LAUREL HILL HOUSE

Historic Structure Report and Treatment Options

III. TREATMENT RECOMMENDATIONS

A. Definitions

The following definitions are taken from the Secretary of Interior's Standards for the Treatment of Historic Properties published by the National Park Service. More detailed standards are associated with each one of these definitions and are included in the *Appendices* of this report.

1. **Preservation** – the act or process of applying measures necessary to sustain the existing form, integrity, and materials of a historic property.

2. **Rehabilitation** – making possible an efficient compatible use for a property through repair, alterations and additions while preserving those portions or features that convey its historical, cultural or architectural values.

3. **Restoration** - accurately depicting the form, features and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period.

4. **Reconstruction** - the act or process of depicting, by means of new construction, the form, features and detailing of a non-surviving site, landscape, building, structure or object for the purpose of replicating its appearance at a specific period of time and in its historic location.

B. Preservation Policies

1. Memorandum of Agreement (MOA)

The Laurel Hill House is listed as a contributing structure to the District of Columbia Workhouse and Reformatory Historic District on the National Register of Historic Places. As such, the house is governed by the Memorandum of Agreement (MOA), found in *Appendix 1*. The MOA, executed by the Advisory Council on Historic Preservation, is an attachment to the Corrected Quitclaim Deed (July 2002) which transferred the property from the Federal Government to Fairfax County. The MOA provides procedural stipulations and review requirements for any "undertaking" within the National Register Eligible Historic District.

The MOA requires the Fairfax County Architectural Review Board (ARB) to review undertakings on the property in the same way it would review projects in a locally designated Fairfax County historic overlay district. Undertakings, as defined in the MOA, include, among other things, exterior rehabilitations or exterior alterations to contributing structures. The MOA requires the ARB to solicit comments from the Virginia Department of Historic Resources (VDHR) and the Lorton Heritage Society.

Any rehabilitations and alterations to the house must be in keeping with the Secretary of the Interior's Standards for Rehabilitating Historic Buildings. (A copy of the *Secretary of Interior's Standards* is included in *Appendix 2*).

The MOA addresses the review and documentation procedures for the demolition of any contributing structure. These procedures include coordination, review, and comment by the Fairfax County Architectural Review Board, the Lorton Heritage Society, the Virginia Department of Historic Resources, and the Board of Supervisors. The MOA includes procedures if a commenting party objects to a proposed demolition.

Section 10 of the MOA provides that the parties to the MOA shall invite the Lorton Heritage Society (LHS), Federation of Lorton Communities (generally recognized now as the South County Federation), the Virginia Department of Historic Resources, the Fairfax County Architectural Review Board, the Fairfax County Economic Development Authority, the Fairfax County Redevelopment and Housing Authority, and the Fairfax County History Commission to participate in the development of any redevelopment or adaptive use strategies for private development within the Eligible District. This participation includes a 30-day review of and comment on any proposed Request for Proposals by LHS, the ARB, and VDHR.

2. Fairfax County Park Authority Preservation Policies

While the Laurel Hill House is currently owned by the Fairfax County Board of Supervisors, this responsibility may be transferred to the Fairfax County Park Authority (FCPA) which currently manages the associated garden. In addition to the Memorandum of Agreement, the FCPA has historic preservation policies to guide decision makers in the appropriate preservation practices and application of options based on preservation objectives of the project.

The FCPA historic preservation policy is as follows:

> Policy 205 Historic Restoration
>
> Following guidelines established by the National Trust for Historic Preservation and the *Secretary of the Interior's Standards and Guidelines*, the Park Authority policy on historic restoration requires that treatment of cultural resources with structural integrity shall be performed according to the following philosophical principles:
>
> 1. Generally, it is better to preserve than repair, better to repair than restore, better to restore than reconstruct.
> 2. Usually, it is better to retain genuine old work of several periods than to arbitrarily "restore" the whole by new work to its aspect at a single period.
> 3. Every reasonable care and expense is justified to approximate in new work the materials, methods and quality of old construction.
> 4. Modern uses should be consistent with the preservation of the building's values.

C. Architectural Treatment Options

1. Option 1 – Restoration of Eighteenth Century Dwelling and New Addition (See drawings in *Section V, Part D* for illustrations of this option.)

This option includes a restoration of the eighteenth century dwelling with a new addition that includes the ability to accommodate new uses within the footprint of some of the earlier additions.

As an additional consideration, the area provided by the addition could also be accommodated in a separate, adjacent structure. The separate structure could relate to the restoration effort by having the appearance of an 18th century outbuilding. Additional historic research would be necessary to understand what the appearance and location of such an outbuilding would be.

a. Option 1 - Comparative Analysis

i. Pro – more manageable scope and cost than a complete rehabilitation; creates a landmark building for the development with a straightforward interpretation; creates an architectural symbol for the larger development.

ii. Con – little original historic fabric remains on which to base restoration, will require additional historical research, architectural investigation and archaeology. The result largely will be a conjectural reconstruction that is not recommended by professional standards and guidelines. The small size will limit uses and there will be staffing and operating costs.

iii. Proposed Uses: House museum/education.

b. Option 1 - Existing Elements Incompatible with Restoration

The following architectural elements are not architecturally compatible with the goal of restoring the building to the original eighteenth-century house.

i. Exterior

a). German siding.

b). Three-tab asphalt shingle roof.

c). Double-hung windows with two-over-two light pattern.

d). Five-panel door and transom.

e). Shed dormers.

f). Existing chimneys.

g). Later additions and wraparound porch.

h). Windows on upper story of gable ends.

ii. Interior

a). All interior trim other than limited original trim (as noted in *Building Description*).

b). All interior plaster save for limited areas of the original split wood lattice.

c). All existing doors.

d) Tongue-and-groove hardwood flooring (original flooring below the tongue-and-groove flooring should remain).

e). Brick fireplace on first floor.

f). Section of stair that was replaced due to deterioration.

g). Damaged interior structure (per the Wiley Wilson report in *Section II.D.3*)

c. Option 1 - Proposed Replacement Elements for Incompatible Elements

The following architectural elements are proposed as the elements to replace the incompatible elements noted above.
(Note: these proposed elements must be confirmed through additional historic research, architectural investigation and archaeology to avoid inappropriate conjectural reconstruction.)

i. Exterior

a). Beveled clapboard siding.

b). Wood shingle roofing. Probably oak.

c). Double-hung windows with six-over-six light pattern.

d). Wood shutters

C. Architectural Treatment Options, *continued*

e). Six-panel doors.

f). Roof dormers (to match one existing).

g). Stone chimneys.

ii. Interior

a). New wood trim to match original.

b). Plaster (lathe to depend on goals of restoration).

c). Six-panel doors with period hardware.

d). Heart pine plank flooring.

e). Plastered masonry fireplace with appropriate wood mantel and surround.

f). Restored stair.

g). New or repaired structural elements that utilize materials appropriate to the historic structure.

d. Option 1 – Code Analysis

i. Governing Codes

This code analysis was performed using the *Virginia Uniform State Building Code* (VUSBC 2003 Edition) including the *2003 Construction Code* and the *2003 Virginia Rehabilitation Code*. These codes reference the *2003 International Building Code* (IBC) the *2003 International Existing Building Code* (IEBC) respectively.

ii. Construction Type

Type VB (combustible unprotected) – wood frame construction

iii. Use Group

Existing/Previous: R (single family residential)

Proposed: B (Business –House Museum/Visitor's Center)

iv. Existing Building Code

The work to the existing section of the building in Option 1 would qualify for Alterations Level 2. All new construction will have to meet the standards of the 2003 IBC.

Because the proposed business use is considered equal or less hazardous than the original residential use in all categories, the change of use would be permitted so long as the provisions of IEBC Sections 812.3 in Chapter 8 – Change of Occupancy are met (see also the exception in IEBC 812.2.1). The two requirements of this section are to meet the IBC requirements for egress capacity and wall and ceiling finish.

Since the building is identified as a contributing building to the District of Columbia Workhouse and Reformatory Historic District, the provisions of IEBC Chapter 10 - Historic Buildings should be applicable. This Code Analysis can serve as the code evaluation requested in IEBC Section 1001.2.

v. Area

Actual (Exist):

Basement	725 SF (Gross)
Main Level	2,805 SF (Gross)
Upper Level	1,105 SF (Gross)
Total	4,635 SF (Gross)

Actual (Option 1):

Basement	725 SF (Gross)
Main Level	1,430 SF (Gross)
Upper Level	890 SF (Gross)
Total	3,045 SF (Gross)

Allowable: Based on B Use Group = 9,000 SF per floor
The building meets the allowable area (IBC 506.2).

vi. Height

Actual: 2 Stories/19'-6" +/- (to midpoint of dormer roof)

Allowable: Based on B Use Group = 2 Stories/40 feet

The basement is not considered a story (IBC 502). The building does not meet the allowable height requirement for assembly use. It would meet the allowable height with the sprinkler bonus (504.2).

vii. Fire Ratings (IBC Table 601)

Structural frame	0 Hours
Bearing walls – exterior	0 Hours
Bearing walls – interior	0 Hours
Floor construction	0 Hour
Roof construction	0 Hours
Floor construction	0 Hours

See Egress Section X for information related to corridor fire ratings.

viii. Fire Protection Systems

The building does not currently have a sprinkler system. Option 1 (business use) would not require a sprinkler system.

A fire alarm system is not required (IBC Section 907.2).

ix. Occupancy (Table 1004.1.2)

Option 1 – Business Use

Basement - 725 SF/300 gross SF per occupant	= 2 occupants
Main Level - 1,430 SF/100 gross SF per occupant	= 14 occupants
Upper Level - 884 SF/100 gross SF per occupant	= 8 occupants
Total Occupancy	= 24 Occupants

C. Architectural Treatment Options, *continued*

x. Egress

The egress travel distances are within the limit allowed by code for unsprinkled buildings (IBC 1015).

The building has the adequate number and proper location of exits on the first floor. The building only has a single stair to the second floor. Given the occupancy, this is acceptable for Option 1 (IBC Table 1018.2).

The egress stair is not enclosed as required by IEBC 603.2. All conditions at the existing stair can remain in historic buildings less than 3000 SF in area (which would apply to Option 1) per the exception in IEBC Section 1005.11.

The stair would be the key element to evaluate in regard to the required capacity of egress (IBC 1016.1) as required by IEBC Section 812.3.

The stair would be the key element to evaluate in regard to the required width of egress (IBC 1016.1). Egress stair width = 14 occupants x .2 inches/occupant (without sprinkler) = 2.8 inches. A minimum stair width of 36" would apply per IBC 1009.1.1. IEBC Section 1003.3 permits stairway widths less than what is acceptable for non-historic buildings with the code official's approval.

A corridor fire rating is not required by IEBC 603 (and limited occupancy would not require it under IBC Table 1016.1).

The existing stair is missing its lowest treads due to moisture damage. These treads will need to be rebuilt as winders in order to fit the necessary number of risers into the space available and to be historically accurate. The IBC does not allow winders in an egress stair per section 1009.8. The IEBC contains sections that may allow the winders to be rebuilt with the approval of the code official (reference IEBC 1005.11). Since these winders must be rebuilt as opposed to merely retained, a code modification may be necessary.

xi. Minimum Plumbing Fixtures

Business Occupancy = 1 water closet per 50 occupants
= 1 lavatory per 80 occupants
42 actual occupants/50 occupants = 1 water closets/1 lavatories

Separate facilities are required for each sex. This would mean that one water closet and one lavatory would be required for each sex in both uses. One dual-level drinking fountain and one service sink are also required.

xii. Handicap Accessibility (ADA), Options 1 & 2

IEBC Section 1005.15 states that with the approval of the code official, "where compliance with the requirements for accessible routes, ramps, entrances, or toilet facilities would threaten or destroy the historic significance of the building."

In order of priority, the following improvements to the accessibility of the building should be made:

1. at least one accessible building entrance;
2. at least one accessible route from an accessible building entrance to primary function areas;
3. signage;
4. accessible parking; and,
5. accessible route from accessible parking to an accessible entrance.
6. at least one handicap toilet should be provided.

A handicap parking space and accessible route to the building are not currently provided. For between 26 and 50 spaces, 2 handicap spaces are required.

The door hardware is not lever-handled. Interior signage does not exist, and new signage would need to meet ADA requirements for raised characters, visual characters, pictograms, etc.

The kitchen does not have a sink that meets ADA requirements of height, knee and toe clearances.

The existing toilet rooms do not meet the requirements for handicap toilets in regard to clearances, grab bars and mounting heights.

Typically, ADA improvements in existing buildings can be limited to 20% of a project's cost. The cost of correcting the deficiencies noted above in this section would count toward this amount.

C. Architectural Treatment Options, *continued*

e. Option 1 - Estimated Total Project Costs

LAUREL HILL HOUSE - OPTION 1: Restoration of 18th Century Dwelling and New Addition		
ITEM		**COST**
DIVISION 1 - GENERAL CONDITIONS		
GENERAL CONDITIONS		82,000.00
GENERAL CONTRACTOR FEE		82,000.00
NEW ADDITION		119,850.00
DIVISION 2 - SITE WORK		
BUILDING DEMOLITION		15,400.00
SELECTIVE DEMOLITION		25,500.00
HAZARDOUS MAT. ALLOWANCE		25,000.00
DIVISION 3 - CONCRETE (NOT USED)		
DIVISION 4 -MASONRY		
FOUNDATION REPAIRS		7,500.00
STONE CHIMNEYS		27,900.00
DIVISION 5 - METALS (NOT USED)		
DIVISION 6 - CARPENTRY		
FRAMING REPAIRS		12,000.00
STAIRS		9,500.00
ROOF DORMERS		14,000.00
DIVISION 7 - THERMAL AND MOISTURE PROTECTION		
WOOD SHINGLE ROOFING		15,600.00
SIDING - REPLACE		20,000.00
SIDING - PAINT		7,000.00
INSULATION		4,500.00
SHUTTERS		14,400.00
SUBTOTAL THIS SHEET		**482,150.00**

LAUREL HILL HOUSE - OPTION 1: Restoration of 18th Century Dwelling and New Addition		
ITEM		**COST**
DIVISION 8 - DOORS AND WINDOWS		
FRAMES		3,500.00
HARDWARE		7,500.00
NEW DOORS		8,000.00
WINDOWS - NEW		14,400.00
DIVISION 9 - FINISHES		
PARTITION		10,800.00
PAINT		8,028.00
TRIM		16,800.00
PAINT TRIM		4,725.00
WOOD FLOOR - REFINISH		7,136.00
WOOD FLOOR - REPAIR		21,408.00
PLASTER - CEILING		26,760.00
PLASTER - WALL		56,000.00
DIVISION 10 - SPECIALTIES		
INTERIOR SIGNAGE		500.00
FIRE EXTINGUISHERS		300.00
DIVISION 11 - EQUIPMENT		
SHELVING		1,250.00
DIVISION 12 - FURNISHINGS (NOT USED)		
DIVISION 13 - SPECIAL CONSTRUCTION (NOT USED)		
DIVISION 14 - CONVEYING SYSTEMS (NOT USED)		
DIVISION 15 - MECHANICAL		
PLUMBING (INCLUDED IN ADDITION PRICE)		
SEPTIC SYSTEM (ALLOWANCE)		30,000.00
WATER SERVICE (ALLOWANCE)		5,000.00
HVAC (EXIST HOUSE)		39,248.00
DIVISION 16 - ELECTRICAL		
SERVICE AND DISTR.		11,596.00
LIGHTING/WIRING		21,408.00
COMM/SECURITY		10,704.00
CONSTRUCTION COST (SUBTOTAL)		$787,213
CONTINGENCY @ 25%		$196,803
CONSTRUCTION COST (SUBTOTAL)		$984,016
ESCALATION (2 YEARS - 10%)		$98,402
CONSTRUCTION COST (TOTAL)		**$1,082,418**
CONSTRUCTION COST/SF		**$355**
SOFT COSTS 40%		$432,967
PROJECT (HARD + SOFT) COST		**$1,515,385**
PROJECT COST/SQUARE FOOT		**$497**

C. Architectural Treatment Options, *continued*

2. Option 2 – Rehabilitation of the House in its Current Configuration (See drawings in *Section V, Part D* for illustrations of this option.)

This option maintains the general existing configuration of the building to the extent possible. Under this rehabilitation option, most of the additions are considered to have acquired historic significance in their own right and are therefore preserved. Any new use would need to be accommodated within the existing building with minimal change to defining characteristics.

The removal of historic features of the building would be avoided and there would be no attempt to return the interior of the building to an earlier era. Deteriorated historic features would be repaired, if at all possible, and replaced in-kind if beyond repair.

a. Option 2 - Comparative Analysis

i. Pro – Creates building period that can be interpreted along with garden, retains all eras and changes to the house, may provide more flexibility in potential uses.

ii. Con – Poor condition of house will make for an expensive construction project and alterations have compromised architectural integrity of the original dwelling. Also there will be staffing and operating costs.

iii. Proposed uses: Welcome/visitors center.

b. Option 2 – Architectural Deficiencies

The following deficiencies will need to be corrected as part of the Option 2 Rehabilitation of Building in its Current Configuration. Proposed corrections are noted in the following section.

i. Exterior

a). A section of the foundation on the southeast side of the building has collapsed.

b). Most of the paint has worn off of the wood siding. As a consequence, areas of siding will need to be replaced. If the siding remains unpainted, more and more of the siding will deteriorate beyond repair.

c). The three-tab asphalt shingle roof is not appropriate to the building and has required recent patching to repair leaks. It should be considered to be at the end of its serviceable lifespan. Based on the history of leaks, a certain amount of the roof deck should be assumed to be in need of replacement.

d). The various elements of the wraparound porch are in varying states of deterioration and disrepair. These elements include: the wood tongue-and-groove floor, the painted beaded-board ceiling, and the architectural cornice, and columns. The structure below the porch floor should be assumed to be unsalvageable. The brick foundation of the porch has collapsed in some areas. Based on the observed deflection in the porch roof, much of the roof structure and decking should be assumed to be in need of replacement.

e). The brick chimneys are showings signs of deterioration especially at their tops. The east chimney is held together with straps.

f). Windows are in varying condition. Several windows have deteriorated beyond repair.

ii. Interior

a). Interior plaster is typically in poor condition.

b). Some of the existing wall and floor framing shows insect damage or damage due to moisture infiltration.

c). Trim in several areas has been damaged due to abuse or water infiltration. The wood wainscot on the first floor is in particularly bad condition.

d). In some locations, the existing doors do not fit properly in their openings. The door hardware varies in condition and type.

e). The finish of the tongue-and-groove hardwood floors is worn. In several locations, the floor is severely damaged due to abuse or moisture infiltration. Vinyl tile in the building is damaged and outdated (and may contain asbestos).

f). The bottom treads of the stairs have been removed due to their deterioration. Decorative trim is missing from the stringer.

g). Built-in cabinetry has deteriorated due to abuse and moisture infiltration.

h). The existing kitchen is outdated and is not architecturally significant.

i). All plumbing and plumbing fixtures are damaged, outdated or not in serviceable condition. None of the bathrooms conform to handicap accessibility standards. The septic system, while not evaluated as part of this report, is assumed to also be beyond salvaging. The well should be evaluated for its ability to supply water for the house.

j). The boiler and radiator system in the building is assumed to be beyond its serviceable life span.

k). All electrical equipment, wiring and fixtures are assumed to be unusable for the intended uses of the building. The size of the existing electrical service is assumed to be inadequate compared to modern standards.

c. Option 2 – Treatment Plan

i. Exterior

a). Repair damaged sections of the existing foundation.

b). Repair damaged siding. Prepare and repaint all wood elements on the building exterior.

c). Provide new architectural fiberglass shingle roof (roof material could change based on the specific architectural goals of the project).

d). Completely rebuild the existing porch, salvaging architectural elements to the extent possible for reuse. Elements that cannot be salvaged should be matched in-kind.

e). Repair and rebuild as needed the existing brick chimneys.

f). Repair windows that are in good enough condition to salvage. Replace windows damaged beyond repair with new matching windows.

ii. Interior

a). Replace interior plaster with thin plaster on gypsum backer or gypsum board with level 5 (skim coat) finish.

b). Repair or replace damaged wood framing.

c). Interior trim will need to be repaired or replaced in some locations due to its condition. Some flat trim may be replaced depending on the final project scope and the architectural design concept. Much of the non-historic trim may need to be replaced as a matter of cost and convenience when the plaster wall finish is replaced.

d). Interior doors will need adjustment to operate properly. New hardware will be required where necessary for the doors to operate and to bring doors into compliance with ADA. Some existing hardware could be retained depending on specific preservation goals of the project.

e). Repair damaged areas of the tongue-and-groove wood floor with matching material. Refinish the entire floor. Remove vinyl tile and underlayment (confirm asbestos content of floor). Repair/restore wood floor beneath tile.

f). Restore the stair to its previous condition to the extent possible.

g). Repair or rebuild existing built-in cabinets, as is appropriate to the specific architectural goals of the project.

h). Remove the existing kitchen cabinets and appliances. Replace with a kitchenette suitable for providing food for employees (not the public).

i). Replace all plumbing, fixtures and upgrade at least one bathroom to handicap standards. Assume that the septic system and water supply will need to be upgraded for the intended uses.

C. Architectural Treatment Options, *continued*

j). Replace the existing radiator system with new heat pumps providing heat, ventilation and air conditioning.

k). Provide new upgraded electrical service. Provide all new wiring and fixtures throughout the building. Decorative lights should provide an appropriate appearance for the architectural goals of the project.

d. Code Analysis – Option 2

i. Governing Codes

This code analysis was performed using the *Virginia Uniform State Building Code* (VUSBC 2003 Edition) including the *2003 Construction Code* and the *2003 Virginia Rehabilitation Code*. These codes reference the *2003 International Building Code* (IBC) the *2003 International Existing Building Code* (IEBC), respectively.

ii. Construction Type

Type VB (combustible unprotected) – wood frame construction

iii. Use Group

Existing/Previous:

R (single family residential)

Proposed: A-3 Assembly (Museum/Events)

iv. Existing Building Code

For Treatment Option 2, the provisions of *IEBC Chapter 8, Change of Occupancy*, would apply because the assembly use is more hazardous than the original residential use in three out of four categories under *IEBC Section 812*. In addition due to section *IEBC 812* the provisions of Alterations Level 3 will have to be met for this use.

Since the building is identified as a contributing building to the District of Columbia Workhouse and Reformatory Historic District, the provisions of IEBC Chapter 10 - Historic Buildings should be applicable. This Code Analysis can serve as the code evaluation requested in IEBC Section 1001.2.

v. Area

Actual (Exist/Option 2):

Basement	725 SF (Gross)
Main Level	2,805 SF (Gross)
Upper Level	1,105 SF (Gross)
Total	4,635 SF (Gross)

Allowable: Based on A-2 Use Group = 6,000 SF per floor
The building meets the allowable area (IBC 506.2).

vi. Height

Actual: 2 Stories/19'-6" +/- (to midpoint of dormer roof)

Allowable: Based on A-2 Use Group = 1 Story/40 feet

The basement is not considered a story (IBC 502). The building does not meet the allowable height requirement for assembly use. It would meet the allowable height with the sprinkler bonus (504.2).-**Fire Ratings (IBC Table 601)**

Structural frame	0 Hours
Bearing walls – exterior	0 Hours
Bearing walls – interior	0 Hours
Floor construction	0 Hour
Roof construction	0 Hours
Floor construction	0 Hours

See Egress Section X for information related to corridor fire ratings.

vii. Fire Protection Systems

The building does not currently have a sprinkler system. For Option 2, a sprinkler would be required for the A-2 use due to the height restriction.

A fire alarm system is not required by IBC Section 907.2.

viii. Occupancy (Table 1004.1.2)

Option 2 – Assembly Use (unconcentrated)

Basement -	725 SF/300 gross SF	= 2 occupants
Main Level-	2,805 SF/15 SF/.8 (net factor)	= 150 occupants
Upper Level	1,105 SF/15 SF/.8 (net factor)	= 60 occupants
Total Occupancy		= 212 Occupants

ix. Egress

The egress travel distances are within the limit allowed by code for unsprinkled buildings (IBC 1015).

The building has the adequate number and proper location of exits on the first floor. The building only has a single stair to the second floor. Assembly use would require the addition of a second stair or fire escape per IEBC 605.3 unless the code official agrees to permit the existing conditions per IEBC 1005.10.

The egress stair is not enclosed as required by IEBC 812.4.4.2. This appears to be superseded by IEBC Section 1003.6 (and 1005.1), which requires stair enclosures to limit the spread of smoke (with tight fitting openings and solid elements) but does not require the enclosure to have a fire rating. In this light, the upstairs and downstairs halls could act as the vertical exit enclosure for the building (since they also meet the criteria of being used only for egress per IBC 1019.1) once the downstairs hall is made to resist the spread of smoke by the addition of solid doors into the two adjacent first floor spaces.

(Refer to the code analysis in Option 1 for a discussion of the rebuilding the existing stair with winder treads).

Unless a sprinkler system is provided, the corridor is required to be fire rated if the number of people using it is more than 30 (IBC Table 1016.1). In Option 2, this sprinkler system would be provided.

The stair would be the key element to evaluate in regard to the required width of egress (IBC 1016.1). Egress stair width = 60 occupants x .2 inches/occupant (unsprinkled) = 12 inches. A minimum stair width of 36" would apply per IBC 1009.1.1. IEBC Section 1003.3 permits stairway widths less than what is acceptable for non-historic buildings with the code official's approval.

Due to the higher occupancies in the assembly use option, the inward swing of the entrance doors may need code officials approval per IEBC 1005.7. Panic hardware would be required on outswinging doors with a egress capacity of over 50 occupants.

The handrails at the stairs do not conform to the code required details for extensions (IBC 1009.11). The guardrails do not meet the height requirement of IBC section 1012.2. IEBC sections 1003.9 and 1003.10 allow the handrails and guardrails to remain.

C. Architectural Treatment Options, *continued*

x. Minimum Plumbing Fixtures

Assembly Occupancy = 1 water closet per 125 occupants (male)
= 1 water closet per 65 occupants (female)
= 1 lavatory per 200 occupants

212 actual occupants/125 occupants (male)/2 = 1 water closet/1 lavatory

212 actual occupants/65 occupants (female)/2 = 2 water closet/1 lavatory

Separate facilities are required for each sex. This would mean that one water closet and one lavatory would be required for each sex in both uses. One dual level drinking fountain and one service sink are also required.

xi. Handicap Accessibility (ADA)

(Refer to Page 55 Option 1, xii for complete ADA scope of work.)

e. Option 2 - Estimated Total Project Costs

LAUREL HILL HOUSE - OPTION 2: Rehabilitation of the House in its Current Configuration		
ITEM		**COST**
DIVISION 1 - GENERAL CONDITIONS		
GENERAL CONDITIONS		88,000.00
GENERAL CONTRACTOR FEE		88,000.00
DIVISION 2 - SITE WORK		
ALLOWANCE FOR UTILITIES		12,000.00
SELECTIVE DEMOLITION		23,460.00
HAZARDOUS MAT. ALLOWANCE		25,000.00
DIVISION 3 - CONCRETE (NOT USED)		
DIVISION 4 -MASONRY		
FOUNDATION REPAIRS		7,500.00
CHIMNEY REPAIRS		6,500.00
DIVISION 5 - METALS (NOT USED)		
MISC STRUCTURAL STEEL		5,000.00
DIVISION 6 - CARPENTRY		
STAIRS		9,500.00
FRAMING REPAIRS		12,000.00
RESTORE PORCH		95,700.00
DIVISION 7 - THERMAL AND MOISTURE PROTECTION		
FIBERGLASS SHINGLE ROOFING		10,850.00
SIDING REPAIR		12,750.00
SIDING PAINT		6,000.00
CORNICE REPAIR		5,000.00
SUBTOTAL THIS SHEET		407,260.00

C. Architectural Treatment Options, *continued*

LAUREL HILL HOUSE - OPTION 2: Rehabilitation of the House in its Current Configuration		
DIVISION 8 - DOORS AND WINDOWS		
DOORS - REPLACE/ADJUST		12,012.00
FRAMES		4,368.00
HARDWARE		8,060.00
WINDOWS - REPAIR		19,200.00
WINDOWS - REPLACE		9,600.00
DIVISION 9 - FINISHES		
PARTITION		10,800.00
PAINT		15,640.00
TRIM		15,000.00
PAINT TRIM		6,750.00
CERAMIC TILE		2,400.00
WOOD FLOOR - REFINISH		12,635.00
WOOD FLOOR - REPAIR		6,000.00
PLASTER - CEILING		54,740.00
PLASTER - WALL		39,600.00
DIVISION 10 - SPECIALTIES		
TOILET ACCESSORIES		2,400.00
LOUVERS		480.00
INTERIOR SIGNAGE		500.00
FIRE EXTINGUISHERS		300.00
TOILET COMPARTMENTS		2,200.00
COUNTERTOPS		1,500.00
DIVISION 11 - EQUIPMENT		
APPLIANCES		1,200.00
CABINETS		7,500.00
RECEPTION DESK		11,500.00
ATTIC STAIR		1,500.00
SHELVING		1,250.00
DIVISION 12 - FURNISHINGS (NOT USED)		
DIVISION 13 - SPECIAL CONSTRUCTION (NOT USED)		
DIVISION 14 - CONVEYING SYSTEMS (NOT USED)		
SUBTOTAL THIS SHEET		247,135.00

LAUREL HILL HOUSE - OPTION 2: Rehabilitation of the House in its Current Configuration		
DIVISION 15 - MECHANICAL		
FIXTURES		10,000.00
DOMESTIC WATER		23,460.00
SPRINKLER SYSTEM		12,000.00
SEPTIC SYSTEM (ALLOWANCE)		30,000.00
WATER SERVICE (ALLOWANCE)		5,000.00
HVAC		89,930.00
DIVISION 16 - ELECTRICAL		
SERVICE AND DISTR.		25,415.00
LIGHTING/WIRING		46,920.00
COMM/SECURITY		23,460.00
CONSTRUCTION COST (SUBTOTAL)		**$920,580**
CONTINGENCY @ 25%		$230,145
CONSTRUCTION COST (SUBTOTAL)		**$1,150,725**
ESCALATION (2 YEARS - 10%)		$115,073
CONSTRUCTION COST (TOTAL)		**$1,265,798**
CONSTRUCTION COST/SF		$273.10
SOFT COSTS 40%		$506,319
PROJECT (HARD + SOFT) COST		**$1,772,117**
PROJECT COSTS/SQUARE FOOT		**$382**

C. Architectural Treatment Options, *continued*

3. Option 3- Selective Demolition to Foundations, Preserve Foundations and Interpretive Treatment Plan. (See drawings in *Section V, Part D* for illustrations of this option.)

The justification for this approach is the argument that without a compelling use for the building, it has lost so much of its historic integrity through alterations and deterioration that it does not warrant the expense of Options 1 or 2. The Fairfax County Park Authority has implemented a similar approach at Mt. Air property where the building burned and the foundation was maintained and interpreted (see photos this sheet).

a. Option 3 - Comparative Analysis with other Options

i. Pro – Least expensive option, easiest to implement, preserves some minimal aspect of the building and provides a historical and educational function through the interpretive exhibit.

ii. Con – Severe impact on remaining historic fabric of a building determined to be a contributing structure in a state and national historic district.

b. Option 3 – Treatment Plan

i. Remove entire frame structure of the house along with associated building systems.

ii. Retain perimeter stone and brick foundation of original house. Provide supplemental structural bracing as required to retain exposed foundation for long term. Provide limited masonry repair of existing foundation.

iii. Provide finish grading of areas where the building was built over a crawlspace.

iv. Provide site cleanup and appropriate paths, access and landscaping.

v. Provide a protective rail as required to prevent public from falling into basement area.

vi. Provide interpretive signage package to present history and significance of the Laurel Hill House in this context.

vii. Cap existing utilities.

viii. Make provision to drain foundation area.

ix. Provide security lighting.

Fairfax County Park Authority

Photos of Mt. Air with foundation preserved and interpreted.

c. Option 3 - Estimated Total Project Costs

LAUREL HILL HOUSE - OPTION 3: Selective Demolition to Foundations, Preserve Foundations and Interpretive Treatment Plan		
ITEM		**COST**
DIVISION 1 - GENERAL CONDITIONS		
GENERAL CONDITIONS		17,000.00
DESIGN CONTINGENCY		15,000.00
GENERAL CONTRACTOR FEE		15,000.00
DIVISION 2 - SITE WORK		
CAP UTILITIES		2,500.00
FOUNDATION DRAINAGE		4,500.00
GRADING/LANDSCAPE		10,000.00
BUILDING DEMOLITION		37,080.00
HAZARDOUS MAT. ALLOWANCE		25,000.00
DIVISION 3 - CONCRETE (NOT USED)		
DIVISION 4 -MASONRY		
FOUNDATION REPAIRS		15,000.00
DIVISION 5 - METALS		
GUARDRAILS		7,500.00
DIVISION 6 - CARPENTRY (NOT USED)		
DIVISION 7 - THERMAL AND MOISTURE PROTECTION (NOT USED)		
DIVISION 9 - FINISHES (NOT USED)		
DIVISION 10 - SPECIALTIES (NOT USED)		
EXTERIOR SIGNAGE, KIOSKS		35,000.00
DIVISION 11 - EQUIPMENT (NOT USED)		
DIVISION 12 - FURNISHINGS (NOT USED)		
DIVISION 13 - SPECIAL CONSTRUCTION (NOT USED)		
DIVISION 14 - CONVEYING SYSTEMS (NOT USED)		
DIVISION 15 - MECHANICAL (NOT USED)		
DIVISION 16 - ELECTRICAL (NOT USED)		
SECURITY LIGHTING		6,500.00
CONSTRUCTION COST (SUBTOTAL)		**$190,080**
CONTINGENCY @ 25%		$47,520
CONSTRUCTION COST (SUBTOTAL)		**$237,600**
ESCALATION (2 YEARS - 10%)		$23,760
CONSTRUCTION COST (TOTAL)		$261,360
SOFT COSTS 40%		$104,544.0
PROJECT (HARD + SOFT) COST		**$365,904.0**
PROJECT COSTS/SQUARE FOOT	(Based on 4635 SF)	**$79**

D. Site/Landscape Treatment Options

1. General

The site/landscape treatment options will need to correspond to the treatment options for the house. The house treatment options along with the general site context in which to develop the associated site treatment options are as follows:

Option 1: Restoration of 18th Century Dwelling and Addition - Limited evidence of original site features, gardens, and outbuildings

Option 2: Rehabilitate the House in its Current Configuration - Surviving garden, good documentation of yard and outbuildings with photos and surveys

Option 3: Selective Demolition to Foundations, Preserve Foundations and Interpretive Treatment Plan - Surviving altered foundation and gardens, good information for interpretive panels

The restoration of the grounds in Option 1 is the most problematic for reasons discussed below. The more pragmatic and park-associated improvements, such as visitor parking and trail development, can be done in conjunction with any of the three options or independently of them.

2. Historical Considerations

The challenge facing the restoration of the grounds in Option 1 is whether to tie the restoration period for the grounds immediately surrounding the house to the restoration period of the house or to select different periods and introduce the different periods with a strong interpretive piece. In addition to the philosophical debate, it is also a pragmatic debate as little visual or written documentation is known that describes the Lindsay house's setting from the eighteenth-century period. Much information is available for the 1930s period.

Photographic and mapping records are available for the house, grounds, and garden during the 1930s era. Little if any information has been found that describes the house's surrounding grounds from the eighteenth century other than the ink sketch that could be a 'romanticized' image of the house and its grounds rather than an actual factual portrayal. Further work is needed if the decision is to restore the grounds to their appearance in the eighteenth century. Alternatively, with good interpretation, a 'typical' eighteenth-century landscape could be created and be clearly presented as not the Lindsay's but a typical educated guess instead.

The documentation that is readily available at best only provides the vehicular circulation for the house at the turn of the twentieth century and later. Assuming that the circulation pattern had remained as such for several hundred years is a big assumption.

The photographs of the garden that is north of the house offer good visual evidence but fall outside of the two periods under consideration for restoration. Perhaps if Option 3 is selected, the arbor and the garden north of the house could be reconstructed. Alternatively, with good interpretation, a "typical" eighteenth-century landscape could be created and presented as not the Lindsay's home but rather as an example of a home and landscape from that time period.

3. Trails and Paths

The Park Authority has a large system of both Countywide and Laurel Hill park trails in place and under development. Opportunities exist to connect into the Cross-County Trail (interpretive opportunity as well) and more local trails between adjacent neighborhoods and park development.

The former entrance road (Reformatory Access Road) and the construction road trace in the woods to the east of the house both offer wonderful trail opportunities. The entrance road is hard surfaced and may require minor repairs, but is in relatively good condition. The road trace would work well as a natural surfaced trail, winding behind the house within the ravine and providing a potential loop completion to the access road.

4. Parking

Regardless of the treatment plan selected for the house, access to the site requires better definition. Currently, casual parking is available on the site of the former driveway and garage. At a minimum, such use can continue, providing parking access for uses of the Cross-County trail directly to the north of the house and to the house and its grounds and potential trail links as well.

It would be better to define the parking area to reduce the future negative impact on the adjacent grounds from vehicular traffic. A semi-permeable surface material such as gravel can serve as a temporary or even permanent parking surface. Or, dependent upon the future of the house, pavers could be used and would provide multiple use options for the house and its future functions.

E. Criteria to Analyze Options

This section includes an explanation of various criteria that can be used to evaluate the proposed treatment options. The relative importance and interrelationship of these criteria may vary depending on circumstances not known at the time of this report.

1. Overall Goals for Laurel Hill/Lorton Adaptive Use Project

Since the Laurel Hill House is associated with the much larger adjacent adaptive use area project, the proposed treatment options should be considered in light of its larger context. Early in the process several key factors that would affect this relationship were identified:

a. The Laurel Hill House is the namesake of larger Laurel Hill development.

b. It is the starting point in the known history of site.

c. It has important connections to the prison era and is related to the adjacent prison buildings in the proposed adaptive reuse area.

d. It is located adjacent to proposed recreational uses.

Since the plans for the adaptive use area are still at a very early stage, it is impossible to understand all of the ways that the Laurel Hill House will relate to its larger context. As the design for the neighboring former reformatory buildings and park areas develop, this criteria for judging the options should be revisited.

2. Historical Significance of House and Site

Each of the treatment options should be judged according to how it impacts the character-defining historic features of the building and site. A strong desire by the building's owners to emphasize a particular period of significance would have an impact on which treatment option is chosen.

In addition, the relationship between the historic significance of the house and the adjacent prison-era historic gardens should be considered. Recommendations for the gardens are being developed in a separate study, which is currently not complete.

E. Criteria to Analyze Options, *continued*

3. Current Condition of House and Site

The condition of the house ranges from fair to poor. This deterioration has had an impact on its historic character and will also affect the project budget. Delays to implementing the project will likely necessitate short-term maintenance funds be spent on the building to prevent it from deteriorating beyond repair.

4. Range of Possible Uses that Fit House and Site

A definite use for the building has not been determined. Two uses (house museum and welcome/visitor's center) were proposed, in part, to evaluate the different building code considerations that they would generate. Based on the code analyses in this report, for instance, the smaller building and a business (B) use, would be more easily accommodated than assembly (A) from a code standpoint. Once an actual building program is developed, this criteria for judging the options should be revisited to evaluate how well the program will fit given the constraints of the existing structure.

5. County, State and National Historic Preservation Standards and Policies

Prior to construction, the design for any treatment option will require architectural review and approval as specified in the *Memorandum of Agreement* (MOA) developed during the transfer of the property from the Federal Government to Fairfax County. The *Secretary of Interior's Standards*, which form the basis for this architectural review, are included in the appendices of this report.

6. Funding Amounts and Availability

Funding for this project must be sought along side of other competing priorities if financed by Fairfax County. Alternate methods of project delivery could include the participation of a private sector developer in conjunction with the adjacent Laurel Hill development. Available funding will be key considerations in judging the various treatment options.

7. Schedule Considerations

As noted in item 3 above, delays to this project could affect the condition of the building and its ultimate viability as a project. Any decision on treatment options will need to take this and other schedule considerations into account.

8. Operational Responsibilities

The staffing, maintenance and other operational requirements are beyond the scope of this report but are realities that will need to be considered by whomever takes on the responsibility of running this facility.

F. Explanation of Cost Estimates

The cost estimates included in this report are general in nature and are based on conceptual plans. They represent Frazier Associates' judgment as design professionals familiar with the construction industry. Actual costs of the project may vary from the estimates based on a number of factors, such as changes in scope and conditions, uncovered during construction. A project contingency is included in the estimates to allow for such items, which, by nature cannot be understood at this time.

The cost figures are intended to assist with the planning process. They should be updated as plans for the work are developed and the scope of the project is better defined.

Escalation of 5% for two years is included in the estimates. If the time between the date of this report and the midpoint of construction is substantially more than two years, the estimate should be adjusted to reflect current market costs.

Projects developed by the Fairfax County Park Authority typically have soft costs ranging from 25-40% of the construction costs. The soft cost include fees for architects, landscape architects and all the typical engineering disciplines. Since this project would include non-typical consultants for work such as archaeology, historic preservation, hazardous materials testing, abatement design and monitoring as well as exhibit design, the high end of the range (40%) is used as the soft cost figure in the treatment option cost estimates. Depending on the extent to which the *Recommendations for Further Study in Section IV* are implemented, this 40% allowance for soft costs could increase.

Furthermore, Fairfax County Park Authority's experience in undertaking similar projects has resulted in square foot costs even higher than these estimates due to the specialized nature of historic preservation and the shortage of qualified and experienced contractors in the area.

Lastly, these estimates do not include any costs for site work since there is no defined scope of work for the site at this time. The type of use, parking requirements, additional outbuildings, and garden restoration decisions all will affect these future additional site costs.