.,	Width	ft.,	Area	sq. ft.
2.	Height	ft.,	Width	ft.,	Area	sq. ft.
3.	Height	ft.,	Width	ft.,	Area	sq. ft.
4.	Height	ft.,	Width	ft.,	Area	sq. ft.
5.	Height	ft.,	Width	ft.,	Area	sq. ft.

BROKEN GLASS & STRUCTURAL CRACKS

Area of broken glass and structural cracks in exterior surface

_____ sq. ft.

ATTIC VENT

Area of attic vent

_____ sq. ft.

WEATHERSTRIPPING

Number of weatherstripped doors _____

Number of unweatherstripped doors _____

Number of weatherstripped windows _____

Number of unweatherstripped windows _____

U-VALUE

Describe materials and their thickness in the following walls, layer by layer from inside to outside on a separate sheet of paper.

- Basement walls below grade
- Basement walls above grade
- Basement floor
- All exterior building walls
- First floor
- Attic floor
- Roof

VOLUME

Draw rough plan of each floor and give the volume of all spaces.

APPLIANCES

Number of refrigerators _____

Number of clothes washers _____

Number of clothes dryers _____

Number of dishwashers _____

Number of freezers _____

Number of television sets _____

Number of window air conditioners _____