historic structure report
volume 2: appendixes
august 1982

HERBERT HOOVER
11 CORE AREA BUILDINGS
NATIONAL HISTORIC SITE / IOWA

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ON MICROFILM
HISTORIC STRUCTURE REPORT
ELEVEN CORE AREA BUILDINGS
HERBERT HOOVER NATIONAL HISTORIC SITE
WEST BRANCH, CEDAR COUNTY, IOWA

Volume 2: Appendixes

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Des Moines

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APPENDIX A: ENERGY REVIEW STUDIES

The following calculations are to determine whether condensation will occur in walls where insulation is blown in and no vapor barrier is installed.

The wall was assumed to have a painted outside wall of siding and sheathing, insulation blown in between the studs (glass fiber, 3 1/2 inches thick), and a painted inside wall of lath and plaster. The following table lists thermal and moisture resistance:

<table>
<thead>
<tr>
<th>Material</th>
<th>Thermal Resistance Hr./Sq.Ft./°F.</th>
<th>Moisture Resistance Rep</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inside film</td>
<td>0.68</td>
<td>0</td>
</tr>
<tr>
<td>Paint &amp; plaster</td>
<td>0.41</td>
<td>1.0</td>
</tr>
<tr>
<td>Insulation</td>
<td>11.00</td>
<td>0.3</td>
</tr>
<tr>
<td>Paint, siding &amp; sheathing</td>
<td>1.00</td>
<td>0.5</td>
</tr>
<tr>
<td>Outside film</td>
<td>0.71</td>
<td>0</td>
</tr>
<tr>
<td>Total Resistance</td>
<td>13.26</td>
<td>1.53</td>
</tr>
</tbody>
</table>

Condensation would most likely occur on the inside surface of the outside wall. This plan shall be noted as X-X. Conditions were assumed as follows:

Indoor: 72° db 40% R.H.
- Vapor partial pressure .31" Hg
- Vapor saturated pressure .79" Hg.

Outdoor: -4° db 80% R.H.
- Vapor partial pressure .025" Hg
- Vapor saturated pressure .032" Hg

Resistance to wall X-X = 1.03 rep.

Vapor pressure drop to X-X = 0.31 - .044 = .266" Hg

Vapor flow to X-X = .266/1.03 = .258 grains/hr.sq.ft.

Resistance from X-X to outdoors = 0.5 rep.

Vapor pressure drop from X-X to outdoors = 0.044 - .025 = .019" Hg

Vapor flow to outdoors = .019/.5 = .038 grains/hr.sq.ft.

Condensation will occur at plan X-X at 0.22 grains/hr.sq.ft.
The following chart plots temperature and vapor pressure through the wall:

- **Temperature (°F)**
  - Platinum on lath: 68.6°
  - Insulation: 65.6°
  - Siding & sheathing: 2.7°
  - X: -3°

- **Vapor Pressure (in Hg)**
  - Saturation vapor pressure: 64.6 in
  - Vapor pressure for flow continuity: 0.022 in
  - X: 0.028 in
For no condensation to occur, resistance to X-X should be:

\[
\frac{0.31 - 0.044}{0.38} = 7.0
\]

To meet this resistance, a sheet of polyethylene 2 mils thick should be installed on the room side of the insulation.

These calculations, however, were based on the design point of -4° F outside temperature. This temperature, along with the corresponding condensation, may be equaled or exceeded only about 300 hours a year. In this case, it will be in the form of frost, which may accumulate until released over a short period with a rise in outdoor temperature. This may not be serious, as the condensation might be readily absorbed by the sheathing without excessive wetting.

In summary, condensation will occur if no vapor barrier is used. Over a period of time some damage is likely to occur, although this can be minimized by the use of a vapor barrier-type paint on the room side of the exterior walls. Note: 0.22 grains/hr.sq.ft. would equal about an ounce of water per day over 80 sq.ft. of wall surface. This would increase if the relative humidity was maintained at a higher level within the structure.

P.T. SMITH HOUSE (HS-2)

Type

A1 residential (1975 ASHRAE Standard 90-75)

Intended use by National Park Service: multiple-use assembly space and associated staff requirements.

Description

Existing historic edifice, two-story, with normal windows and doors. House has new foundation and partial basement. The loads were figured based on single-glazed windows, one-half of the walls with 3-1/2-inch loose insulation, 3 inches insulation in the attic.

Criteria from 1975 ASHRAE Standard for Locale

Winter design dry-bulb - 72° F., -4° F.

Summer design dry-bulb - 91° F., wet-bulb 77° F.

Degree days heating - 6,588

Cooling hours - 800
Degrees north latitude - 40
Existing gross floor area (excluding attic) - 1,369 sq.ft.
Existing gross volume (excluding attic) - 10,664 cu.ft.
Combined gross exposed wall area - 1,937 sq.ft.
Percentage of openings - 12.4
Existing combined wall transmittance (U°) - 0.325 Btu/sq.ft./hr./F.
Combined gross exposed roof/ceiling area (no openings) - 1,106 sq.ft.
Existing roof/ceiling transmittance - U° - 0.91 Btu/sq.ft./hr./F.
Existing floor over crawl space transmittance U° - .115 Btu/sq.ft./hr./F.

Requirements from Charts, ASHRAE 90-75
U° walls - - - - - 0.21 Btu/sq.ft./hr./F.

U° roof ceilings - - - - 0.05 Btu/sq.ft./hr./F.

U° floor over unheated spaces- - 0.08 Btu/sq.ft./hr./F.

Logical Procedures to Make this Building More Energy Efficient

Install 3-1/2-inch R-11 fiberglass batt insulation in all above-grade stud walls and install storm doors and windows which will give an overall U° - 0.181 Btu/sq.ft./hr./F.

Add mineral wool or fiberglass insulation in the attic to bring the total depth to about 8 inches. U° - 0.045 Btu/sq.ft./hr./F.

Add 1 inch of styrofoam to the perimeter of the crawl space which will give an overall U° - 0.079 Btu/sq.ft./hr./F.

HANNAH VARNEY HOUSE (HS-4)

Type
A1 residential (1975 ASHRAE Standard 90-75)
Intended use by National Park Service: Residence
Description

Existing historic edifice, one-story, with minimal windows and doors. House was set on a new foundation with full basement in 1967. The loads were figured based on single-glazed windows with storm sash (except basement). Anticipate developing existing attic space into two bedrooms to within approximately 3 feet 9 inches of exterior walls.

Criteria from 1975 ASHRAE Standard for Locale

Winter design dry-bulb - 72°F, -4°F.
Summer design dry-bulb - 91°F.; wet-bulb 77°F.
Degree days heating - 6,588
Cooling hours - 800
Degrees north latitude - 40
Existing gross floor area (excluding attic) - 1,540 sq.ft.
Existing gross volume (excluding attic) - 12,920 cu.ft.
Proposed gross floor area - 1,875 sq.ft.
Proposed gross volume area - 16,330 cu.ft.
Combined gross exposed wall area - 1,812 sq.ft.
Percentage of openings - 5.8
Existing combined wall transmittance - U° - 0.317 Btu/sq.ft./hr./F.
Combined gross exposed roof/ceiling area (no openings) - 895 sq.ft.
Existing combined roof/ceilings transmittance - U° - 0.309 Btu/sq.ft./hr./F.

Requirements from Charts, ASHRAE 90-75

U° walls - - - - - - - 0.21 Btu/sq.ft./hr./F.
U° roof/ceiling - - - - - - 0.05 Btu/sq.ft./hr./F.
U° floors over unheated spaces - - 0.08 Btu/sq.ft./hr./F.

Logical Procedures to Make this Building More Energy Efficient

Above second-floor line, fill all exterior stud walls, rafters, and ceiling joists with R-11 fiberglass batt insulation.
Above second-floor line, apply 1-inch-thick plaster-base polystyrene boards (R = 4.00) to inner surface of wall and ceiling framing.

Install storm windows where they do not now exist; except in the basement.

Resulting transmittances:
New wall - U° - 0.191 Btu/sq.ft./hr./F.
New ceiling/roof - U° - 0.057 Btu/sq.ft./hr./F.

DR. L.J. LEECH HOUSE (HS-5)

Type
A1 residential (1975 ASHRAE Standard 90-75)

Intended use by National Park Service: Residence

Description
Existing historic edifice, two-story, with normal windows and doors. House has a full basement with enclosed crawl space under front porch. The loads were figured based on single-glazed windows with storm sash throughout, one-half of the walls with 3-1/2-inch loose insulation and 4-inch insulation in the attic.

Criteria from 1975 ASHRAE Standard for Locale
Winter design dry-bulb - 72° F., -4° F.
Summer design dry-bulb - 91° F.; wet-bulb 77° F.
Degree days heating - 6,588
Cooling hours - 800
Degrees north latitude - 40
Existing gross floor area (excluding attic) - 2,263.5 sq.ft.
Existing gross volume (excluding attic) - 19,008 cu.ft.
Combined gross exposed wall area - 2,022 sq.ft.
Percentage of openings - 12.5
Existing combined wall transmittance - U° - .27 Btu/sq.ft./hr./F.
Combined gross exposed roof/ceiling area (no openings) - 1,167 sq.ft.

Existing roof/ceiling transmittance - $U^o$ - 0.21 Btu/sq.ft./hr./F.

Existing area over crawl space - 140 sq.ft.

Existing floor over crawl space transmittance - $U^o$ - 0.115 Btu/sq.ft./hr./F.

Requirements From Charts, ASHRAE 90-75

- $U^o$ walls - - - - - - - 0.21 Btu/sq.ft./hr./F.
- $U^o$ roof/ceilings - - - - - - 0.05 Btu/sq.ft./hr./F.
- $U^o$ floor over unheated spaces - - - 0.08 Btu/sq.ft./hr./F.

Logical Procedures to Make This Building More Energy Efficient

Blow in mineral wool or fiberglass insulation in sloped roof spaces (3 1/2 inches) and provide a total of 8-inch mineral wool or fiberglass insulation on flat roof area, overall $U^o$ - .064. This does not meet ASHRAE requirements, but because of the large area of sloped roofs more insulation cannot be easily added. However, the new factor will result in savings of more than 20 percent.

Add 1-inch Styrofoam around perimeter of crawl space, resulting in a $U^o$ of .078 Btu/sq.ft./hr./F.

LABAN MILES HOUSE (HS-6)

Type

A1 residential (1975 ASHRAE Standard 90-75)

Intended use by National Park Service: Offices for the Historic Site Interpretation Division

Description

Existing historic edifice, two-story, with normal windows and doors. House has new foundation with full basement. The loads were figured based on single-glazed windows with storm sash (except basement).

Criteria from 1975 ASHRAE Standard for Locale

Winter design dry-bulb - 72° F., -4° F.
Summer design dry-bulb - 91° F., wet-bulb 77° F.
Degree days heating - 6,588
Cooling hours - 800
Degrees north latitude - 40
Existing gross floor area (excluding attic) - 2,636.9 sq.ft.
Existing gross volume (excluding attic) - 21,021 cu.ft.
Combined gross exposed wall area - 3,096 sq.ft.
Percentage of openings - 13.5
Existing combined wall transmittance - U° - 0.34 Btu/sq.ft./hr./F.
Combined gross exposed roof/ceiling area (no openings) - 1,155 sq.ft.
Existing roof/ceiling transmittance - U° - .256 Btu/sq.ft./hr./F.

Requirements from Charts, ASHRAE 90-75

U° walls - - - - - - 0.21 Btu/sq.ft./hr./F.
U° roof/ceiling - - - - - - 0.05 Btu/sq.ft./hr./F.

Logical Procedures to Make this Building More Energy Efficient

Install 3-1/2-inch R-11 fiberglass batt insulation in all above-grade stud walls and add 3/4-inch Styrofoam insulation to the basement walls, giving an overall U° of 0.178 Btu/sq.ft./hr./F.

Install R-19 fiberglass batt insulation in attic floor giving U° of 0.043 Btu/sq.ft./hr./F.

AMANDA GARVIN HOUSE (HS-7)

Type
A1 residential (1975 ASHRAE Standard 90-75)

Intended use by National Park Service: Offices and curatorial storage space.

Description
Existing historic edifice, two-story, with minimal windows and doors. House has a new foundation and partial basement. The loads were
Sloped second-floor ceiling has 2x4 framing; apply R-11 fiberglass batts and install R-22 type fiberglass batt insulation to all horizontal portions, giving U° of .048 Btu/sq.ft./hr./F.

C.E. SMITH HOUSE (HS-8)

Type

A1 residential (1975 ASHRAE Standard 90-75)

Intended use by National Park Service: Residence

Description

Existing historic edifice, two-story, with minimal windows and doors. House has new foundation and full basement. The loads were figured based on single-glazed windows with storm sash. Complete removal of existing lath and plaster and replacement using gypsum lath and plaster anticipated.

Criteria from 1975 ASHRAE Standard for Locale

Winter design dry-bulb - 72° F., -4° F.

Summer design dry-bulb - 91° F., wet-bulb 77° F.

Degree days heating - 6,588

Cooling hours - 800

Degrees north latitude - 40

Gross floor area - 2,360 sq.ft., basement - 872 sq.ft.

Gross volume (excluding attic) - 20,135 cu.ft., basement - 6,975 cu.ft.

Combined gross exposed wall area - 2,610 sq.ft.

Percentage of openings - 9.8

Existing combined wall transmittance - U° - 0.318 Btu/sq.ft./hr./F.

Gross exposed roof/ceiling area (no openings) - 965 sq.ft.

Existing combined roof/ceiling transmittance - U° - 0.294 Btu/sq.ft./hr./F.
figured based on single-glazed windows with storm sash, 1 inch Styrofoam insulation around perimeter of crawl space. Complete removal of existing lath and plaster and replacement using gypsum lath and plaster anticipated.

Criteria from 1975 ASHRAE Standard for Locale

Winter design dry-bulb - 72\(^o\) F., -4\(^o\) F.

Summer design dry-bulb - 91\(^o\) F., wet-bulb 77\(^o\) F.

Degree days heating - 6,588

Cooling hours - 800

Degrees north latitude - 40

Gross floor area - 887 sq.ft., basement - 155 sq.ft.

Gross volume (excluding attic) - 6,948 cu.ft., basement - 1,240 cu.ft.

Combined gross exposed wall area - 1,742 sq.ft.

Percentage of openings - 12.1

Existing combined wall transmittance - \(U^o\) - 0.292 Btu/sq.ft./hr./F. 
\((14.6\% \times 0.28 \times 73.2\% \times .23 \times 12.2\% \times .68)\). Includes existing storm windows and below-grade basement walls

Gross exposed roof/ceiling area (no openings) - 707 sq.ft.

Existing combined roof/ceiling transmittance - \(U^o\) - 0.256 Btu/sq.ft./hr./F.

Existing floor over crawl space transmittance - \(U^o\) - 0.058 Btu/sq.ft./hr./F.

Requisirments From Charts, ASHRAE 90-75

\(U^o\) walls - - - - - - - - 0.21 Btu/sq.ft./hr./F.

\(U^o\) roof/ceiling - - - - - - - - 0.05 Btu/sq.ft./hr./F.

\(U^o\) floors over unheated spaces - - - 0.08 Btu/sq.ft./hr./F.

Logical Procedures to Make This Building More Energy Efficient

Install R-11 fiberglass batt insulation in cavities at all exterior stud walls giving \(U^o\) of .176 Btu/sq.ft./hr./F.
Requirments From Charts, ASHRAE 90-75

U° walls - - - - - 0.21 Btu/sq.ft./hr./F.
U° roof/ceiling - - - - - 0.05 Btu/sq.ft./hr./F.
U° floors over unheated spaces - - 0.08 Btu/sq.ft./hr./F.

Logical Procedures to Make This Building More Energy Efficient

Install R-11 fiberglass batt insulation in cavities at all exterior stud walls, giving U° of 0.213 Btu/sq.ft./hr./F.

Sloped second-floor ceiling has 2- by 4-inch framing; apply R-11 fiberglass batts and install R-22 fiberglass batts to all horizontal portions giving U° of 0.072 Btu/sq.ft./hr./F.

If better transmittances are desired, basement walls should be insulated, and ceiling resistance should be increased.

JAMES STAPLES HOUSE (HS-9)

Type

A1 residential (1975 ASHRAE Standard 90-75)

Intended use by National Park Service: Residence

Description

Existing historic edifice, two-story, with normal windows and doors. House has full basement under main portion of house and crawl space under west additions. The loads were figured based on single-glazed windows with storm sash, storm doors, 3-1/2-inch insulation in one-half of the walls and 3-inch insulation in the attic.

Criteria from 1975 ASHRAE Standard for Locale

Winter design dry-bulb - 72° F., -4° F.
Summer design dry-bulb - 91° F., wet-bulb 77° F.
Degree days heating - 6,588
Cooling hours - 800
Degrees north latitude - 40
Existing gross floor area (excluding attic and porch) - 1,965 sq.ft.
Existing gross volume (excluding attic and porch) - 17,222 cu.ft.
Combined gross exposed wall area - 2,478 sq.ft.
Percentage of openings - 11.8
Existing combined wall transmittance - U^o - 0.28 Btu/sq.ft./hr./F.
Combined gross exposed roof/ceiling area (no openings) - 1,050 sq.ft.
Existing roof/ceiling transmittance - U^o - .091 Btu/sq.ft./hr./F.
Existing floor over crawl space area - 248 sq.ft.
Existing floor over crawl space transmittance - U^o - 0.21 Btu/sq.ft./hr./F.

Requirements From Charts, ASHRAE 90-75
U^o walls - - - - - - 0.21 Btu/sq.ft./hr./F.
U^o roof/ceiling - - - - - - 0.05 Btu/sq.ft./hr./F.
U^o floors over crawl space - - - - 0.08 Btu/sq.ft./hr./F.

Logical Procedures to Make This Building More Energy Efficient
Blow in mineral wool or fiberglass insulation in sloped roof spaces (3-1/2 inches) and provide additional mineral wool or fiberglass insulation to total 8 inches on flat ceilings. Overall U^o of .0336 Btu/sq.ft./hr./F.

Add 2-inch Styrofoam beneath floor over crawl space resulting in a U^o of .078 Btu/sq.ft./hr./F.

E.S. HAYHURST HOUSE (HS-10)

Type
A1 residential (1975 ASHRAE Standard 90-75)

Intended use by National Park Service: Residence

Description
Existing historic edifice, two-story, with normal windows and doors. House has a small basement; most of the first-floor area is over a crawl space. The loads were figured based on single-glazed windows with storm sash, 3-1/2-inch loose insulation in one-half the walls and 3-inch insulation in the attic.
Criteria from 1975 ASHRAE Standard for Locale

Winter design dry-bulb - 72° F., -4° F.
Summer design dry-bulb - 91° F., wet-bulb 77° F.
Degree days heating - 6,588
Cooling hours - 800
Degrees north latitude - 40
Existing gross floor area (excluding attic, porch, and garage) - 1,687 sq.ft.
Existing gross volume area (excluding attic) - 13,177 cu.ft.
Combined gross exposed wall area - 1,989 sq.ft.
Percentage of openings - 14.6
Existing combined wall transmittance - U° - 0.213 Btu/sq.ft./hr./F.
Combined gross exposed roof/ceiling area (no openings) - 1,058 sq.ft.
Existing roof/ceiling transmittance - U° - .091 Btu/sq.ft./hr./F.
Existing floor area over crawl space - 760 sq.ft.
Existing floor over crawl space transmittance - 0.21 Btu/sq.ft./hr./F.

Requirements From Charts, ASHRAE 90-75

U° walls - - - - - - 0.21 Btu/sq.ft./hr./F.
U° roof/ceiling - - - - - - 0.05 Btu/sq.ft./hr./F.
U° floors over unheated spaces - - - - - - 0.08 Btu/sq.ft./hr./F.

Logical Procedures to Make This Building More Energy Efficient

Install 3 1/2-inch mineral wool or fiberglass insulation in sloped ceilings and 8-inch mineral wool or fiberglass in flat ceilings, giving U° of .0489 Btu/sq.ft./hr./F.

Install 1-inch Styrofoam around perimeter of crawl space, resulting in U° of 0.07 Btu/sq.ft./hr./F.
ISAAC MILES FARMHOUSE (HS-11)

Type

A1 residential (1975 ASHRAE Standard 90-75)

Intended use by National Park Service: Residence

Description

Existing historic edifice, two-story, with normal windows and doors. House has full basement. The loads were figured based on single-glazed windows with storm sash, 3½-inch insulation in one-half the walls and 3-inch insulation in the attic.

Criteria from 1975 ASHRAE Standard for Locale

Winter design dry-bulb - 72°F, -4°F.

Summer design dry-bulb - 91°F, wet-bulb 77°F.

Degree days heating - 6,588

Cooling hours - 800

Degrees north latitude - 40

Existing gross floor area (excluding porch and attic) - 2,247 sq.ft.

Existing gross volume (excluding porch and attic) - 18,605 cu.ft.

Combined gross exposed wall area - 2,364 sq.ft.

Percentage of openings - 11.1

Existing combined wall transmittance - U° - 0.26 Btu/sq.ft./hr./F.

Combined gross exposed roof/ceiling area - 1,146 sq.ft.

Existing roof/ceiling transmittance - U° - .091 Btu/sq.ft./hr./F.

Requirements From Charts, ASHRAE 90-75

\[
\begin{align*}
\text{U° walls} & \quad - \quad - \quad - \quad - \quad - \quad - \quad 0.21 \text{ Btu/sq.ft./hr./F.} \\
\text{U° roof/ceiling} & \quad - \quad - \quad - \quad - \quad - \quad - \quad 0.05 \text{ Btu/sq.ft./hr./F.}
\end{align*}
\]
Logical Procedure to Make This Building More Energy Efficient

Install 3\(\frac{1}{2}\)-inch mineral wool or fiberglass insulation in sloped ceilings and 8-inch mineral wool or fiberglass in flat ceilings, giving \(U^o\) of .059 Btu/sq.ft./hr./F.

This does not quite meet ASHRAE requirements, but space in sloped roof is limited to 3\(\frac{1}{2}\)-inch insulation and is 80 percent of the total roof area.

**DAVID MACKEY HOUSE (HS-18)**

**Type**

A1 residential (1975 ASHRAE Standard 90-75)

Intended use by National Park Service: Residence

**Description**

Existing historic edifice, two-story, with minimal windows and doors. House has a small basement, and most of the first-floor area is over a crawl space. The loads were figured based on single-glazed windows, and certain elements of concealed construction were assumed (realistically).

**Criteria From 1975 ASHRAE Standard for Locale**

Winter design dry-bulb - 72° F., -4° F.

Summer design dry-bulb - 91° F., wet-bulb 77° F.

Degree days heating - 6,588

Cooling hours - 800

Degrees north latitude - 40

Gross floor area (excluding basement) - 940 sq.ft.

Gross volume (excluding basement and attic) - 8,140 cu.ft.

Floor area over crawl space (present) - 398 sq.ft.

Combined gross exposed wall area - 1,512 sq.ft.

Percentage of openings - 10.8

Existing combined wall transmittance - \(U^o\) - 0.353 Btu/sq.ft./hr./F.
Add storms - $U^\circ = 0.308$

Combined gross exposed roof/ceiling area (no openings) - 606 sq.ft.

Existing combined roof/ceiling transmittance - $U^\circ = 0.295$
Btu/sq.ft./hr./F.

Existing floor over crawl space transmittance - $U^\circ = 0.198$
Btu/sq.ft./hr./F.

Requirements From Charts, ASHRAE 90-75

$U^\circ$ walls - - - - - - - 0.21 Btu/sq.ft./hr./F.

$U^\circ$ roof/ceiling - - - - - - - 0.05 Btu/sq.ft./hr./F.

$U^\circ$ floors over unheated spaces - - - 0.08 Btu/sq.ft./hr./F.

Note: There will be no crawl space remaining.

Logical Procedures to Make This Building More Energy Efficient

Sloped second-floor ceiling has 2- by 4-inch framing; blow in R-11 mineral wool or fiberglass. Install R-22 mineral wool or fiberglass insulation in all horizontal portions, giving $U^\circ$ of 0.072 Btu/sq.ft./hr./F.

WILLIAM WRIGHT HOUSE (HS-19)

Type

A1 residential (1975 ASHRAE Standard 90-75)

Intended use by National Park Service: Residence

Description

Existing historic edifice, two-story, with normal windows and doors. House has full basement under main portion of house, with crawl space under northwest addition. The loads were figured based on single-glazed windows, 3½-inch insulation in half the walls and 3-inch insulation in attic. It is anticipated that several windows and doors will change, and that some areas will be remodeled.

Criteria From 1975 ASHRAE Standard for Locale

Winter design dry-bulb - 72° F., -4° F.
Summer design dry-bulb - 91° F., wet-bulb 77° F.
Degree days heating - 6,588
Cooling hours - 800
Degrees north latitude - 40
Existing gross floor area (excluding porch and attic) - 1,488 sq.ft.
Existing gross volume (excluding porch and attic) - 11,190 cu.ft.
Combined gross exposed wall area - 1,644.5 sq.ft.
Percentage of openings - 12
Existing combined wall transmittance - $U^o = 0.275\ \text{Btu/sq.ft./hr./F.}$
Combined gross exposed roof/ceiling area - 530 sq.ft.
Existing combined roof/ceiling transmittance - $U^o = 0.091\ \text{Btu/sq.ft./hr./F.}$
Area over crawl space - 182 sq.ft.
Floor transmittance - $U^o = 0.21\ \text{Btu/sq.ft./hr./F.}$

Requirements From Charts, ASHRAE 90-75

$U^o$ walls - - - - - - - 0.21 Btu/sq.ft./hr./F.
$U^o$ roof/ceiling - - - - - - - 0.05 Btu/sq.ft./hr./F.
$U^o$ over crawl space - - - - - 0.08 Btu/sq.ft./hr./F.

Logical Procedures to Make This Building More Energy Efficient

Blow in 3½-inch mineral wool or fiberglass insulation in sloped ceilings and 8-inch mineral wool or fiberglass insulation in the flat ceilings, giving $U^o$ of 0.53 Btu/sq.ft./hr./F.

Install 1-inch Styrofoam insulation around perimeter of crawl space, giving $U^o$ of 0.07 Btu/sq.ft./hr./F.

Remodeling will decrease openings to 10.5 percent of gross wall area, resulting in $U^o$ of 0.268 Btu/sq.ft./hr./F.
APPENDIX B: CLASS "A" COST ESTIMATES

The following estimated costs are based upon unit prices assessed to first half of 1981 construction economy, and each amount includes an assumed charge of 10 percent for overhead, 10 percent for profit, and 1 percent for bond.

RELOCATE GAS METERS INTO OUTBUILDINGS IN GROUPS WHERE POSSIBLE. See preliminary design site plan for locations.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>HS-4</td>
<td>Hannah Varney</td>
</tr>
<tr>
<td>HS-5</td>
<td>Dr. L.J. Leech</td>
</tr>
<tr>
<td>HS-6</td>
<td>Laban Miles</td>
</tr>
<tr>
<td></td>
<td>$2,926</td>
</tr>
<tr>
<td></td>
<td>2,100</td>
</tr>
<tr>
<td></td>
<td>924</td>
</tr>
<tr>
<td></td>
<td>Group 1 $5,950</td>
</tr>
<tr>
<td>HS-7</td>
<td>Amanda Garvin</td>
</tr>
<tr>
<td>HS-8</td>
<td>C.E. Smith</td>
</tr>
<tr>
<td>HS-18</td>
<td>David Mackey</td>
</tr>
<tr>
<td></td>
<td>$ 924</td>
</tr>
<tr>
<td></td>
<td>1,162</td>
</tr>
<tr>
<td></td>
<td>1,288</td>
</tr>
<tr>
<td></td>
<td>Group 2 $3,374</td>
</tr>
<tr>
<td>HS-9</td>
<td>James Staples</td>
</tr>
<tr>
<td>HS-10</td>
<td>E.S. Hayhurst</td>
</tr>
<tr>
<td>HS-19</td>
<td>William Wright</td>
</tr>
<tr>
<td></td>
<td>$2,100</td>
</tr>
<tr>
<td></td>
<td>1,050</td>
</tr>
<tr>
<td></td>
<td>1,512</td>
</tr>
<tr>
<td></td>
<td>Group 3 $4,662</td>
</tr>
<tr>
<td>HS-2</td>
<td>P.T. Smith</td>
</tr>
<tr>
<td>HS-11</td>
<td>Isaac Miles</td>
</tr>
<tr>
<td></td>
<td>$ 1,400</td>
</tr>
<tr>
<td></td>
<td>$ 1,162</td>
</tr>
<tr>
<td></td>
<td>TOTAL COST $16,548</td>
</tr>
</tbody>
</table>
## PACKAGE ESTIMATING DETAIL

### REGION

<table>
<thead>
<tr>
<th>PACKAGE NUMBER</th>
<th>PACKAGE TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(If more space is needed, use plain paper and attach)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>1981</th>
<th>1985</th>
</tr>
</thead>
<tbody>
<tr>
<td>P. T. Smith House (HS-2)</td>
<td>$65,314.00</td>
<td>$97,971.00</td>
</tr>
<tr>
<td>Hannah Varney House (HS-4)</td>
<td>30,824.00</td>
<td>46,236.00</td>
</tr>
<tr>
<td>Dr. L. J. Leech House (HS-5)</td>
<td>10,508.00</td>
<td>15,762.00</td>
</tr>
<tr>
<td>Laban Miles House (HS-6)</td>
<td>103,367.00</td>
<td>155,051.00</td>
</tr>
<tr>
<td>Amanda Garvin House (HS-7)</td>
<td>53,117.00</td>
<td>79,676.00</td>
</tr>
<tr>
<td>C. E. Smith House (HS-8)</td>
<td>67,756.00</td>
<td>101,634.00</td>
</tr>
<tr>
<td>James Staples House (HS-9)</td>
<td>35,627.00</td>
<td>53,440.00</td>
</tr>
<tr>
<td>E. S. Hayhurst House (HS-10)</td>
<td>55,593.00</td>
<td>83,390.00</td>
</tr>
<tr>
<td>Isaac Miles Farmhouse (HS-11)</td>
<td>49,114.00</td>
<td>73,671.00</td>
</tr>
<tr>
<td>David Mackey House (HS-18)</td>
<td>48,585.00</td>
<td>72,878.00</td>
</tr>
<tr>
<td>William Wright House (HS-19)</td>
<td>20,039.00</td>
<td>30,059.00</td>
</tr>
</tbody>
</table>

**TOTAL ESTIMATED COSTS**

$539,844.00       $809,767.00

**RELOCATE GAS METERS**

$16,548.00        $24,822.00

**NOTE:** Detailed unit/cost estimates by A/E are available from D.S.C. Professional Support Estimating Branch files.

THE ABOVE COST ESTIMATE IS VALID THROUGH SEPTEMBER 30, 1985

R. BORRAS/F. NIETO  2/82

### SUMMARY OF CONSTRUCTION ESTIMATES

<table>
<thead>
<tr>
<th>Proj. Type</th>
<th>Class of Estimate</th>
<th>Totals from Above</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Working Drawings</td>
<td>B &amp; U</td>
</tr>
<tr>
<td>52</td>
<td>Museum Exhibits</td>
<td>XXXXXXX</td>
</tr>
<tr>
<td>55</td>
<td>Wayside Exhibits</td>
<td>XXXXXXX</td>
</tr>
<tr>
<td>62</td>
<td>Audio-Visual</td>
<td>XXXXXXX</td>
</tr>
<tr>
<td>89</td>
<td>Ruins Stabilization</td>
<td>XXXXXXX</td>
</tr>
<tr>
<td>91</td>
<td>Construction</td>
<td>XXXXXXX</td>
</tr>
<tr>
<td>92</td>
<td>Utility Contracts</td>
<td>XXXXXXX</td>
</tr>
</tbody>
</table>
APPENDIX C: ORIGINAL PAINT COLORS

GENERAL

The physical samples vary in size from 1/4 to 1/2 inch wide, 1/2 to 2 inches long, and 1/16- to 1/4-inch thick. In all instances the samples contain original end grain.

PREPARATION

Each sample was examined under low power magnification to determine the easiest portion for preparation. The paint samples were sanded with fine sandpaper at a low angle to exaggerate the width of the paint layer. On some samples, if the original layer was indistinct, a portion of the wood substrate was removed to expose longitudinal wood fibers embedded in paint.

EXAMINATION

The paint layers were examined under 16X power to distinguish the number of layers and the extent of dirt film buildup between layers. This had two purposes: to carefully determine original finish coat, and to verify that the sequence selected was completed.

The chronology of paint layers, and the thickness of paint or dirt layers, was not determined. However, by examining paint areas that were always protected, changes due to dirt filtering or other atmospheric contamination are minimized.

By using a 16X Anco magnifying glass, the shade was determined by comparing all colors adjacent to the estimated color shade. By process of elimination the closest color was selected.

COLOR REFERENCE

The sample colors were compared to Iowa Paint's Colortrend - Exceptionale, Architect's Color Selection, Iowa Paint Manufacturing Co., Inc., 17th and Grand, Des Moines, Iowa 50309.

Original paint colors for nonextant architectural features (such as window sash, storm windows and doors, screens, shutters, and porch posts and railings) cannot be determined accurately from black-and-white historic photographs, although shades of light and dark values relative to known historic colors can be determined.
Therefore, appropriate colors of similar relative value have been selected from architectural source books of, and referring to, the historic period.* Colors selected in this manner are so designated in the remarks column of the color schedule, which follows.

<table>
<thead>
<tr>
<th>House</th>
<th>Number of Paint Samples</th>
<th>Location</th>
<th>Iowa Paint Designation</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>P.T. Smith (HS-2)</td>
<td>6</td>
<td>Clapboards</td>
<td>2-10M</td>
<td>Original</td>
</tr>
<tr>
<td>P.T. Smith (HS-2)</td>
<td>6</td>
<td>Tongue-and-groove siding at front porch</td>
<td>2-10M</td>
<td>Note 1 - Hue determination from photographs</td>
</tr>
<tr>
<td>P.T. Smith (HS-2)</td>
<td>12</td>
<td>Trim (window, fascia, soffit, cove, molding)</td>
<td>2-19P</td>
<td>Original - Note 2</td>
</tr>
<tr>
<td>P.T. Smith (HS-2)</td>
<td>4</td>
<td>Window sash</td>
<td>brown-black</td>
<td>Original</td>
</tr>
<tr>
<td>P.T. Smith (HS-2)</td>
<td>10</td>
<td>Storms, shutters, and storm doors</td>
<td>brown-black</td>
<td>Hue determination from photographs and references</td>
</tr>
<tr>
<td>P.T. Smith (HS-2)</td>
<td>3</td>
<td>Porch ceiling</td>
<td>2-10M</td>
<td>Original. Some evidence of paint removal</td>
</tr>
<tr>
<td>P.T. Smith (HS-2)</td>
<td>3</td>
<td>Porch floor</td>
<td>44-24D</td>
<td>Hue determination from photographs</td>
</tr>
<tr>
<td>H. Varney (HS-4)</td>
<td>2</td>
<td>Clapboards</td>
<td>4-16M</td>
<td>Original. Note 2</td>
</tr>
<tr>
<td>H. Varney (HS-4)</td>
<td>10</td>
<td>Trim, cornice, bottom porch rail, part of columns, and spindle detail at ceiling</td>
<td>57-6U</td>
<td></td>
</tr>
<tr>
<td>H. Varney (HS-4)</td>
<td>15</td>
<td>Top porch rail, balusters, part of columns, and ceiling</td>
<td>4-16M</td>
<td>Original</td>
</tr>
<tr>
<td>H. Varney (HS-4)</td>
<td>15</td>
<td>Porch floor</td>
<td>4-16M</td>
<td>Hue determination from photographs</td>
</tr>
<tr>
<td>H. Varney (HS-4)</td>
<td>15</td>
<td>Window sash, storms, screens, and storm doors</td>
<td>57-6U</td>
<td>Hue determination from photographs</td>
</tr>
<tr>
<td>Dr. Leech (HS-5)</td>
<td>2</td>
<td>Clapboards</td>
<td>47-7P or 47-8P</td>
<td>Original</td>
</tr>
<tr>
<td>Dr. Leech (HS-5)</td>
<td>2</td>
<td>Window trim and sash</td>
<td>47-7P or 47-8P</td>
<td>Original</td>
</tr>
<tr>
<td>Dr. Leech (HS-5)</td>
<td>11</td>
<td>Cornice behind gutter, top and bottom rail of porch, column base, and porch floor</td>
<td>47-5M</td>
<td>Original</td>
</tr>
<tr>
<td>Dr. Leech (HS-5)</td>
<td>6</td>
<td>Balusters, soffit, and fascia</td>
<td>47-3M</td>
<td>Original</td>
</tr>
<tr>
<td>Dr. Leech (HS-5)</td>
<td>2</td>
<td>Porch ceiling</td>
<td>47-7P</td>
<td>Original - 4-13P may be prime coat</td>
</tr>
<tr>
<td>Dr. Leech (HS-5)</td>
<td>2</td>
<td>Window screens, storms, and storm doors</td>
<td>black</td>
<td>Hue determination from photographs</td>
</tr>
<tr>
<td>Dr. Leech (HS-5)</td>
<td>2</td>
<td>Porch floor</td>
<td>47-5M</td>
<td>Hue determination from photographs</td>
</tr>
<tr>
<td>House</td>
<td>Number of Paint Samples</td>
<td>Location</td>
<td>Iowa Paint Designation</td>
<td>Remarks</td>
</tr>
<tr>
<td>------------------</td>
<td>-------------------------</td>
<td>--------------------------------------------------------------------------</td>
<td>------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>L. Miles (HS-6)</td>
<td>10</td>
<td>Clapboards</td>
<td>5-10M</td>
<td>Original</td>
</tr>
<tr>
<td>L. Miles (HS-6)</td>
<td>21</td>
<td>Accents--window eyebrow, window sash</td>
<td>57-1U</td>
<td>Original - after 1890 photograph</td>
</tr>
<tr>
<td>L. Miles (HS-6)</td>
<td></td>
<td>Window sash, screens, storms, and storm doors</td>
<td>57-1U</td>
<td>Hue determination from photographs</td>
</tr>
<tr>
<td>L. Miles (HS-6)</td>
<td></td>
<td>Shutters</td>
<td>5-10M</td>
<td>Hue determination from photographs</td>
</tr>
<tr>
<td>A. Garvin (HS-7)</td>
<td>7</td>
<td>Clapboards</td>
<td>4-15M</td>
<td>Original</td>
</tr>
<tr>
<td>A. Garvin (HS-7)</td>
<td></td>
<td>Trim</td>
<td>4-15M</td>
<td>Original</td>
</tr>
<tr>
<td>A. Garvin (HS-7)</td>
<td>10</td>
<td>Clapboards, large flying brackets of porch, and parts of porch posts</td>
<td>4-15M</td>
<td>Recommended: Colors at time front porch was built, ca. 1888</td>
</tr>
<tr>
<td>A. Garvin (HS-7)</td>
<td>1</td>
<td>Cornice work, window trim, corner trim, and porch</td>
<td>57-2U</td>
<td>Ca. 1888</td>
</tr>
<tr>
<td>A. Garvin (HS-7)</td>
<td>1</td>
<td>Porch ceiling</td>
<td>44-2P</td>
<td>Ca. 1888</td>
</tr>
<tr>
<td>A. Garvin (HS-7)</td>
<td>1</td>
<td>Porch floor</td>
<td>43-23M</td>
<td>Hue determination from photographs</td>
</tr>
<tr>
<td>A. Garvin (HS-7)</td>
<td>2</td>
<td>Front door</td>
<td>black</td>
<td>Original</td>
</tr>
<tr>
<td>A. Garvin (HS-7)</td>
<td>10</td>
<td>Window sash, screens, storms</td>
<td>4-15M</td>
<td>Hue determination from photographs</td>
</tr>
<tr>
<td>C.E. Smith (HS-8)</td>
<td>2</td>
<td>Clapboards</td>
<td>4-16M</td>
<td>Original</td>
</tr>
<tr>
<td>C.E. Smith (HS-8)</td>
<td>14</td>
<td>Trim</td>
<td>4-19P</td>
<td>Original</td>
</tr>
<tr>
<td>C.E. Smith (HS-8)</td>
<td>5</td>
<td>Shingles at gable</td>
<td>36-5M</td>
<td>Original</td>
</tr>
<tr>
<td>C.E. Smith (HS-8)</td>
<td>5</td>
<td>Porch floor, balusters, and brackets</td>
<td>44-24D</td>
<td>Also this color used for other various trim pieces as shown in 1909 photograph</td>
</tr>
<tr>
<td>C.E. Smith (HS-8)</td>
<td>4</td>
<td>Porch ceiling, sash</td>
<td>4-16M</td>
<td>Original</td>
</tr>
<tr>
<td>C.E. Smith (HS-8)</td>
<td>1</td>
<td>Screens and storms</td>
<td>black</td>
<td>Hue determination from photographs</td>
</tr>
<tr>
<td>J. Staples (HS-9)</td>
<td>8</td>
<td>Clapboards</td>
<td>4-21M</td>
<td>Original</td>
</tr>
<tr>
<td>J. Staples (HS-9)</td>
<td>8</td>
<td>Window trim, corner trim, and eaves</td>
<td>7-23M</td>
<td>Original</td>
</tr>
<tr>
<td>J. Staples (HS-9)</td>
<td>2</td>
<td>Window sash</td>
<td>brown/black</td>
<td>Original</td>
</tr>
<tr>
<td>J. Staples (HS-9)</td>
<td>1</td>
<td>Window screens, storms, and storm doors</td>
<td>brown/black</td>
<td>Original</td>
</tr>
<tr>
<td>House</td>
<td>Number of Paint Samples</td>
<td>Location</td>
<td>Iowa Paint Designation</td>
<td>Remarks</td>
</tr>
<tr>
<td>------------------------------</td>
<td>-------------------------</td>
<td>------------------------------------------------------------</td>
<td>------------------------</td>
<td>----------------------------------------------</td>
</tr>
<tr>
<td>E.S. Hayhurst (HS-10)</td>
<td>11</td>
<td>Clapboards</td>
<td>47-16M</td>
<td>Original</td>
</tr>
<tr>
<td>E.S. Hayhurst (HS-10)</td>
<td>13</td>
<td>Window trim and sash, corner trim, soffit, and fascia</td>
<td>57-4U</td>
<td>Original</td>
</tr>
<tr>
<td>E.S. Hayhurst (HS-10)</td>
<td>5</td>
<td>Front door</td>
<td>black</td>
<td>Original</td>
</tr>
<tr>
<td>E.S. Hayhurst (HS-10)</td>
<td></td>
<td>Window screens, storm windows, and storm doors</td>
<td>57-4U</td>
<td>Hue determination from references¹</td>
</tr>
<tr>
<td>I. Miles Farmhouse (HS-11)</td>
<td>29</td>
<td>Clapboards, trim, soffit, window sash</td>
<td>4-13P</td>
<td>Original</td>
</tr>
<tr>
<td>I. Miles Farmhouse (HS-11)</td>
<td>1</td>
<td>Porch ceiling</td>
<td>30-15M</td>
<td>Original</td>
</tr>
<tr>
<td>I. Miles Farmhouse (HS-11)</td>
<td></td>
<td>Window screens, storms, and storm doors</td>
<td>black</td>
<td>Hue determination from photographs and references¹</td>
</tr>
<tr>
<td>I. Miles Farmhouse (HS-11)</td>
<td></td>
<td>Porch floor</td>
<td>44-24D</td>
<td>Hue determination from photographs</td>
</tr>
<tr>
<td>D. Mackey (HS-18)</td>
<td>14</td>
<td>Clapboards, fascia, corner trim</td>
<td>4-11M</td>
<td>Original</td>
</tr>
<tr>
<td>D. Mackey (HS-18)</td>
<td>12</td>
<td>Window eyebrow, window sash, soffit, and soffit trim</td>
<td>56-19U</td>
<td>Original</td>
</tr>
<tr>
<td>D. Mackey (HS-18)</td>
<td></td>
<td>Window screens, storms, and storm doors</td>
<td>black</td>
<td>Hue determination from references¹</td>
</tr>
<tr>
<td>W. Wright (HS-19)</td>
<td>10</td>
<td>Clapboards, soffit, and corner trim</td>
<td>4-16M or 4-3M</td>
<td>Original</td>
</tr>
<tr>
<td>W. Wright (HS-19)</td>
<td>15</td>
<td>Window sash, screens and trim, fascia, and storms</td>
<td>brown/black</td>
<td>Original</td>
</tr>
<tr>
<td>W. Wright (HS-19)</td>
<td>2</td>
<td>Tongue-and-groove siding at porch</td>
<td>38-5M</td>
<td>Original</td>
</tr>
<tr>
<td>W. Wright (HS-19)</td>
<td>1</td>
<td>Porch ceiling</td>
<td>44-1P</td>
<td>Original</td>
</tr>
</tbody>
</table>

Note 1: All samples taken show a few layers of late period paint with evidence of paint removal under, making original color determination impossible.

Note 2: Some of the samples taken show evidence of paint removal under the paint.
APPENDIX D: AERIAL AND PANORAMIC PHOTOGRAPHS, MAPS, AND RELATED HISTORIC PHOTOGRAPHS

AERIAL AND PANORAMIC PHOTOGRAPHS

This section consists of aerial and panoramic photographs containing historic detail of the historic structures, HS-2 through HS-19.

These photographs show good details of the landscaping and outbuildings of the historic site.
Aerial Photograph 1, 1932. View looking west down Main Street. Downey Street is located just above midpoint of this photograph and runs left to right. This photograph shows the rear (east elevation) of the Mackey house. Note that the roof over the east addition is a lean-to type. The Dr. L.J. Leech and Laban Miles houses also show in detail in this photograph. Note Dr. Leech's barn and the location of his attached garage. The original negative is at the Des Moines Register & Tribune.

Des Moines Register & Tribune, photographer
Aerial Photograph 2, 1947. View looking northeast. This photograph shows the southwest elevations of the following houses: HS-5, HS-6, HS-7, HS-9, HS-10, HS-18, and HS-19. The original photograph is with the Jeffrie Brothers, West Branch, Iowa. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa.

Photographer unknown
Aerial photograph 3, 1949. View looking west down Main Street. View looking east. This photograph shows the west elevations of the following houses: HS-5, HS-6, HS-7, HS-9, HS-10, HS-18, and HS-19. Note that there were four full columns on the front porch of the David Mackey house, and two separate windows on the west elevation of the original north wing of the Hayhurst house. The original negative is at the Des Moines Register & Tribune, Des Moines, Iowa.

Des Moines Register and Tribune, photograph
Aerial photograph 4, 1952. View looking southwest. This photograph shows the northeast elevations of the following houses: HS-4 (original location), HS-5, HS-6, HS-7, HS-9, HS-10, HS-18, and HS-19. Note the attached garage with HS-5. The original negative is at the Des Moines Register & Tribune, Des Moines, Iowa.

Photographer unknown
Panoramic Photograph 1, 1878. View looking north on Downey Street. This photograph was taken from Cook's Hill during the historic period. The third house on the east side of Downey Street appears to be the Laban Miles house. The Methodist church shows on the west side of Downey Street. Note that it has a spire on the ridge, which was there from 1870 to mid-1880s. Note the south elevations of the brithplace and the blacksmith shop, which show dark (either dark paint or weathered wood). Note the four-board fence on the east side of Downey Street. The original photograph is with Esther Witmer, Wilton Junction, Iowa. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa.

Wm. Miles, photographer
Panoramic Photograph 2, 1909. View looking northwest. The panoramic photograph and the six detail photographs (A-F) show the outbuildings, landscape details, fences, and streets, as existed in 1909. The original photograph is with G. Gruwell, Seal Beach, California. A copy of the photograph is at the West Branch Heritage Society, West Branch, Iowa. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa.

F.F. Hathaway, photographer
Panoramic Photograph 2, Enlargement Detail A. This photograph shows the P.T. Smith house and the second Hoover house.
Panoramic Photograph 2, Enlargement Detail B. This photograph shows the second Hoover house, the Varney house, and the Hayhurst house (between the barns in the upper portion of the photograph).
Panoramic Photograph 2, Enlargement Detail C. This photograph shows the Herbert Hoover birthplace (slightly right of center) with a two-story wing added to the east.
Panoramic Photograph 2, Enlargement Detail D. This photograph shows the Methodist church (with south wing and tower) and the McClellen house.
Panoramic Photograph 2, Enlargement Detail E. This photograph shows the Laban Miles house.
Panoramic Photograph 2, Enlargement Detail F. This photograph shows the area to the east of the Laban Miles house. Note the trees along the creek.
MAPS

The following historic maps were found during research and pertain to the historic period. They show the locations of all the houses in the historic zone and of miscellaneous outbuildings.

Maps 4 through 8 are Sanborn fire maps that were prepared for insurance companies to help determine fire insurance rates. They show alterations in the plans of houses and outbuildings. The area enclosed on these maps is roughly the historic zone of the town. Houses HS-5, HS-6, HS-7, HS-9, HS-10, HS-18, and HS-19 are shown, as well as the sites for HS-4 and HS-8, which were moved to these lots from their original locations on the east side of Downey Street. These maps are found at the Iowa State Historical Department, Division of the State Historical Society, Iowa City, Iowa, and at the Iowa State University Library, Ames, Iowa.

See the individual text discussions for composite maps for each house. The keys on the maps for 1900, 1906, and 1912 contain information on type of roofing, porches, number of stories, and uses of buildings.
Map 1, Plat of West Branch, 1872. From Harris & Warner's Atlas of Cedar County, Iowa. The original map is at the Iowa State Historical Department, Division of the State Historical Society's Manuscripts Collection, Iowa City, Iowa.
Map 2, Plat of West Branch, 1885. From Harris & Warner's Atlas of Cedar County, Iowa. The original map is at the Iowa State Historical Department, Division of the State Historical Society's Manuscripts Collection, Iowa City, Iowa.
Map 3, Plat of West Branch, 1901. From Harris & Warner's Atlas of Cedar County, Iowa. The original map is at the Iowa State Historical Department, Division of the State Historical Society's Manuscripts Collection, Iowa City, Iowa.
Map 4, Sanborn Fire Map, 1895.
SANBORN MAP 1895
HOOVER HOMESITE, WEST BRANCH, IOWA
Map 5, Sanborn Fire Map, 1900.
Map 6, Sanborn Fire Map, 1906.
Map 7, Sanborn Fire Map, 1912.
Map 8, Sanborn Fire Map, 1927.
RELATED HISTORIC PHOTOGRAPHS

Many of the original photographs used in the four National Park Service publications ("The Hoover Houses and Community Structures," "Historical Base Map and Ground Study," "Buildings in the Core Area and Jesse Hoover's Blacksmith Shop," and "The P.T. Smith House") were not readily available for inclusion in this report. Through the process of tracking down these photographs from the original sources, several new sources turned up, which provided much valuable information.

A new technique, coupled with better originals than previously available, allowed for more detail to be extracted from these photographs. In some cases, as many as six enlargements were made of isolated sections of the original photographs.

In total, 150 photographs were copied, 57 of which are included in the text, and 50 more are included in this appendix. The photographs in this section show portions of the 11 historic houses covered in this report and almost all of the original houses on Downey Street. They also show such things as boardwalks, fences, outbuildings, landscaping around the houses, and streetscapes. Several photographs are included that pertain to the second Hoover house and the Herbert Hoover birthplace cottage.

These photographs have been included in this report as a means of preserving them, as additional background documentation, and as information for future projects at the Herbert Hoover National Historic Site.
HERBERT HOOVER, 1927 or 1928. The original photograph is with Mrs. Glenn Hoffman, West Branch, Iowa. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa.

Photographer unknown
R-1, P.T. SMITH HOUSE HS-2, ca. 1907. View looking southeast, showing picket fence around the house and shutters on the windows. The original photograph is with G. Gruwell, Seal Beach, California.

Photographer unknown
R-2, P.T. SMITH HOUSE HS-2, ca. 1915. This is a portion of the original photograph looking north and showing a raised boardwalk. The original photograph is with F. Oakley, West Branch, Iowa. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa.

Photographer unknown
R-3, P.T. SMITH HOUSE HS-2, 1938. View looking southeast, showing the north bay window.
Note that the porch has been altered from the original. The original photograph is at Herbert
Hoover National Historic Site, West Branch, Iowa. A copy of the negative is at the Hoover
Presidential Library, West Branch, Iowa (reference 1938-42).

Photographer unknown
R-4, P.T. SMITH HOUSE HS-2, ca 1915. View looking northeast. The original photograph is with Karen Laszczak, Rural West Branch, Iowa. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa (reference 1915-61A).

Photographer unknown
R-5, HANNAH VARNEY HOUSE HS4, ca. 1915. View looking northeast, showing the Varney house and the second Hoover house. Note that there is no picket fence around either house, or the P.T. Smith house (not visible). The original photograph is with Karen Laszckak, Rural West Branch, Iowa. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa (reference 1915-62A).

Photographer unknown
R-6, HANNAH VARNEY HOUSE HS-4, ca. 1915. View looking northeast, showing the Varney house and the second Hoover house. The people are, left to right, Ernest Endsley, Louis Endsley, and Bert Rummells. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa (reference 1915-63A).

Photographer unknown
R-7, DR. L.J. LEECH HOUSE HS-5, ca. 1920. View looking southeast, showing a portion of the McClellen house to the right and double columns (between streetlamp posts) on the front porch of the Laban Miles house. The original photograph is from M. Stratton's album, 23-4, located at the Hoover Presidential Library, West Branch, Iowa.

Photographer unknown
R-8, DR. L. J. LEECH HOUSE HS-5, 1930. View looking east, showing U.S. Marine Band.

Note: barn to the rear of the Leech house. The original photograph (postcard) is from M.

Stratton's album, 23-5, at the Hoover Presidential Library, West Branch, Iowa; also has a copy of the negative at the Hoover Presidential Library, West Branch, Iowa.

Photographer unknown
R-9, DR. L.J. LEECH HOUSE HS-5, 1932. View looking northeast, showing the northwest corner of the front porch and steps of the Leech house. The original photograph (postcard) is from M. Stratton’s album, 23-7, at the Hoover Presidential Library, West Branch, Iowa. E. Witmer, Wilton Junction, Iowa, also has an original photograph (postcard). A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa.

Photographer unknown
R-10, DR. L.J. LEECH HOUSE HS-5, 1932. View looking southeast, showing front porch and entrance to the house. The original photograph (postcard) is from M. Stratton's albums, located at the Hoover Presidential Library, West Branch, Iowa. E. Witmer, Wilton Junction, Iowa, also has an original photograph (postcard). A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa (reference 1932-21D).

Photographer unknown
R-11, LABAN MILES HOUSE HS-6, ca. 1918. View looking east, showing Civil War veterans in front of the Laban Miles house. The original photograph is with A. Moore, West Branch, Iowa. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa (reference 1918-63G).

Photographer unknown
R-12, LABAN MILES HOUSE HS-6, 1931. View looking northeast, showing Violet Charles Stratton, age 17. The original photograph is from M. Stratton's albums, at the Hoover Presidential Library, West Branch, Iowa. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa (reference 1931-8C).

Photographer unknown
R-13, AMANDA GARVIN HOUSE HS-7, 1910. View looking northwest and showing the Methodist church after it was remodeled in the mid-1880s. The parsonage is to the left of the church, and the Garvin house to the right. The original photograph is with G. Speight, West Branch, Iowa. The West Branch Heritage Society, West Branch, Iowa, also has an original photograph. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa (reference 1910-23).

Photographer unknown
R-14, C.E. SMITH HOUSE HS-8, ca. 1920. View looking northwest (original location) and showing the pergola at the southeast corner of the house. The original photograph is with G. Brown, West Branch, Iowa. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa (reference 1920-88).

Photographer unknown
R-15, CHARLES E. SMITH HOUSE HS-8, ca. 1925. View looking northwest (original location) and showing Mr. Smith standing by the southeast corner post of the pergola. The original photograph is with G. Brown, West Branch, Iowa. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa (reference 1925-43).

Photographer unknown
R-16, CHARLES E. SMITH HOUSE HS-8, ca. 1925. View looking northwest (original location) and showing Charles and Deborah Smith standing next to the southeast corner of the pergola. Note the construction details of the pergola and lattice work. The original photograph is with A. Moore, West Branch, Iowa. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa (reference 1925-30).

Photographer unknown
R-17, CHARLES E. SMITH HOUSE HS-8, ca. 1915. View looking southwest, showing the front porch. The original photograph is with A. Moore, West Branch, Iowa. A copy of the negative is Herbert Hoover National Historic Site, West Branch, Iowa (reference NPS N. 6-16, negative plate 27).

Photographer unknown
R-18, JAMES STAPLES HOUSE HS-9, 1964. View looking northwest, showing the Staples house at the left and the Mackey house in the center. The original photograph and negative are with W. Wagner, Des Moines, Iowa.

W. Wagner, photographer
R-19, E.S. HAYHURST HOUSE HS-10, ca. 1938. View looking northwest, showing the Hayhurst house at the far left and the Mackey house at the right. The original photograph is from the M. Stratton albums, at the Hoover Presidential Library, West Branch, Iowa. A copy of the negative is also at the library, (reference 1938-7A).

Photographer unknown
R-20, DOWNEY STREET, ca. 1900. View looking south on Downey Street from the intersection of Main Street and Downey Street. The original photograph is with the West Branch Heritage Society, West Branch, Iowa. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa (reference 1900-65).

T.T. Hathaway, photographer
R-21, DOWNEY STREET, ca. 1900. Enlargement of R-20, showing the east side of the street. The original photograph is with the West Branch Heritage Society, West Branch, Iowa. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa (reference 1900-65).

T.T. Hathaway, photographer
R-22, DOWNEY STREET, ca. 1890. View looking south on Downey Street from the intersection of Main Street and Downey Street. Note the detail of the road and ditches, with bridge planks across the ditch in front of houses. The street light shown in R-20 is not here. Note the picket fence between the McClellen house and the Laban Miles house. The original photograph is with G. Speight, West Branch, Iowa. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa (reference 1890-23).

E.M. Savage, photographer
R-23, DOWNEY STREET, ca. 1890. This photograph is an enlargement of the left (east) side of R-22. The original photograph is with G. Speight, West Branch, Iowa. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa (reference 1890-25).

E.M. Savage, photographer
R-24, DOWNEY STREET, ca. 1890. This photograph is an enlargement of the right (west) side of R-22. The original photograph is with G. Speight, West Branch, Iowa. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa (reference 1890-25).

E.M. Savage, photographer
R-25, DOWNEY STREET, ca. 1900. View looking southeast at the east side of Downey Street and showing the Laban Miles and McClellen houses. This photograph is the right half of the original photograph. The original photograph is with the West Branch Heritage Society, West Branch, Iowa. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa (reference 1900-67).

T.T. Hathaway, photographer
R-26, DOWNEY STREET, ca. 1920. View looking south down sidewalk on the east side of Downey Street. Note that Dr. Leech has not yet built his house between the McClellen and Laban Miles houses. The original photograph is with the Kofrons, West Branch, Iowa. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa (reference 1920-69).

Photographer unknown
R-27, DOWNEY STREET, November 6, 1928 (victory celebration). View looking south on Downey Street, showing a portion of the Laban Miles, Dr. Leech, McClellen, and Forney houses. The original photograph is with G. Speight, West Branch, Iowa. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa (reference 1928-46D).

Photographer unknown
R-28, DOWNEY STREET; November 6, 1928 (victory celebration). View looking south on Downey Street, showing (from left to right) the Forney house, the creek, and the three houses which occupied the site of the restored Friends meetinghouse. The original photograph is with G. Speight, West Branch, Iowa. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa (reference 1928-45D).

Photographer unknown
R-29, DOWNEY STREET, ca. 1915. View looking south on Downey Street, showing the houses on the east side of the street, south of the P.T. Smith house. The second house from the left belonged to H.C. Regg, the third to C. Anderson, and the fourth to C.E. Smith. The original photograph is with the Iowa City Historical Society, Iowa City, Iowa. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa (reference 1915-64A).

Photographer unknown
R-30, DOWNEY STREET, ca. 1910. View looking northeast on south Downey Street, showing a portion of the third house between the C.E. Smith and P.T. Smith houses (neither of which are in this photograph; the C.E. Smith house is to the right). The original photograph is with the West Branch Heritage Society, West Branch, Iowa. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa (reference 1930-2B).

Photographer unknown
R-31, WAPSINONOC CREEK, 1915. View looking east down the Wapsinonoc Creek from Downey Street. Note picket fence and footbridge at bottom left. The original photograph is with R. Sayles, West Branch, Iowa. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa (reference 1915-87).

Photographer unknown
R-32, DOWNEY STREET, July 4, 1911. View looking north on Downey Street. The picket fence to the right of the lead car divides the Leech and the McClellen properties. The original photograph is with G. Speight, West Branch, Iowa. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa (reference 1911-8).

Photographer unknown
R-33, DOWNEY STREET, 1890-1900. View looking northwest on Downey Street. From left to right the buildings are the Methodist parsonage, the Methodist church, and the Amanda Garvin house. The original photograph is with G. Speight, West Branch, Iowa. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa (reference 1900-61).

E.M. Savage, photographer
R-34, DOWNEY STREET BRIDGE, 1928. View looking northwest from the Downey Street bridge over the Wapsinonoc Creek. This photograph shows the Hayhurst house, the Wright house, and the Herbert Hoover birthplace before restoration. Note that the Methodist church is gone. The original photograph and a copy of the negative are at the Hoover Presidential Library, West Branch, Iowa (reference 1930-49A).

Photographer unknown
R-35, DOWNEY STREET, ca. 1972. View looking south on Downey Street. The original photograph and negative are with W. Wagner, Des Moines, Iowa.

W. Wagner, photographer
R-36, WAPSINONOC CREEK FLOOD, 1911. View looking southeast and showing the flooded Wapsinonoc Creek and the Forney house to the left. The original photograph is with G. Gruwell, Seal Beach, California. A copy of the negative is at the Hoover Presidential Library (reference 1915-89) and the Herbert Hoover National Historic Site, West Branch, Iowa.

Photographer unknown
R-37, MCCLELLLEN HOUSE, ca. 1900. View looking northeast, showing the front of the house. The rear corner of the one-story portion of the Laban Miles house is visible at the left. Note the picket fence between the two houses and the absence of the house built by Dr. Leech. The McClelllen house burned down in 1930. The original photograph is with the West Branch Heritage Society, West Branch, Iowa. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa (reference 1900-68).

Photographer unknown
R-38, FORNEY AND MCCLELEN HOUSES, ca. 1925. View looking northeast, showing Dora Michener seated on the bridge over the Wapsinonoc Creek with the Forney house directly behind and the McClellen house to the left. The original photograph is with L. Rummells, West Branch, Iowa. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa (reference 1925-71).

Photographer unknown
R-39, HERBERT HOOVER BIRTHPLACE, ca. 1930. View looking northwest, showing the house which was located where the Quaker school is now. The house in the foreground is the north half of the Herbert Hoover birthplace before restoration. The original photograph is with G. Hoffman, West Branch, Iowa. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa (reference 1930-1H).

Photographer unknown
R-40, SECOND, HOOVER, HOUSE, September 22, 1909 (postmark). View looking east, Lib Witter and Stu Rummell are shown in front of the door. The original photograph is with the West Branch Heritage Society, West Branch, Iowa. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa (reference 1909-16).

T. T. Hathaway, photographer
R-41, SECOND HOOVER HOUSE, ca. 1920. View looking northeast. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa (reference 1920-40A).

Photographer unknown
R-42, SECOND HOOVER HOUSE, ca. 1915. View looking northeast, showing a portion of the rear porch and south gable end. The original photograph is with L. Rummells, West Branch, Iowa. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa (reference 1915-69A).

Photographer unknown
R-43, SECOND HOOVER HOUSE, ca. 1915. View looking northeast and showing the rear porch. The original photograph is with L. Rummells, West Branch, Iowa. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa (reference 1915-68A).

Photographer unknown
R-44, SECOND HOOVER HOUSE, ca. 1915. View looking northeast and showing the front (west elevation) of the house. The original photograph is with L. Rummells, West Branch, Iowa. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa (reference 1915-67A).

Photographer unknown
R-45, SECOND HOOVER HOUSE, ca. 1915. View looking northwest and showing the rear corner of the house. The original photograph is with L. Rummells, West Branch, Iowa. A copy of the negative is at the Hoover Presidential Library, West Branch, Iowa (reference 1915-65A).

Photographer unknown
R-46, HERBERT HOOVER BIRTHPLACE, 1878. View looking north on Downey Street from Cook's Hill shows the birthplace and blacksmith shop, both of which appear to be either painted dark or have weathered wood siding. The roofs of the church and the blacksmith shop appear equally dark. At the rear of the blacksmith shop there appears to be a small lean-to, possibly a coal bin. The original photograph and negative are from M. Stratton's album, 23-3, located at the Hoover Presidential Library, West Branch, Iowa.

Wm. Miles, photographer
R-47, HERBERT HOOVER BIRTHPLACE, ca. 1930. View looking on southwest showing Hoover's birthplace attached to the rear of a two-story, late period structure. Note the change in coursing of the siding, which indicates the siding was not all applied at the same time. The original photograph is at the Hoover Presidential Library, West Branch, Iowa (reference 1930-3B); copies are with S. Larson, Rural West Branch, Iowa, and in the M. Stratton albums, located at the Hoover Presidential Library.

Photographer unknown
R-48, HERBERT HOOVER BIRTHPLACE, ca. 1937. View looking on northwest showing Hoover's birthplace on its original site. The clapboards have been removed, revealing the original boards and battens. (The clapboards were nailed through the battens.) The vertical rows of nail holes (10 holes = 44 inches) indicate that the present boards and battens are original. Under the peeling white paint, there appear to be gray weathered boards. A detailed investigation should be made to determine if white paint or whitewash was used, and if there is a dark paint under the white. The original photograph is from M. Stratton's albums, at the Hoover Presidential Library, West Branch, Iowa. A copy of the negative is also at the library (reference 1937-62).

Photographer unknown
R-49, HERBERT HOOVER BIRTHPLACE, ca. 1960. View looking on northeast and showing the rear of Hoover's birthplace, the Laban Miles house, and a portion of the Dr. Leech house. The original negative is with W. Wagner, Des Moines, Iowa.

W. Wagner, photographer
R-50, HERBERT HOOVER BIRTHPLACE, 1978. This view of an area on the south end of the birthplace shows nail holes made by nailing clapboards. Note also the peeling paint. The original negative is with W. Wagner, Des Moines, Iowa.

W. Wagner, photographer
APPENDIX E: LAWS, POLICIES, AND PLANNING DECISIONS

LEGISLATIVE ORIGINS

The Herbert Hoover National Historic Site was established August 12, 1965, by the enactment of Public Law 89-119 (16 USC 461), "in order to preserve in public ownership historically significant properties associated with the life of Herbert Hoover." Section 3 of this act directs the secretary of the interior to "administer the Herbert Hoover National Historic Site in accordance with the Act approved August 25, 1916 (39 Stat. 535), as amended and supplemented, and the Act approved August 21, 1935 (49 Stat. 666)."

The National Park Service Organic Act of 1916 (Public Law 64-235; 39 Stat. 535) decreed

That there is hereby created in the Department of the Interior a service to be called the National Park Service. . . . The service thus established shall promote and regulate the use of the Federal areas known as national parks, monuments, and reservations hereinafter specified by such means and measures as conform to the fundamental purpose of the said parks, monuments, and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.

The Historic Sites Act of 1935 (Public Law 74-292; 49 Stat. 666; 16 USC 461-467) directs that the secretary of the interior, under section 2 (f), "restore, reconstruct, rehabilitate, preserve, and maintain historic or prehistoric sites, buildings, objects, and properties of national historic or archaeological significance."

The National Historic Preservation Act of 1966 (Public Law 89-665; 80 Stat. 915; 16 USC 470) declares the importance of preserving the historical and cultural foundations of the nation and decrees an accelerated federal involvement in historic preservation efforts, historic preservation being defined in title I, section 1(b-3), to include "the protection, rehabilitation, restoration, and reconstruction of districts, sites, buildings, structures, and objects significant in American history, architecture, archeology, or culture."

The intent that the government have custody and jurisdiction over historic cultural resources of national significance is established in Public Law 59-209, which authorizes the president of the United States, "in his discretion, to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic and prehistoric interest that are situated upon lands owned or controlled by the Government of the United States." This act further authorizes the secretary of the interior "to accept the relinquishment of such tracts in behalf of the Government of the United States . . ." when such tracts are held in private ownership.
The intent that the federal government be active in the field of historic preservation and that this involvement include not only preservation but also restoration, rehabilitation, reconstruction, and maintenance of historic properties is reiterated in section 1 of Executive Order 11593 (May 31, 1971):

The Federal Government shall provide leadership in preserving, restoring and maintaining the historic and cultural environment of the Nation. Agencies of the executive branch of the Government . . . shall . . . initiate measures necessary to direct their policies, plans, and programs in such a way that federally owned sites, structures, and objects of historical, architectural or archaeological significance are preserved, restored and maintained for the inspiration and benefit of the people.

The creation of the Herbert Hoover National Historic Site is clearly within the legislatively established intent of Congress that sites and their constituent structures of historic significance to the nation be preserved unimpaired for the inspiration, benefit, and enjoyment of future generations.

NATIONAL PARK SERVICE PLANNING DOCUMENTS

A variety of official documents and actions have officially established and progressively refined the definition, scope, and intent of development of the Herbert Hoover National Historic Site, and they have outlined the means by which this development was to be accomplished. These documents were developed in response to the legislation authorizing establishment of the national historic site and previous legislation which determines the authority and responsibility of the secretary of the interior with respect to the preservation of historic cultural resources entrusted to his care. They also take into account treatment of the resources themselves, based on a physical examination and evaluation of the resources by various professionals of the National Park Service.

These documents contain specific references to the 11 core area historic structures. This information, along with general administrative policies of the National Park Service regarding work on historic structures, and historical, archeological, and architectural research in the field, is the basis for the individual design decisions and recommendations that are made in this report.

Early Documents

Among the earliest planning documents was the 1965 proposal for the Herbert Hoover National Historic Site. In regard to the historic core area structures, this document called for removal of all nonhistoric structures from the area and regrouping of historic or historically contemporary structures near the birthplace (p. 11).
Master Plan Brief

In 1966 the National Park Service issued a Master Plan Brief, which called for the retention of residences architecturally characteristic of the historic period. It also provided for their continued occupancy under conditions ensuring preservation of their historic external appearance (p. 7). A major management consideration is the preservation in the birthplace vicinity of selected "period style" residences to retain historic village aspects (p. 5).

The document also calls for the re-creation and maintenance of the historic scene in the immediate vicinity of the birthplace cottage. This would require research of conditions existing at the time of Hoover's birth, and acquisition and preservation of dwellings within the proposed boundary having historic period style to help maintain appropriate village aspects. These dwellings are to be occupied by NPS employees or other tenants, and they are not to be modernized on the outside.

The document further calls for houses to be retained or relocated for a village atmosphere in the birthplace vicinity. Thus, from the beginning of the planning process, the National Park Service has never intended to restore the core area to its exact historic form and condition, but only to re-create a credible facsimile of a village atmosphere typical of the period. This intention is reinforced in other excerpts from this and later NPS documents that establish the character of the development. The brief calls for simpleness and informality to prevail throughout the development of all grounds and structures. The architecture should be a forthright expression of function; forms and materials should echo those in existing nearby structures so as to produce the desired impression of unity within the historic site and affinity with surroundings; embellishments should be restrained; an appropriate and distinctive motif should be used consistently in the design of signs and other smaller structures to help visitors retain an impression of the area's integrity and individuality.

Finally, this document states that several "period style" houses, to be selected from those houses that will have to be moved, will be placed so as to re-create a semblance of the village environs.

Master Plan

The Master Plan, Herbert Hoover National Historic Site, approved in 1969 and published in 1970, states that the National Park Service will be responsible for the restoration of the historic area and all other historic houses to be preserved (p. 11). In carrying out this responsibility, the National Park Service, regrouped two historic houses to create an assemblage that provides a historical setting for the birthplace home and serves as a buffer between the resulting historic zone, or core area, and the adjacent modern town of West Branch.

Creation of a typical neighborhood setting, and not the absolute restoration of what had actually existed, as previously stated, is the guiding principle and the method of depicting the environs of the
birthplace cottage. The cottage is not in an empty park, but rather "one of many small houses located in the neighborhood" as Mr. Hoover explicitly requested.

**Interpretive Prospectus**

The "Interpretive Prospectus" for the historic site, approved in 1971, states that in addition to the major structures, the 11 other period houses in the core area "will be preserved and restored for the sake of their contribution to the historic scene. Their restoration will not be totally accurate; it will be a restoration for the sake of spirit, rather than fact. The structures should find adaptive use" (p 1). The prospectus further states that interpretation will communicate the character of the people and the quality of the life environment that made up Hoover's world for the first 11 years of his life (p 2).

Thus, both the treatment and use of the structures were established early in the conceptual planning for the site. This early intent is repeated in the List of Classified Structures (1975).

**Addendum to the Master Plan**

In 1977 the National Park Service issued an "Addendum to the Master Plan," which states that the birthplace cottage neighborhood will be maintained to reflect the period of Hoover's boyhood (p. 5).

To accomplish this objective, "period homes were purchased for inclusion in the historic site to permit the restoration of the historic core area to the appearance of a typical eastern Iowa village of the 1880's."

The 1977 addendum proposed the exterior restoration and interior adaptive restoration for these 11 structures. The development/study package proposal (standard form 10-238) generated by the Midwest Regional Office of the National Park Service and approved April 1, 1977, states that the exteriors of eight houses will be restored to make them compatible with the 1874-1884 period. Three other houses will also have exterior restoration but to the actual year of their construction. All of these structures are of the third order of historical significance, and their restoration will permit development of a neighborhood atmosphere reminiscent of the West ranch of Herbert Hoover's youth.

Clearly the development/study package proposal supports the foregoing planning and development documents, and also the validity of the planning decisions and the evaluative criteria on which those decisions were based. It also communicates the support of the regional director of the Midwest Region and of the site superintendent for these planning decisions, which have been developed in response to the legislative mandate creating the Herbert Hoover National Historic Site.
Summary

In establishing the Herbert Hoover National Historic Site, the legislation requires the secretary of the interior to "preserve in public ownership historically significant properties associated with the life of Herbert Hoover." The use of these properties is to be promoted and regulated in conformance with the fundamental purpose for which these areas are created, that is, "to preserve, restore and maintain them for the inspiration and benefit of the people."

In adhering to this legislatively mandated purpose, the National Park Service has determined that in administering and interpreting the site, "the primary mission is to communicate the character of the people and the quality of the life environment that made up Hoover's world for the first 11 years of his life."

This interpretation is to be handled by various means, one of which is by recreating a semblance of the physical environment reminiscent of what actually existed at the time, for the "inspiration and benefit of the people." In support of this purpose, the National Park Service has commissioned a series of studies and historical research of the site, beginning in 1965 and continuing through 1980. The officially approved planning reports and documents which resulted from these studies all concur in recommending that exterior restoration and interior adaptive restoration is the best method of conserving the 11 core area historic structures.

Further, the documents collectively and explicitly recommend restoring these structures, not to their exact historic appearance at a precise date, but restoring them to re-create a semblance of the village environs in which Hoover was born.

NATIONAL PARK SERVICE DEVELOPMENT POLICIES FOR HISTORIC STRUCTURES

The following National Park Service definitions and standards were in force at the time contracts were awarded for the restoration/adaptive restoration of the 11 historic structures. The order of historical significance and the prescribed level of treatment for each of the core area historic structures has been predetermined by the National Park Service's List of Classified Structures, published in July 1975.

Order of Historical Significance

The 11 core area structures are of the third order of historical significance, which is defined in the 1975 "Management Policies of the National Park Service" as "those resources significant primarily in the presentation and interpretation of the history of a community or locality (part 5, p. 4). The official National Park Service designation of significance for the historic structures at the site was changed in 1978 to category II-b, defined as "resources that meet the basic criteria for listing in the National Register of Historic Places and are of local or park significance (1978 NPS "Management Policies," part 5, p. 4)."
Level of Treatment

The approved level of treatment to be afforded the 11 core area historic structures is exterior restoration to re-create a semblance of the village environs in which Hoover was born, and interior adaptive restoration to accommodate continued use of the structures by the public, National Park Service staff, and their families.

The National Park Service's 1975 "Management Policies" define restoration for historic resources as

the process of recovering the general historic appearance of a site... or structure by the removal of incompatible... accretions and the replacement of missing elements as appropriate. For structures, restoration may be for exteriors and interiors and may be partial or complete (part 5, p. 12).

Those policies go on to state:

Full restoration of a historic structure may be undertaken when essential for public understanding and appreciation of the historical or cultural associations of the park. Partial restoration (usually for adaptive use) may be undertaken when necessary to ensure preservation of the structure or to restore the historic scene, or where desirable for interpretive purposes. In all cases, sufficient historical, architectural and archaeological data must exist to permit accurate restoration, with a minimum of conjecture.

A historic structure, whether preserved in existing form, restored, or reconstructed, may be subject to adaptive use. Adaptive use may be appropriate for structures that are visually important in the historic scene but do not otherwise qualify for exhibition purposes. In such cases, the facade, or so much of the exterior as is necessary, is treated to achieve the management purpose so that it will properly understood from the public view. The interior is usually converted to modern functional use, but original fabric is retained wherever practicable.

Every restoration shall be preceded by detailed documentation of the structure, and any changes made during restoration shall be carefully documented. Original historic fabric shall be safeguarded to the extent possible during and after restoration (part 5, p. 15).

The 1971 NPS "Activity Standards" provide the following definitions:

Partial restoration is the level of treatment accorded a structure for which only parts thereof--external, internal, or in combination--are important in illustrating cultural values at its level of historical significance or that contribute to the values for which the park was established.
Adaptive restoration is the level of treatment accorded a structure which is visually important in the historic scene but does not otherwise qualify for exhibition purposes (part 4, p. 20).

Additions to Historic Structures

National Park Service policy, as defined in the 1975 "Management Policies," determines the acceptability of any proposed additions to historic structures:

Modern additions, such as heating and air conditioning . . . [and] Modern construction may be added to historic structures of the Second and Third Orders of Significance when essential to their continued use. A modern addition should be readily distinguishable from older work; however, the new work should be harmonious with the old in scale, proportion, materials, and color. Such additions shall be as inconspicuous as possible and shall not intrude upon the important historic scene.

Proposals for additions to historic structures are subject to the Procedures for the Protection of Historic and Cultural Properties promulgated by the Advisory Council on Historic Preservation (part 5, p. 18).

Removal or Alteration of Historic Structures

National Park Service policy, as defined in the 1975 "Management Policies," determines the acceptability of any proposed removals from or alterations to historic structures:

No structure in the National Park System may be removed or significantly altered without professional evaluation of its historical, architectural, value according to National Register criteria and formal approval of the Director or his designee. . . . Removal or alteration of a property listed or potentially eligible for listing in the National Register shall be subject to compliance with the Procedure for the Protection of Historic and Cultural Properties promulgated by the Advisory Council on Historic Preservation (part 5, p. 19).

Levels of Investigation

The level of investigation appropriate to historic resource research and evaluation is directly related to the level of treatment prescribed by the approved List of Classified Structures and based on the order of historical significance of each resource. Policy for level of investigation is defined in the 1971 "Activity Standards" as follows:

Most National Park Service studies are mission-oriented--directed at providing data required for a subsequent,
programmed action such as master planning a park or restoring a historic building. The exhaustive study necessary to attain a uniform standard of excellence is not always justified by the relative importance of the subsequent action it supports. In allocating for resource studies, therefore, the Service must ensure a reasonable correlation with the importance of the purpose to be served. As guidelines to aid in achieving this correlation, the following classes [highest to lowest Class: A, B, or C]...or investigation govern the scope of projects in history, archaeology, and historical architecture.

In general, the time-consuming and expensive study of Class A is warranted only in Historic Resource Studies for historical area master plans and the full and exact restoration or reconstruction of historic buildings to be used for exhibition purposes. Class B is generally applicable to Historic Resource Studies for natural and recreational area master plans to partial or adaptive restoration of historic structures. Class C is ordinarily sufficient for historic structures designated for preservation only and for all varieties of projects that have been completely researched in the past (part 4, pp. 25-26).

Thus, for the 11 historic structures, a class B level of investigation should suffice. A class B investigation of a historic structure will, depending on the type of resource, accomplish the following:

**Historical** - study in selected published and documentary sources of known or presumed relevance that are readily accessible without extensive travel and that are of a scope, organization, or content that promises expeditious extraction of relevant data; exposition in no greater detail than directly required by the purpose to be served

**Archaeological** - surface site examination, with excavation limited to the minimum exposure of subsurface remains required to support informed conclusions about the nature and location of the rest of the subsurface remains; investigation report setting forth data and conclusions directly relevant to the purpose to be served

**Architectural** - analysis of historical and archaeological findings; visual survey and conclusions, investigation of the building fabric only as essential to answer major structural questions; working drawings and specifications ("Activity Standards," part 4, p. 27)

The research already conducted to document the proposed exterior restoration/interior adaptive restoration, coupled with previously published research findings, already exceeds the requirements and definitions of a class B investigation.
DEVELOPMENT PACKAGE 110 (HEHO) PROJECT DOCUMENTS

In continuing the express intent of these foregoing planning and development documents, the approved "Task Directive" (August 1977), issued under a basic services agreement (CX-2000-7-0048) by the Denver Service Center to the architect/engineer (Wagner, Marquart, Wetherell, Ericsson, Architects) for development package 110 (HEHO) calls for exterior preservation/restoration and interior adaptive restoration...not to restore individual houses as 'museum-piece' examples of Victorian residential architecture, but to recreate a semblance of the immediate scene as it may have appeared during the years of Herbert Hoover's residence in the neighborhood (1874-1884). In pursuing this end, historically accurate and verifiable details are to be used whenever available, but 'informed conjecture' is not to be excluded (p. 2).

The first "Work Directive" (7-0048-77-01) under this basic services agreement, issued by the Denver Service Center, September 30, 1977, directs the architect/engineer to conduct historical (i.e., documentary), archaeological, and physical (i.e., architectural) investigations of each historic structure included in development package 110, as follows:

Title I Services - Historic Structures Report

A. Surveys

The Survey Phase of the work will be the responsibility of the Architect/Engineer with direct assistance of the NPS-HPD staff.

1. Physical investigation of the structural fabric of each building, including mechanical and electrical systems.

2. Recording of findings on survey form and revised 'As-Is' Record Drawings.


B. Schematic Design Phase (Preliminary Historic Structures Report)

The Schematic Design Phase of the work will be the responsibility of the Architect/Engineer, with direct assistance and under the supervision of the NPS-HPD staff, and its products will consist of a preliminary Historic Structures Report for buildings HS-2, HS-4, HS-5, HS-6, HS-7, HS-8, HS-9, HS-10, HS-11, HS-18, and HS-19, containing:
1. Summary of documentary information as it pertains to the structures and their environment.

2. Description and record of existing conditions by measured 'as-is' drawings and recent photographs of the building.

3. Results of preliminary physical investigation of the structural fabric of each building.

4. Description and graphic indication of probable appearance of each structure and its grounds during the historic period.

5. Recommended steps for preservation and restoration, including preliminary drawings.

6. Up-dated Form 10-802 (Package Estimating Detail) providing cost estimates to carry out recommended work.

7. Recommendation for further study, if necessary.

8. Presentation to NPS-HPD of alternative proposals developed during design research.

C. Preliminary Design Phase (Final Historic Structures Report)

The Design Development Phase of the work will be the responsibility of the Architect/Engineer and will consist of the following:

1. Structural System Examination: Determine locations, capacities and required alterations to structurally-active building members and components.

2. Preliminary Architectural Design: Prepare preliminary design plans, elevations, sketches, schedules and a preliminary outline specification.

3. Mechanical Systems Design: Prepare recommendations and preliminary designs for mechanical and electrical systems improvement to each building.


5. Preliminary Site Development: Prepare a preliminary site development plan for each building.
6. Preliminary Cost Estimate: Prepare a preliminary cost estimate for each building based on the preliminary specifications and plans.

7. Preliminary Recommendations Report: Provide a brief, written summary (on standard government-sized paper) and an oral presentation to NPS-HPD (in Denver) of the proposed historic preservation/adaptive restoration procedures, systems, project costs and schedule for NPS-HPD approval (pp. 2-4).

Thus, a direct linear consistency can be demonstrated between the initial legislative intent in establishing the Herbert Hoover National Historic Site, the express and implied intent of the National Park Service and the regional and site staffs in planning for the development of the site, the express directions given by the Midwest Regional Office to the Denver Service Center, and the intent of the Denver Service Center in defining and awarding contracts for the work to be done in documenting and preparing for the restoration of the 11 core area historic structures. This also demonstrates the consistency between the intent of these approved documents guiding the planning and development, and the preliminary design proposals contained in the sections which follow.

RESTORATION CRITERIA

In attempting to comply with the enabling legislation establishing the historic site, the National Park Service policies for historic preservation in force at the time this project was begun (1977), and with the explicit requirements and intentions of the approved planning documents for the historic site, a variety of criteria were considered with regard to the historic scene and the individual structures.

These criteria constitute the range of considerations brought to bear in the decisionmaking and planning process. Their application represents an attempt to introduce a degree of objectivity and a measure of philosophical consistency in planning the restoration work for the 11 core area historic structures; an attempt to establish comparative criteria for documenting, reviewing, and assessing the effect of proposed changes to historic structures; and an attempt to establish comparative criteria for documenting, reviewing, and assessing the effect of proposed changes to historic properties. These criteria can be broadly categorized as being historical, visual, structural/technical, functional, financial, or legal/administrative in nature, as outlined in the sections that follow.

Historical Criteria

Designated order of significance

Designated level of treatment (preservation, restoration, adaptive restoration, reconstruction, etc.)
Appropriate extent of treatment

Designated historic period and configuration of structure during this period

Significance/relevance of structure to interpretive theme of park

Condition of existing historic fabric and amount of such fabric remaining

Age, significance, condition of physical accretions to historic structure

Effect of proposed use/changes on existing historic fabric or historic scene

Visual Criteria

Appearance of structure during the designated historic period

Effect of proposed changes and use on the historic appearance of historic structure/historic scene

Similarities/dissimilarities between historic appearance, current appearance, and appearance of structure/scene after proposed changes

Structural/Technical Criteria

Characteristics of historic structural/technical elements of building during historic period

Existing physical condition of structural/technical building elements

Changes (repairs, alterations, replacements, additions, etc.) necessary to accommodate proposed type and intensity of use

Functional Criteria

Review of alternative treatments/uses (including relationship to core area activities)

Prior versus proposed use of structure

Suitability/adaptability of physical structure/historic fabric and accretions to functional requirements of proposed type and intensity of use

Financial Criteria

Estimated cost of proposed changes to structure
Programmed funds available

Life cycle cost analysis (episodic capital expenditures versus continuing operating expenses)

Legal/Administrative Criteria

Historic preservation law

Executive orders for historic preservation

Approved National Park Service master planning documents

National Park Service administrative regulations and directives

Building, health, and safety codes (national, state, and local)

Handicapped accessibility requirements

Energy conservation requirements

The relative importance attached to each of the foregoing criteria in evaluating proposed changes to historic properties will, of course, vary from case to case depending on the specific circumstances. The value of this approach is the greater degree of assurance that all relevant criteria will be objectively considered before a decision is made, and that--once made--such a decision can be both critically reexamined and defended in terms of these same criteria.

The application of these criteria, in keeping with the legislative, administrative, planning, and interpretive purposes for which the site was established, is presented in the pages which follow. In all cases, the appearance of each structure during its designated historic period is the overriding consideration in preparing the restoration recommendations. Photographic and physical documentation is sufficient to support the indicated work. Conjecture--even of the informed variety--has not formed the basis for any of these recommendations, temptations to the contrary notwithstanding.

The information contained in this report, in conjunction with the four historic structures reports previously completed by Edwin C. Bearss of the National Park Service, constitute a body of documentary and historical evidence that--used to complement the physical evidence derived from examination of the structures themselves--is more than sufficient to permit restoration in spirit as well as in fact.
APPENDIX G: PRELIMINARY DESIGN DRAWINGS
DESTRUCTION FLOOR PLANS

VACATE ALL MECHANICAL DRAWINGS FOR ADDITIONAL DEMOLITION.
ALL ITEMS NOTED TO BE DEMOLISHED & SALVAGED ARE NOT RELEASED TO CONTRACTOR.
REPLACEMENTS SHALL BE THE EXCERLONY OF THE OWNER.

[Diagram of Basement, First, and Second Floor Plans]
As the nation's principal conservation agency, the Department of the Interior has basic responsibilities to protect and conserve our land and water, energy and minerals, fish and wildlife, parks and recreation areas, and to ensure the wise use of all these resources. The department also has major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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