

**Official Residences in the
National Capital Region**

**Résidences officielles dans la
Région de la capitale nationale**

Life Cycle Management Program

Programme de gestion en fonction du cycle de vie



Rideau Hall



24 Sussex



Leo Harrington Lake



Stornoway



7 Rideau Gate



The Farm / La ferme



24 Sussex Drive

Residence of the Prime Minister of Canada

Fall 1998

24 Sussex Drive Residence of the Prime Minister of Canada

Life Cycle Management Program

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INTRODUCTION AND PHILOSOPHY



**24 Sussex Drive
Residence of the Prime Minister
Life Cycle Management Plan**

INTRODUCTION

BRIEF HISTORY

The official residence known as 24 Sussex Drive in Ottawa was built between 1866 and 1868 by Joseph Merrill Currier, a lumber baron and member of the first dominion Parliament. In 1902, it was sold to another lumber baron, William Cameron Edwards. It was subsequently acquired by the Government of Canada in 1943. Between 1949 and 1951, the house was remodelled to serve as the official residence of the Prime Minister.

This official residence comprises four acres of grounds, one main building, three floors plus basement, with 34 rooms covering approximately 1,000 square metres (11,000 square feet), plus four outbuildings (pool, 10 Sussex Dr., two guardhuts).

BASE DATA

Base Data			
<i>Civic address:</i> 24 Sussex Drive, Ottawa	<i>Legal Description:</i> Pt. Lot 3 (J.G.) Township of Gloucester (now City of Ottawa)	<i>Zoning:</i> G – Government use	
<i>Gov. Acquisition Date:</i> 1943			
<i>Heritage Designation:</i> Classified (FHBRO)	<i>Primary reason for designation:</i> Direct association with past Prime Ministers		
Grounds			
<i>Site Dimensions:</i> Irregular – 171 m frontage on Sussex Drive	<i>Area:</i> 2.15 ha.; 3% buildings, 7% parking & delivery, 15% steep cliff, 75% landscaped	<i>Description:</i> Level site, well landscaped with mature trees, steep relief to Ottawa River.	
Main Building			
<i>Occupancy:</i> Residential	<i>Floors:</i> 3 + basement	<i>Gross Area:</i> 1009.5 m ² – 69% State, 31% Private	
<i>Construction Date:</i> 1867 with numerous later additions.	<i>Foundation Type:</i> Rough rubblestone masonry 600 mm thick	<i>Roof Type:</i> 10% Flat – 4 ply tar & gravel; 90% Sloped cedar shingles	
<i>Air Conditioning:</i> Window mounted units	<i>Heating:</i> Gas-fired hot water boiler, radiators	<i>Other:</i>	
SECONDARY BUILDINGS			
<i>Name / Reference:</i> 10 Sussex Drive	<i>Use:</i> RCMP Detachment	<i>Gross area:</i> 162,5 m ²	<i>Construction Date:</i> 1868
<i>Name / Reference:</i> Pool Building	<i>Use:</i> Swimming pool	<i>Gross area:</i> 100 m ²	<i>Construction Date:</i> 1975
INFRASTRUCTURE			
<i>Electrical Service:</i> Main res. 400A, 120/240V 1 phase; Pool: 400A, 600V, 3 phase.	<i>Water Service:</i> Regional system, fire hydrant across street.	<i>Sanitary Sewer:</i> 200 mm clay pipe linked to municipal system.	
<i>Roads:</i> Asphalt drive and parking	<i>Fences:</i> Steel, & perimeter security fence	<i>Gas:</i> Responsibility of utility.	

HERITAGE CHARACTER DEFINING ELEMENTS

On July 11, 1986, 24 Sussex Drive was designated Classified by FHBRO because of its direct association with six Prime Ministers of Canada, because of its status as a nationally known landmark, and because of the impact of the house and its grounds on the character of the area.

During its first 75 years, the house was associated with three of the lumber barons of the area. By 1943 it was the last remaining private residence on Sussex Drive. It was expropriated by the Government of Canada, and became the official residence of the Prime Minister in 1949.

The heritage character of 24 Sussex Drive is determined in part by the evolutionary nature of the property. Modifications in 1949 substantially altered the original Gothic Revival design, from a chateausque appearance with towers, oriel windows and a porte-cochere, to a more restrained and formal design. The present facade is relatively unadorned and tied together by the horizontal roof lines and rows of rectangular, shuttered windows. This gives the house a certain unity and balance which must be respected. This is the image which is now associated with the Prime Ministers who have lived there.

Apart from its major elevations, the character of the house is defined by its outstanding location. The most significant surviving landscape feature which should be protected is the circular drive connecting the property to Sussex Drive. In general, the grounds are open making the house the most prominent element. This characteristic should be retained; consequently any attempt to introduce buildings for support activities should be closely reviewed. The house commands magnificent views, and is further enhanced by its setting on Confederation Boulevard route between the Governor General's residence and Parliament Hill. Its role as an important symbolic and visual landmark must be recognised in any alterations to either the house exterior or its grounds.

STATEMENT OF PHILOSOPHY (For all official residences)

- The National Capital Commission, being the owner of the Official Residences in the National Capital Region (Rideau Hall, 24 Sussex, Harrington Lake, Stornoway, Kingsmere Farm, 7 Rideau Gate), and Public Works Government Services Canada, being the custodian of the Citadel in Quebec City, will provide appropriate accommodation to the nation's leaders, their families and guests.
- The NCC and PWGSC will protect the investment and manage the inventory in an efficient and economical manner while respecting the heritage character of the properties and the functions they must serve.
- The NCC and PWGSC keep separate accounts for the furnishings, facilities maintenance, greenhouse and grounds operations, building repairs and capital improvements to the properties.
- The NCC and PWGSC will support the role of the occupants in the achievement of their mandates, taking into account national awareness programs.

- The NCC and PWGSC shall respect the privacy of the occupants and their families and keep them or their representatives informed of the plans attributed to the state of repair of the properties.
- The NCC and PWGSC shall act as the keeper of the national treasures, artefacts and works of art attributed to the properties.
- The NCC and PWGSC shall work closely with those responsible for the office of the Governor General, the Prime Minister, the Speaker of the House of Commons, the Leader of the Official Opposition and the Chief of Protocol (FAIT), and with those responsible for the security and operations of the occupants.
- The NCC and PWGSC shall work with and rely upon the advice of others, including the Advisory Committee on the Official Residences of Canada, but shall be the single point of responsibility and accountability in the management and setting of the standards and quality for their respective properties. For these purposes they shall be regarded as the owner investor.
- The NCC and PWGSC shall co-ordinate all communications related to their activities at the Residences.
- The NCC and PWGSC will be responsible for property management and the representatives of the occupants will be responsible for household management.

MANAGEMENT PRINCIPLES (For all official residences)

The Official Residences *Management Principles* have been established to direct the National Capital Commission in its mandate of policy development, strategic planning, long term development and maintenance of the official residences portfolio in the National Capital Region.

Those principles offer support in two key areas in the management of the portfolio. The first area is planning and the second is operations.

PLANNING PRINCIPLES

- That all the residences are divided into State Areas and private areas (allowing for decor planning and expenditure guidelines).
- That all grounds are separated into specific landscape zones (allowing for use, maintenance and intervention guidelines).
- That state area decor be maintained for a generation before complete redecoration occurs.
- That the heritage characteristics of the properties, as defined by FHBRO, be maintained.
- That all residences have a plan in place covering preferred development strategies for buildings, grounds and infrastructure.
- That all residences have a *Life Cycle Management Plan* in place.
- That all residences have an *Emergency Response Plan* in place.

- That all residences must be operational at all times (unless specific arrangements are otherwise made).
- That all grounds and residences be universally accessible (front door access and guest floor access guidelines).
- That all building systems are modernised or upgraded to 1998-2000 standards.
- That all residences provide for fire detection and suppression systems (allowing for the evacuation of the building by occupants and the protection of assets).
- That all residences have backup systems to permit the residence to function in case of regular infrastructure outage (e.g. that all residences have an emergency power source available to address life safety, security and functional requirements in case of power outage).
- That all residences offer year round centrally controlled, architecturally integrated HVAC systems offering the occupants healthy and comfortable indoor environmental conditions.
- That all residences be furnished and equipped at all times.
- That the contents of all residences be inventoried, inspected and maintained regularly.
- That though measures taken at all residences to protect the state collections and furnishing, the residences may not be rendered to museum standard.
- That environmentally friendly practices be used in managing the property.

PROGRAM CATEGORIES

As these *Management Principles* have been applied across the portfolio it is evident that there are opportunities for continued improvement on existing conditions at the residences.

Achieving the consistent program delivery against these principles across the portfolio's buildings, grounds and interiors is being accomplished through the application of a set of customised *Design and Conservation Guidelines* prepared by the NCC.

Guidelines are available to ensure that the major *Program categories* support the Management Principles. The Program categories are:

- a) Safety, Security and Universal Accessibility;
- b) Heritage Conservation and Environmental Protection;
- c) Base Building, Grounds, Infrastructure and Interiors;
- d) Functional, and Protocol Support Capability.



24 Sussex Drive aerial view. Photo 1998

DESIGN AND CONSERVATION GUIDELINES (Specifically for 24 Sussex)

The Design and Conservation Guidelines for 24 Sussex Drive cover the following categories:

- a) Safety, Security and Universal Accessibility;
- b) Heritage Conservation and Environmental Protection;
- c) Base Building, Grounds, Infrastructure and Interiors;
- d) Functional, and Protocol Support Capability;

They give specific direction to required interventions. The categories help to organise and structure the program of works, schedules and budgets. Within each **Program Category**, design and conservation **issues** requiring remedial work during the next 10 years are identified. For every **issue**, **recommendations** are made to remedy the situation and bring the property up to the appropriate **standards**. Standards are not discussed but only quoted where appropriate. The NCC is responsible for applying industry or federal government standards such as the National Building Code, the Canadian Standard

Association, the Fire Code, the RCMP security standards, Treasury Board Accommodation Standards, CSA Barrier Free Design Standards etc.

It is understood that interventions in a particular *Program Category* will take into consideration the standards and guidelines which apply in other categories. Base building or safety work will be done taking into consideration aesthetic and heritage preservation concerns. As well, heritage conservation work will be done taking into consideration safety and universal accessibility concerns.

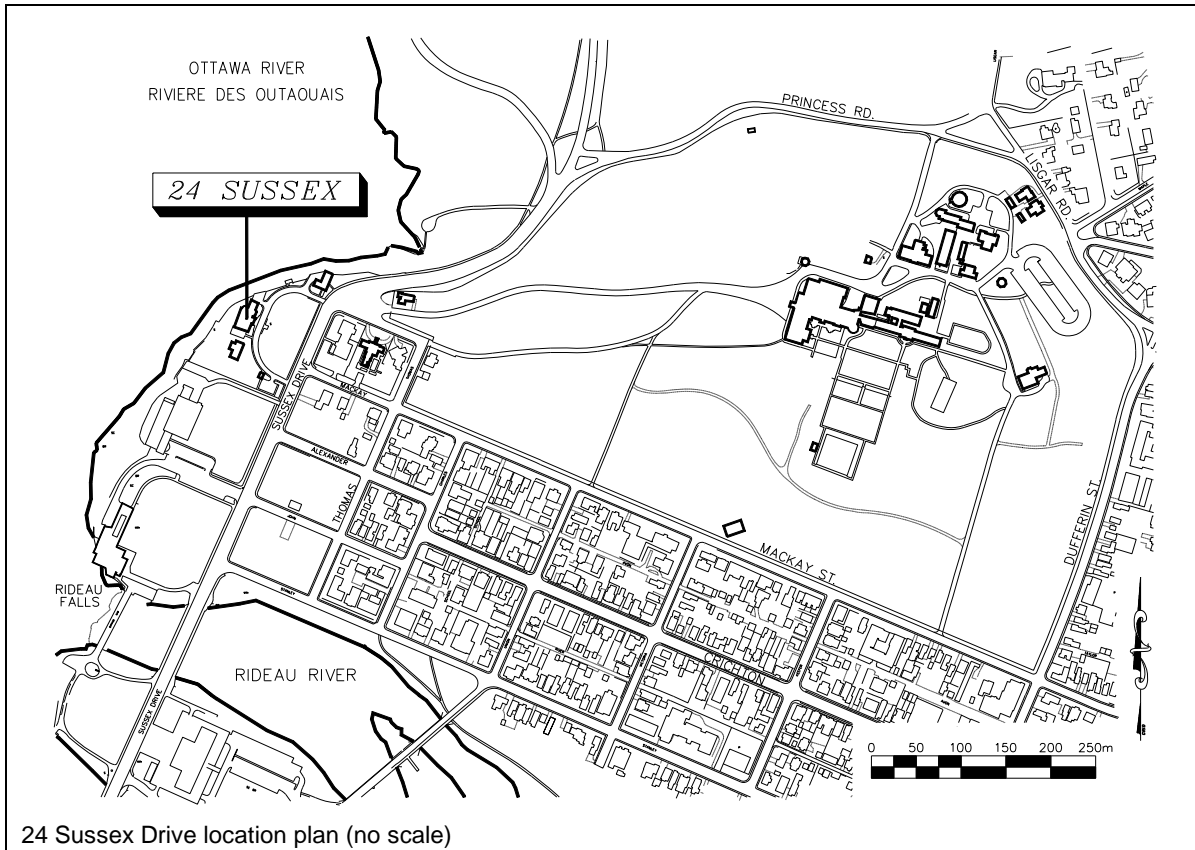


10 Sussex Drive (photo NCC1999)

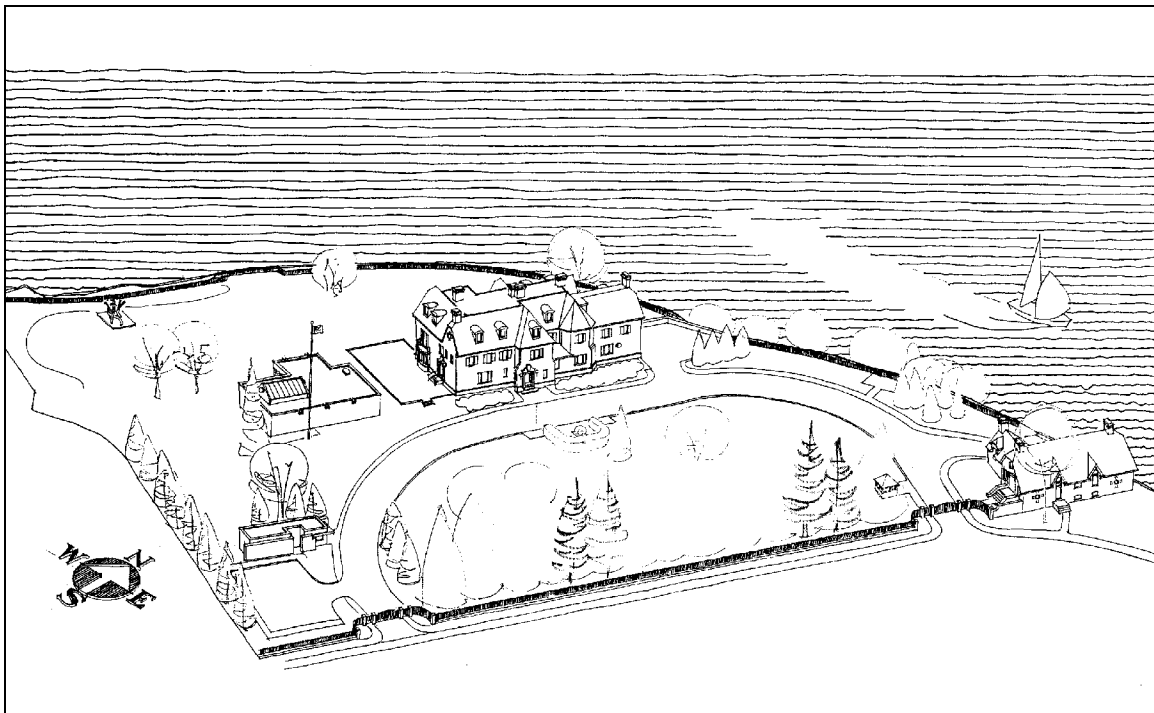


Pool Building (photo NCC 1998)

LOCATION AND FLOOR PLANS



24 Sussex Drive location plan (no scale)



24 Sussex Drive - Aerial view 1998 with new West Guardhut and new front gates and fence.



Front Elevation (1998)



Rear Elevation (1998)



South Elevation (1998)



North Elevation (1998)

Main building basement plan
Hatched areas = Private

Main building ground floor plan
Hatched areas = Private

Main building second floor plan
Hatched areas = Private

Main building third floor plan
Hatched areas = Private

SECTION A

SAFETY, SECURITY AND UNIVERSAL ACCESS

SAFETY

Guideline A01 - Safety - Fire detection system upgrades

Principle:

Because life safety is of paramount importance, and because the building and its contents which include a Crown Collection are of national heritage significance, it is essential that the Residence be equipped with a fire detection system that meets or exceeds the following codes and regulations: Canadian Building Code 1995, CAN/ULC-S524-M86; Treasury Board Standard Chapter 7 (7-5); Canadian Electrical Code C22.1-1990 Section No.32 & Append. 'B'; National Fire Protection Agency Standards.

Issues:

None. The fire detection system was upgraded during 1998

Guideline A02 - Safety - Fire suppression system upgrades

Principle:

Because life safety is of paramount importance, and because the building and its contents are of national heritage significance, it is essential that the Residence be equipped with a fire suppression system.

Issues:

- Currently there is only a series of fire extinguishers sitting on the floor to serve as means to suppress fire at the Residence.
- Apart from maintaining or upgrading the existing fire suppression hood at the kitchen's gas stove, there is no building code obligation to install a sprinkler system at this site.
- Without a fire suppression system occupants, visitors and staff are potentially at risk.
- Without a fire suppression system, there is elevated risk that the building and /or contents be lost if a fire ever started in the Residence.

Recommendations:

- In order to meet the Management Principles for the portfolio, sprinklers should be installed. Any new fire suppression system should be designed to meet or exceed the relevant standards, with great care taken to architecturally integrate system components.
- To ensure the protection of the Crown Collection in the event of a fire it is important to consider a dry sprinkler system. Although water is a back-up with this system for a larger fire, it is hoped that early detection of smoke and heat will eliminate the latter stage.

Estimated Cost: \$ 110 K

- 120 sprinkler heads @\$150 = \$18,000
- Kitchen hood extinguishing system = \$4,000
- Other fire suppression items (hoses, extinguishers etc.) = \$5,000
- Make good ceilings, walls, floors = \$45,000
- Contractor profit & taxes = \$ 23,000
- Professional fees = \$15,000

Guideline A03 - Safety - Emergency power backup system

Principle: The Prime Minister's residence should have an emergency power backup system that meets or exceeds the power and distribution requirements of all site-users (occupant, RCMP, and NCC).

Issues:

- Currently in the case of a power outage, there is only minimal battery pack emergency lighting (much of the building is in total darkness without emergency power). This is of particular concern because many of the egress routes are convoluted and full of obstacles (steps, equipment, and furniture).
- Currently, in the case of a power outage the existing passenger elevator freezes in position. This represents a life safety hazard.
- Currently there is no emergency power to the existing fire detection system.

Recommendations:

- Provide an emergency power source sized to meet or exceed the power and distribution requirements of all site users to permit 100% back-up power. ensure the new emergency power source is wired to new emergency lighting, elevator, fire detection and fire suppression systems.



In case of outage there is only minimal battery pack lighting.

Estimated Cost: \$ 75 K

- 150Kw generator = \$64,000
- Architectural integration work = \$8,000
- Professional fees = \$3,000

Guideline A04 - Safety - Passenger elevator

Principle: It is essential that the passenger elevator meet provincial and municipal regulations and CAN/CSA-B44 "Safety Code for Elevators". If it is required to meet barrier-free standards, it must also conform to Appendix E of CAN/CSA-B44.

Issues:

- The passenger elevator opens into the West stair. Given this stair is a primary means of egress, this is not permitted by Code. Furthermore, the elevator and its mechanical room were laid out 47 years ago and do not meet current Code CAN/CSA-B44-94.



Elevator door opens into stair

Recommendations:

- Rebuild the elevator so its' doors open into the adjoining corridors instead of into the stair.
- Rebuild the elevator using a hydraulic system.
- Extend the elevator to third floor.
- When rebuilding the elevator, rebuild to accept motorised wheelchairs.

Estimated Cost: \$ 110 K

- Elevator = \$70,000
- Architectural integration work = \$30,000
- Professional fees = \$10,000

Guideline A05 - Safety - Environmental hazards; asbestos and lead

Principles:

- Occupants and site users should be protected from environmental hazards caused by base-building materials, on-site activities and operations.
- Hazardous materials should be managed in a manner that does not cause adverse environmental effects.

Issues:

- Both asbestos and lead are present throughout the building.
- Lead is likely to be encountered in most of the older interior paint finishes.
- Asbestos is likely to be encountered as follows:
 - a) Within the insulating-wrap around hot water piping;
 - b) Within the plaster of plaster-on-lathe assemblies;
 - c) (Possibly) within some wallboard assemblies;
 - d) Within the roof assembly, as specified in 1949 renovation documents.



Asbestos and lead should as much as possible be removed

Recommendations:

- Avoid undertaking construction work on heating system and demolition of interior finishes while the building is occupied (to minimise the risk of occupants and users being exposed to environmental hazards).
- Undertake a comprehensive asbestos audit to gain a clear understanding of where asbestos is and is not to be expected at this site.
- Unless proven otherwise, presume that plaster and pipewrap contains asbestos.
- Unless proven otherwise, presume all paint finishes contain lead.

Estimated Cost: \$ 20 K

Guideline A06 - Safety - Physical hazards (patio stones and sidewalk)

Principle: Physical hazards that can be mitigated should be mitigated.

Issues:

- Patio stones at the north porch entrance and pool area are uneven (tripping hazard). They are quite thick and difficult to reset.
- Concrete walkway slabs in some locations along the sidewalk in front of the residence are lower than the curb (tripping hazard).



Uneven patio stones are physical hazard.

Recommendations:

- Re-design the patio, incorporating easier to reset stones and add new trees or vegetation to increase privacy.
- Re-set concrete sidewalk slabs to eliminate risk of injury.

Estimated Cost: Included in Site development implementation (see Guideline C13).

Guideline A07 - Safety - Fire compartmentalisation and egress routing

Principle: Safe emergency egress routes, fire doors and fire walls should be provided as required by the relevant Codes and the custodian's fire safety plan. Higher risk zones should be compartmentalised to ensure reduced fire spread risk.

Issues:

- The existing fire doors and firewalls do not sufficiently isolate the basement boiler room from adjoining areas.
- Some doors critical to proper fire compartmentalisation remain wedged open for operational efficiency reasons, elevating the risk of fire spread.
- Egress routes through the basement are cluttered with hospitality storage that no longer fits within the limited space available to occupants for storage.



Egress routes through the basement are cluttered with hospitality storage.

Recommendations:

- Upgrade the fire doors and fire walls around the boiler room to minimise fire spread risk from this zone,
- When upgrading the fire detection system, provide automatic door hold-open devices to permit key doors to remain open at all times (except when fire detection system activated).
- Provide sufficient hospitality storage to alleviate the clutter in the basement egress routes (see Guideline D02)

Estimated Cost: \$30 K

SECURITY

Guideline A08 - Security - Site Perimeter, front fence and gates

Principles:

- The perimeter of the Prime Minister's residence must meet RCMP security requirements as well as life safety concerns.
- It is essential the fence and gates to this property be of an architectural design appropriate to the site context, form a continuous line which will act as a physical barrier to the site, and be transparent enough for the public to see a portion of the grounds and the Residence.
- It is essential that the street front gates be set back from Sussex Drive to allow vehicles to be security-cleared away from the oncoming Sussex Drive traffic.
- It is also important that the street front fence and gates be maintained in excellent condition, as they are the first of the sites' architectural elements seen by the public.



Front fence and gates are at end of useful life and need to be replaced.

Issues:

- None. The Front fence and gates were replaced during 1998

Guideline A09 - Security - Site Perimeter, fence at top of escarpment

Principles:

- The perimeter of the Prime Minister's residence must meet safety requirements.
- It is essential that fences and gates at the top of the escarpment be of an architectural design appropriate to the site context, form a continuous line which will act as a physical barrier against falling down the escarpment, and be transparent enough to not block views across the Ottawa River.
- It is important that fences visible to occupants and visitors be maintained in excellent condition.

Issues:

- The 1960's back fence at the top of the riverside escarpment is deteriorated to the point that it is now a safety issue.
- Retaining walls at both the escarpment staircase and the 10 Sussex parking zone are severely deteriorated and in urgent need of repair.



Rebuild the fence at the top of the escarpment.

Recommendations:

- Rebuild the fence at the top of the escarpment.

- Provide adequate exterior lighting to meet health, safety and security requirements as per an approved lighting plan to be developed by NCC and RCMP (see Guideline D01).

Estimated Cost: \$ 210 K (200m @ ----- not including lighting)

Guideline A10 - Security - Security systems (integration of RCMP systems)

Principle:

The Residence of the Prime Minister requires a security system meeting RCMP standards. To preserve the building's heritage character and the visual integrity of the grounds, this system must be discrete and well integrated with the architecture and landscape architecture.

Issues:

- The location, frequency and style of existing security system components (cameras, guardhouses, fences etc.) are understood to be functional for the RCMP.

Recommendations:

- Any future changes to the security systems should be of minimal impact to the heritage character of the site.

Estimated Cost: N/A



It is necessary to integrate security items with the architecture and the landscape arch.

Guideline A11 - Security - Security for the Crown Collection

Principles: The National Capital Commission manages a collection of over 6,000 pieces of fine furnishings and artefacts in the official residences. Canada's rich and vibrant history is represented in many of these fine pieces. The Canadiana Fund has been established to assist in the enhancement of the interiors of the Official Residences through the donations of furnishings and artifacts. It is the NCC's responsibility to ensure the protection of all Crown Collection pieces; therefore a method of securing and tracking all Crown collection items is required.

Issues:

- There is no specific security system for the Crown collection.

Recommendations:

- Where there is great concern for the protection of a Crown Collection piece, it is important to install that piece in a secure method. Valuable artwork should be fastened to the wall with secure hanging systems, small delicate pieces should be secured, etc.

Estimated Cost: N/A

UNIVERSAL ACCESSIBILITY

Guideline A12 - Universal Accessibility - Architectural improvements

Principles:

- The Residence should meet CAN/CSA-B651-95 universal accessibility standards and NCC's Barrier-Free Site Design standards.
- It is of particular importance that the Residence be universally accessible through the front door, and universally accessible in zones most often used by visitors during State Functions and/or state visits.

Issues:

- Currently none of the entrances to the Residence are universally accessible
- There is a passenger elevator (1950-installed) in the south stair core; however it does not meet minimal accessibility requirements for cab size and accessories design.
- On any given floor there are level changes that represent obstacles.
- Currently there is no elevator access to the third floor.
- Currently there are no universally accessible bedroom or bathroom facilities in the Residence.
- Currently the furniture layout in some State Areas is too tight to meet U.A. standards for persons in wheelchairs.
- The current fire alarm bell system does not meet standards for the hearing impaired.
- Curbs and steps are a reoccurring obstacle throughout the grounds; none of them are wheelchair accessible.



Front entrance must be universally accessible.

Recommendations:

- Design and build a new front entrance that meets accessibility standards and enhances the heritage character of the Residence. Thereafter, address each of the other entrances.
- Rehabilitate at least one ground floor washroom to accessibility standards.
- Rehabilitate at least one guest bedroom (c/w washroom) to accessibility standards.
- Design and build a new universally accessible elevator (see Guideline A04)
- Undertake changes to State Areas to ensure universal accessibility.
- Ensure that universal accessibility standards are met when undertaking any other architectural and/or systems upgrades to the building.
- Ensure proposals are compatible with Site development plans (see Guideline C13)

Estimated Costs:

- \$ 115 K (universal accessibility upgrades to front porch)
- \$ 20 K (universal accessibility upgrades to selected washrooms)
- \$ (universal accessibility upgrades to elevator as per Guideline A04 \$110 K)

Guideline A13 - Universal Accessibility - Interior services

Principle:

The access to staterooms should be barrier-free. When creating a new design or upgrading an existing one, a conscious effort should be made to take the necessary steps to meet the requirements of universal accessibility.

Issues:

- No washroom is wheelchair accessible.
- Carpets in one solid colour cause difficulty for both the physically and visually impaired, especially when used on a stairway.
- Artwork reference plaques with small text make it difficult to read for the visually impaired.

Recommendations:

- Universal accessibility requirements should be carefully considered and incorporated in the development of all future decor plans.
- Alternative furniture layouts should be developed to make rooms accessible for physically challenged guests or occupants.
- Standardise labelling of art and objects to a discrete style that meets universal accessibility standards.

Estimated Cost: 5 K

SECTION B HERITAGE & ENVIRONMENTAL PROTECTION

HERITAGE CONSERVATION

Historical value and interventions

The Federal Heritage Buildings Review Office has designated 24 Sussex as a “*Classified*” heritage building. This is the highest heritage recognition that can be given to a federal building. As per Treasury Board policy (rev. March 15, 1998), all parties involved with modifications, restorations or new additions, interior or exterior, to this property must consult with the FHBRO before implementing any change. All intervening agencies must co-ordinate their efforts to preserve the elements that have been defined by FHBRO (see introduction) as conferring heritage value to this property.

Guideline B01 - Heritage - Landscape

Principle:

The site’s planning should support the functional and protocol requirements in a manner that preserves the heritage character of the site.

Issues:

- The service area outside the back door disrupts circulation routes and is visible from inside the home.
- Many significant trees and plantings and landscape elements are either attaining maturity or reaching the end of their life cycle.
- Some existing landscape materials (e.g. paving materials) and fixtures (e.g. lampposts) need to be reviewed for heritage appropriateness to this context.



Better treatment of the service area is required.

Recommendations:

- Significant and heritage landscape elements such as the "old growth forest" on the escarpment must be clearly identified.
- Better treatment of the service area is required.
- Replace landscape elements, where necessary, to better integrate with the character of the site.
- A hierarchy of materials should be established, especially with walkway surfaces (entertaining areas vs. service areas).
- Heritage landscape issues should be incorporated into the Site development plan (see Grounds section).

Estimated Cost: Costs to be integrated into the Masterplan implementation (see Grounds section)

Guideline B02 - Heritage - Exterior architecture

Principle:

It is essential the heritage-defining components of the house be protected and enhanced in accordance with FHBRO guidelines.

Issues:

- The stonework, mortar, windows, doors, roof, chimneys, and other architectural elements are all important heritage elements, and require life cycle maintenance/careful restoration;
- Many elements which detract from the heritage value have been added to the facade (e.g. surface mounted cable television wires and power cables, modern “flood lights”, aluminium storm windows and the kitchen vent on the front facade).



Exterior forms and materials are all important heritage elements.

Recommendations:

- It is essential the entirety of the exterior is treated as a Classified heritage building deserves, all elements not deemed historically important should be architecturally integrated;
- Relocate electrical and communication cables from facade
- If the major kitchen reorganisation recommended elsewhere within this report is declined, the existing exhaust duct should nonetheless be re-routed away from the front facade. If the major kitchen reorganisation is undertaken, the designers should ensure that the Sussex Drive facade be kept free of mechanical/electrical systems components.
- Architecturally integrate all exterior lighting attached to building, both in terms of fixtures and electrical cable routings.
- Ensure all work includes landscape reinstatement according to the Landscape Masterplan.

Estimated Cost: \$ 20 K

Guideline B03 - Heritage - Interior architecture

Principle:

It is essential that heritage-defining components of the house interior be protected and enhanced in accordance with the site's FHBRO Classified status.

Issues:

- A walk through the house currently gives a very rich feeling for the past. Since the 1951 renovation there have been very few changes to the interior other than finishes and furnishings. However, it must be recognised that the heritage value can easily be eroded by insensitive incremental changes to small components such as 1950 door hardware and lighting.
- In private quarters the radiator-covers are of an inappropriate style.
- In much of the Residence, lighting fixtures and switchplates are of inappropriate style.



A walk through the house currently gives a very rich feeling for the past.

Recommendations:

- Any major changes should be submitted to FHBRO for review.
- A Conservation Architect should assess the architectural elements within the residence to determine heritage value. Elements determined to be historically important should not be removed. If elements determined to be of marginal or no historic value are targeted for work, they should be treated in a manner that supports the interior heritage character of the Residence.
- Any new systems should be carefully integrated into the existing architecture.

Estimated Cost: Costs are associated with replacement or upgrade of systems.

Guideline B04 - Heritage - Interior services and collections

Principles:

The mandate of Interior Services is to ensure the preservation and restoration of all Crown Collection pieces by observing the following heritage principles:

- a) ensure that the placement of artworks or furnishings is appropriate for the requirements of that particular piece;
- b) develop and implement, where possible, a system that rotates artwork within the residence to give artefacts and furnishings a rest from UV rays, too intense lighting levels, and heating system fluctuations;
- c) develop an annual schedule to have the condition of collection pieces verified by a Conservator;
- d) ensure that all works of art being placed on outside walls have an insulating foamcore backing installed prior to placement;
- e) ensure that all artwork on paper is placed well away from UV rays, too intense lighting levels, and heating system fluctuations;

- f) when clear view glass is required to protect the face of a work of art, ensure that it does not rest on the artwork.

Issues:

- Due to everyday wear and tear, artwork and furnishings can sometimes get damaged.

Recommendations:

- A professional Conservator should assess all artwork and furnishings. Items would be evaluated prior to work commencing to eliminate "over cleaning" a collection piece (over cleaning can strip an item of its historical value). If the damage is minimal, (e.g. slight scratches on furniture), the piece should be touched-up and not completely refinished.
- A standard for artwork and furnishings should be established to determine at what point of damage a piece should be restored.

Estimated Cost: \$ 20 K

ENVIRONMENTAL PROTECTION

Guideline B05 - Environment - Energy efficiency and maintenance practices

Principle: The practises and materials chosen for maintenance and construction should neither be harmful to the environment nor negatively interact with other components of the building or grounds.

Issues:

- The exterior walls are not insulated and the windows have deteriorated to the point there is excessive air infiltration; this causes elevated energy use, elevated heat loss, and imbalanced air-quality and airflow.



Insufficient insulation causes energy loss.

Recommendations:

- Energy loss engineering studies should be carried out to establish ways to reduce energy use, air infiltration and HVAC type problems.
- A study should be done to establish the cost and effect of insulating the exterior walls.
- The windows should be restored to achieve weather tightness (see Guideline C03).
- The NCC should continue to conduct environmental impact assessment screenings of its construction projects.
- The NCC should review its maintenance practices to establish the nature and potential of environmental impact.

Estimated Cost: \$ 50 K (for aforementioned engineering studies and audits)

SECTION C
BASE BLDG, GROUNDS,
INFRASTRUCTURES & INTERIORS

BASE BUILDING

General

The base building systems comprise the foundations, the building envelope (e.g. roofs, walls, doors and windows), the structural elements, the basic interior finishes (e.g. partitions, wood flooring etc.), plumbing, mechanical and electrical systems. All modifications should follow the “THREE R hierarchy” in heritage conservation - REPAIR first, RESTORE what can not be repaired, and REPLACE what can not be restored.

It is essential that each base building system meets or exceeds the following codes and regulations: Canadian Building Code 1995; Canadian Electrical Code; National Fire Protection Agency Standards and Federal Heritage Buildings Review Office (FHBRO) Guidelines. The Main Building being a “Classified” heritage structure, any modification to base building systems must be submitted to FHBRO for advice.

Guideline C01 - Base Building - Main residence roof

Principle: It is essential that the roof system be watertight and able to resist at all times the wind and snow loads to which it is submitted. It is also essential that it be well ventilated and insulated to contemporary standards, be safely accessible to remove ice build-ups and for regular maintenance. The historical roofing material is wood shingles. For heritage considerations, it is essential that this material continues to be used for roofing and that the shape remains the same.

Issues:

- None. The roof was replaced during 1998.

Guideline C02 - Base Building - Eavestroughing and downpipes

Principle: Eavestroughs and downpipes catch rain water from the roof and carry it away from the foundations (thus protecting them from excessive moisture and extending their useful life). It is essential that the eavestroughs and downpipes be kept in good working order, free of leaves and debris.

Issues:

- The existing copper eavestroughs and downpipes system dates from 1951, and is well past its service life. However its' general design appears appropriate to the needs of the site; the eavestroughs and downpipes are of sufficient size and configuration.

Recommendations:

- Replace the existing copper eavestroughs and downpipes system ‘in kind’ when undertaking replacement of the roofing system.
- In preparing design documentation for replacement of copper eavestroughs and downpipes system, consider using heavier copper gauge materials, and installing heating cables within those stretches of eavestroughs and downpipes most prone to blockage by ice / snow.

Estimated Cost: \$ 50 K



The eavestroughs and downpipes need to be replaced.

Guideline C03 - Base Building - Main residence windows

Principle: Windows in a building are major determinants of a building's character. Small changes of just a few inches can throw the proportions of the whole facade out of balance. Traditional windows have detail, intricacy and individual character. It is usually possible to economically repair older windows because they were so well built originally. Rotted parts of the frame or sash can be repaired or replaced and glazing can be upgraded to provide enough energy efficiency to meet performance standards for new windows.

Issues:

- Most of the existing 'outer' (storm) windows date from the 1970's. They are aluminium storm windows, c/w insect screens. Though functional, they detract from the heritage character of the building. Furthermore, because of their high thinwall frames, the 'outer' (storm) windows create significant shadow within the window.
- Most of the existing 'inner' windows date from the 1951 renovation or before. They are excellently detailed and built, and are of robust, handsome proportions. Though these 'inner' windows suffer from flaked putty and peeling paint, the windows are excellent candidates for re-weatherstripping. To the inner face of the 'inner' window an additional pane of glass has been added.
- The condition of the sunporch windows is generally poor with respect to heat loss, infiltration, and ease of operation.



Windows in a building are major determinants of a building's character. They should be restored where deterioration has occurred.

Recommendations:

- Remove the 'outer' (storm) windows, replacing them with white-painted wood screens and storms.
- Restore the 'inner' windows to ensure they are in top working order. When undertaking the restoration work, add new interlock weatherstripping to eliminate air leakage.
- To assist Interior Services in protecting artwork, furnishings and fabric from ultra violet and infrared light damage, it is recommended that argon filled sealed units be specified when windows require replacement.
- If the sunporch is not rebuilt (see C07), the existing windows should be replaced by new windows of an energy efficient design that augments the heritage character of the site.
- Replace all four family room windows with double-glazed white-painted wood windows, designed to be sympathetic to the building's heritage character yet offering sufficiently expansive views towards the north.

Estimated Cost: \$ 113 K

Guideline C04 - Base Building - Main residence exterior walls repointing

Principle: It is essential that the exterior walls be weather tight, insulated to contemporary standards to minimise energy consumption and that their structural

integrity not be compromised. The exterior walls are constructed of dressed limestone of varying quality. They are bearing walls (i.e. they transfer the live and dead loads from the roof and floors to the foundations.) To maintain this integrity, it is essential that damaged stones be replaced and that the soft lime mortar joints be repointed regularly.

Issues:

- In areas, the stone of the exterior walls is somewhat deteriorated, and generally, there is a need for an overall repointing to ensure weather tightness for the next generations.
- The exterior walls are neither insulated nor do they have vapour barriers; during wintertime, there is a tendency for drafts to infiltrate through cracks and cold to radiate from the wall-materials into the living spaces.



The exterior masonry needs to be repointed.

Recommendations:

- Undertake a general repointing of the exterior masonry.
- Repair stones as necessary. Replace stones that are deteriorated beyond the point of repair.
- Minimise air infiltration by caulking joints and openings on the inner face of the exterior wall. Insulate exterior walls only as determined by the engineering studies outlined in Guideline B05.

Estimated Cost: \$ 65 K

Guideline C05 - Base Building - Foundation damproofing and drainage

Principle: It is essential that all foundations be watertight, structurally sound and that water be drained away from foundations to minimise structural movement. Sanitary sewerage must be separated from storm sewerage.

Issues:

- The foundations are of stone masonry and sit directly on rock. Though the main residence is at a high point in the landscape, there is a marginal risk of localised ground-water problems; there is no evidence of existing perimeter drains (to evacuate groundwater from the foundations) nor of any in-ground piping systems (to evacuate water brought down from the eavestroughs / downpipes). Bedrock is typically close to the surface at this site so the foundations are not beyond frost penetration.
- There has been occasional flooding in the past due to blocked drains and penetration of water through basement windows. Gardener's irrigation sprinklers are in some locations too close to the basement walls.
- Environmental standards now require that 'storm' sewerage (e.g. groundwater, rainwater) be separated from 'sanitary' sewerage. Because new sewerage lines are normally laid deep below grade, the laying of a new 'storm' sewer at this site would necessitate costly bedrock removals during trenching.



There is no evidence of existing perimeter drains to evacuate groundwater from the foundations.

Recommendations:

- Monitor the basement for evidence of infiltration; if flooding becomes a problem, install drainage system.
- Position and direct the gardener's irrigation sprinklers as far as possible away from the building.

Estimated Cost: N/A

Guideline C06 - Base Building - Fireplaces and flues

Principle: Any fireplaces deemed to be functional should be safe, and of a design appropriate to the protocol and functional requirements of the room. All chimneys must be structurally sound (be they for functioning or non-functioning fireplaces). The existing chimneys form a critical visual element on the roofline; the removal of any of the existing chimneys would severely compromise the heritage character of the building.



All chimneys should be kept, regardless of whether they're for functioning or non-functioning fireplaces.

Issues:

- There are five wood burning fireplaces within the residence; all fireplaces are understood to be usable (even though only the 'family room' fireplace appears to be regularly used). They are tested every two or three years.
- The existing chimneys have rusting steel flue-covers that have been added and repaired in an ad-hoc manner for many years. They are unsightly, ineffective and are staining the chimneys.
- The boiler chimney has an unsightly steel flue sticking out of it in a makeshift fashion.

Recommendations:

- Inspect all flues serving fireplaces likely to be used to establish which require maintenance / reconstruction. Test intermittently for carbon monoxide infiltration into living spaces. Unless a fireplace is deemed 'non-functioning', undertake the required repairs to the fireplaces, flues, and chimney systems.
- Retain the chimneys in sound, weathertight order effecting repairs in a 'replacement-in-kind' manner. Replace the existing flue-covers with a new corrosion-resistive system sized and coloured to suit the 24 Sussex condition. Remove rust stains from chimney face(s).
- Better integrate the boiler chimney flue into the roof profile if removal of this flue is not possible.
- Consider converting all but one fireplace to gas, leaving one fireplace for wood burning.

Estimated Cost: \$ 73 K

Guideline C07 - Base Building - Reconstruction of sunroom

Principle: Additions to the original structure, which are considered to be sub-standard, should be removed. If the function they served is still required, a new addition meeting current standards should be built.

Issues:

- If not replaced, the existing sunroom is a non-heritage addition to a Classified heritage structure; it is of sub-standard architectural design that erodes the heritage character of the north façade.
- The existing sunroom will require major capital construction expenditures over the next 20years:
 - a) it is non-universal-accessible;
 - b) it is glazed with substandard problematic sealed units;
 - c) it is not an insulated structure;
 - d) it is heated by electrical baseboard heaters.



The sunroom is not insulated and considered to be sub-standard.

Recommendation:

- Demolish the existing sunroom, reconstructing to a new heritage-sensitive sunroom structure large enough to satisfy relevant functional and protocol requirements.

Estimated Cost: \$ 110 K (not proposed in 1999 Treasury Board Submission)

Guideline C08 - Base Building - Reconstruction of service entrance porch

Principle: Additions to the original structure, which are considered to be sub-standard, should be removed. If the function they served is still required, a new addition meeting current standards should be built.

Issues:

- The existing back porch is a non-heritage addition to a Classified heritage structure; it is of such sub-standard architectural design that it erodes the heritage character of the north façade.
- The existing service entrance will require capital construction expenditure over the next 20years:
 - a) it is too small for arriving personnel, equipment and materials;
 - b) it is glazed with substandard problematic sealed units;
 - c) it is not an insulated structure that suffers major icing problems during winter.

Recommendation:

- Demolish the existing service entrance porch, reconstructing a new heritage-sensitive porch structure large enough to satisfy relevant functional and universal access requirements.
- Consider accommodating the office for household administrator at/near new service entrance porch structure.

Estimated Cost: \$ 80 K

Guideline C09 - Base Building - Heating and cooling systems

Principles:

- In a house of this stature, there should be centralised heating and cooling systems, fully adjustable in each room to maintain relative humidity and temperature conditions that meet the occupant's preferred comfort levels.
- Because artwork, furnishings and fabric are affected by heating and cooling systems that fluctuate, temperatures and humidity levels should be maintained as constant as possible.
- Should there be a conflict between the comfort level requested by the occupants and the ideal condition sought for the property contents, the former will have priority. In such cases, there shall be a case for substitution of fragile Crown Collection artwork and furnishings.



There is no centrally operated air-conditioning system, only individual A/C units mounted in the windows.

Issues:

- There is no centrally operated air-conditioning system.
- There is no centrally operated humidity control system.
- The heating system consists of 3 gas fired boilers which bring hot water to different zones of the building. There are not individual thermostats for each room. Though the system was installed in 1984, it is still in excellent condition.
- Interior temperature and humidity levels fluctuate greatly due to varying levels of activities; high temperatures will cause low humidity levels (dryness) which in turn can cause loosening of the joints in furniture and cause artwork surfaces to become brittle.

Recommendations:

- Install a centrally controlled heating, air-conditioning and humidity control system; use of a "small diameter, flexible duct system" would reduce significantly impact on heritage character elements.
- Provide room by room controls for piped heating.
- A recommended temperature of 18°C to 20°C would be acceptable for artwork, furnishings and fabric as well as for human comfort levels. It is difficult to maintain a relative humidity level of 50% in this residence due to the lack of sealed space; therefore, 35% RH is a realistic level to maintain. It is important to note that the temperature level in the space directly affects RH.

Estimated Cost: \$ 172 K

Guideline C10 - Base Building - Pool Building envelope

Principle: The Pool Building is a 'built asset to remain'; accordingly the NCC should maintain and repair the asset as per an approved life-cycle plan.

Issues:

- None. The pool building envelope was upgraded during 1998.

Guideline C11 - Base Building - Pool Building mechanical infrastructure

Principle: The Pool Building must be provided with safe and efficient mechanical/electrical support systems.



Issues:

- The existing pumps and filter systems are nearing the end of their useful life and should be replaced.

Recommendations:

- Confirm the condition of all mechanical and electrical devices. Any safety deficiencies should be immediately addressed. Life cycle replacement should be scheduled according to recommendation made by mechanical engineers.

Pool mechanical & electrical support are nearing the end of their useful life.

Estimated cost: \$ 15 K

Guideline C12 - Base Building - 10 Sussex Drive exterior envelope

Principle: 10 Sussex Drive outbuilding is a 'built asset to remain'; accordingly the NCC should maintain and repair the asset as per an approved life-cycle plan.



Issues:

- The windows at this outbuilding are of solid construction, but suffer from significant deterioration.
- The existing garage doors are of deteriorated condition, and lack current safety devices.

This side of building requires design improvements.

Recommendations:

- Restore the existing windows with new weatherstripping.
- Replace in kind the cedar shingle roof.
- Replace the garage doors.

Estimated cost: \$ 50 K

GROUNDS

Guideline C13 - Grounds - Site development plan and implementation

Principles:

- There should be a current and validated Site development plan for each Official Residence to guide the selection, maintenance and replacement of plant material, surface treatments, exterior furniture, lighting and placement of art objects.
- The landscape plan should be of premier design quality, comprising premier quality materials and components.

Issues:

- The 1989 draft Site development plan requires updating to meet current standards and expectations.
- Along Sussex Drive, the trees and shrubs were purposely planted closely together to create an instant privacy screen. They were planted closely together with the intention that they would be thinned out after several years. They never were, and the ensemble is heavily overgrown.
- Most trees and shrubs across the site are reaching maturity or even nearing the end of their life span. Many are in poor health.
- Much of the built assets are near or past their life cycle and are showing signs of deterioration:
 - a) the paving has numerous patches, heaves, cracks and cuts;
 - b) the large granite pavers forming the patio outside the sunroom are cracked and chipped;
 - c) the perimeter fences, steps and retaining walls are deteriorated. The railing along the embankment is not only aesthetically unsightly, but is leaning dangerously too;
 - d) The size of the landing area off of the north entrance to the pool building is too small for the function it is to provide.
 - e) Turf area near the north entrance off the serving area is always worn and requires constant re-sodding.
 - f) The service area is located on the north side of the residence and can be seen fully from the entrance driveway. It is unsightly and the area should be redesigned to make the service area less obvious.



Some trees are at the end of their life cycle.

Recommendations:

- A review of the Site development plan prepared in 1989 should be undertaken. The Masterplan should be validated and, as necessary, revised to meet today's standards, changes to the landscape and anticipated site requirements.
- All site vegetation should be assessed to determine its' health, site influence and appropriateness to the long-range site planning strategy.
- A multi-year tree and shrub management plan should be developed based on assessment of the health, site influence and appropriateness to the long-range site planning strategy.

- Guidelines for plant species selections should be developed.
- Specimen trees should be pruned on a regular basis to prevent damage from ice storms, disease or insects.
- Implement a life cycle management approach to site built assets.
- When future asphalt re-surfacing is done, a mix of Madawaska aggregate and HL3 asphalt should be used.
- An assessment of circulation patterns shall be undertaken to identify areas where walkways/patios/storage spaces etc. need to either be removed, installed or re-aligned.
- Fences should be rebuilt of high quality design and materials reflective of an official residence.
- Entrance gates and security fencing should be inspected yearly and, if necessary, the steel should be repaired and repainted. (Note: this is what the majority of the public sees first when viewing the Prime Minister's residence).

Estimated Cost: \$ 140 K (review and implementation of Site development plan)

Guideline C14 - Grounds - Escarpment stabilisation and improvements

Principle: The river shoreline and embankment between the French Embassy and 10 Sussex Dr. should be continuously monitored for environmental impacts from erosion, loss of vegetation cover and litter. The escarpment is an integral part of this unique property and must be preserved and protected with the same care and attention as the grounds, which surround the property.

Issues:

- Most of the site drains toward Sussex Drive; the balance drains towards the river side escarpment. In some of the locations where water drains over the escarpment, lack of vegetative cover, uncontrolled surface drainage and inappropriately configured culverts are causing considerable erosion.
- With the installation of the RCMP security fence in 1997, a 2.0 metre wide swath of vegetation was removed, leaving a noticeable clearing that exacerbates escarpment erosion.
- River-borne debris regularly accumulates along the shoreline affecting how those touring on the Ottawa River appreciate this official residence.
- It has recently been reported that the riverside escarpment behind the residence has an old growth forest of trees up to and over 300 years old.



Escarpment is prone to erosion.

Recommendations:

- Have a geo-technical engineer undertake a study to develop a better system for draining escarpment-bound water.
- Prepare and implement plan for replanting the escarpment, designed to mitigate the effects of the security fence and erosion.
- There is an old growth forest on the escarpment. A study should be undertaken to determine what if any changes can be permitted in this zone.

Estimated Cost: \$ 85 K

Guideline C15 - Grounds - Site drainage and storm water systems

Principle: The grading of the site, soil depths and conditions and irrigation systems shall be such that they allow for drainage away from building foundations and prevent prolonged surface soil saturation. The storm water sewer system shall conform to municipal standards for a residential site, and be entirely separate from the sanitary sewer system.

Issues:

- Bedrock with localised pockets of clay soil is typically close to the surface on this site, meaning trenching at this site incurs elevated costs.
- There has been occasional flooding in the past due to blocked paved-area drains.
- There has been occasional penetration of surface water through basement windows.
- Irrigation sprinklers are, in some locations, too close to the basement wall (causing excessive wetting of basement windows and other vulnerable components).
- The patio on north side of the pool building is functionally unusable; it is too small, water drains towards it and the area is constantly soggy.
- Environmental standards now require that 'storm' sewerage (e.g. groundwater, rainwater) be separated from 'sanitary' sewerage. Because new sewerage lines are normally laid deep below grade, the laying of a new 'storm' sewer at this site would necessitate trenching through major (costly) bedrock.



The patio on the north side of the pool building is functionally unusable.

Recommendations:

- Position and direct irrigation sprinklers as far as possible away from the building.
- Ensure flow of water is away from all building edges and if clay soils are causing sodden areas to be continuously soggy, replace the clay soil with a good loam soil.
- Ensure any existing french drains are deep enough and big enough to eliminate saturated soils conditions. Make changes as required.

Estimated Cost: \$ 44 K

Guideline C16 - Grounds - Exterior art and gifts

Principle: The grounds shall not be seen as an outdoor art gallery or museum. Exterior art and gifts (e.g. benches, structures, trees) shall meet the acquisition standards of the Canadiana Fund and meet siting criteria developed in the 24 Sussex Site development plan. The siting of donations shall respect the landscape significance and function of the site, and be approved by the NCC, ACORC and FHBRO.

Issues:

- One of the existing sculptures in the back garden area is rusting at the base and requires repainting.
- The sculpture at the front of the residence has not had a recent inspection by the artist or expert art restorer.
- As the number of donations of gifts and art escalates, the question will be 'if' and 'where' the grounds can accommodate any future donations.

Recommendations:

- Consideration should be given to establishing a multi-year maintenance schedule and funding forecast for exterior art repair and restoration. Professionals in this field should carry out restoration work.
- Incorporate into the 24 Sussex Dr. Site development plan a site 'capacity' for installation of donations. Have a procedure in place for the acceptance and locating of exterior art and gifts for the site.

Estimated Cost: \$ 10 K



Exterior art needs to be planned.

INFRASTRUCTURE

Guideline C17 - Infrastructure - Electrical systems

Principle: The electrical system at the residence must meet the Canadian Electrical Code standards and the occupant requirements. It must be safe and reliable and all wiring and outlets should be architecturally integrated.

Issues:

- The power distribution system was revamped in 1975 during the construction of the pool. The primary cables and transformer vault are maintained by PWGSC and are inspected at least once a year. In 1988 the 400A service was running at 78% capacity. Addition of any major new electrical load may overload it. The house is wired with RH-BX type wiring which is now over 40 years old.
- Some wires have been installed exposed along baseboards and walls; this is not suitable for the Prime Minister's residence.



The house was rewired in the 1950s; it should be rewired again.

Recommendations:

- Any large electrical systems would have to be routed into the 600V transformer vault. The wiring should be replaced at next opportunity.
- All exposed wiring must be concealed.

Estimated Cost: \$ 85 K

Guideline C18 - Infrastructure - Communications systems (phone, cable, TV etc.)

Principle: It is critical that the phone and television systems at the residence meet occupant requirements while being harmoniously integrated into the architecture of the residence.

Issues:

- The occupant is responsible for the provision and maintenance of the residence's communication systems whereas the NCC is responsible for the base-building within which the communications systems run.
- The existing arrangement has evolved in an ad-hoc fashion; cables have been installed exposed along baseboards, door frames and stair risers.

Recommendations:

- The NCC and occupant should work together to establish a routing strategy for placement of permanent (concealed) communication system conduitry.

- In-the-wall conduitry should be installed through the building to permit the occupant's communications contractor to easier upgrade their system(s) by 'pulling' not 'surface mounting' new lines.
- When work is undertaken in a zone, communications wiring should be concealed and receptacles better integrated.

Estimated Cost: N/A

Guideline C19 - Infrastructure - Water supply system

Principles:

The site should be serviced with a water supply system that:

- a) is sized to meet the combined peak use requirements of the buildings and grounds;
- b) is configured in a way that ensures that service use of one zone doesn't unduly affect service levels to other zones;
- c) provides a shut-off & meter at both 10 Sussex and 24 Sussex buildings;
- d) provides hot water at temperatures and rates that satisfy peak use loadings;
- e) provides for alternate (back-up) supply in the case of loss of RMOC municipal water system.

Issues:

- The site is currently serviced with unconditioned RMOC water (i.e. RMOC's safety standards and pressure levels), fed from lines under Sussex Drive. It is understood that the water supply under Sussex Drive is at insufficient depth (as evidenced by freezing of municipal water supply system several years ago), and is somewhat undersized when compared to current standards.
- Each of the three main structures on the site is serviced with it's own watermain; upgrades to metering and shut-off valves can thus be made with ease.
- No galvanised water supply piping is known to be in service at this site; the domestic hot and cold water supply systems are of copper, and are preserved to be in good condition. This needs to be confirmed.
- Domestic hot water is generated by a gas fired boiler with output capacity of 37.5kW and pumped to an old asbestos-insulated 500ga+/- insulated copper holding tank; there are no known complaints concerning hot water supply, but the asbestos insulation hides the tank from inspection.
- Apart from the 500ga+/- reservoir of hot water, there is currently no back-up water supply in case of loss of RMOC municipal water system.

Recommendations:

- Seek confirmation that at this site the use of unconditioned RMOC water is acceptable.
- Undertake discussions with RMOC to confirm what can and will be done with respect to problems with depth and sizing of water supply lines under Sussex Drive.
- Upgrade the metering and shut-off valve systems as required.
- Remove the asbestos and re-insulate the hot water reservoir to remove the asbestos-hazard and to facilitate proper inspection of the reservoir components.
- Establish most economic manner to provide a back-up water supply.

Estimated Cost: \$ 35 K

Guideline C20 - Infrastructure - Sanitary sewerage system

Principle: The sanitary sewer system serving the site should:

- a) provide decades of trouble-free service;
- b) be laid-out in a rational fashion that meets the custodian's operational requirements;
- c) be sized to meet the site's maximum occupancy load;
- d) be separate from the 'storm' sewerage system (i.e. not combined). This is an environment protection norm.

Issues:

- Environmental norms no longer permit 'sanitary' and 'storm' sewerage systems to be combined. At the flat roof on main building and at the two RCMP kiosks, the 'storm' sewerage drains into the 'sanitary' sewer system....to correct this, new trenches, routings and connections will be required.
- Within the main residence, the cast iron waste stacks appear in good condition whereas the galvanised vent stacks are beyond their recommended service-life.
- Access to waste pipes within the main residence is difficult, discouraging maintenance inspections.



Galvanised waste piping beyond useful life.

Recommendations:

- Install a new 'storm' sewer line between main building and Sussex Drive, separate from the existing 'sanitary' sewer line (see section C14).
- Replace the galvanised waste piping with new copper piping.
- When replacing the galvanised piping, take the opportunity to improve routings and access to facilitate maintenance to sanitary systems.

Estimated Cost: \$ 15 K

Guideline C21 - Infrastructure - Gas supply system

Principle:

All gas installations should meet CAN-CTA-B149.1-M95 Code standards.

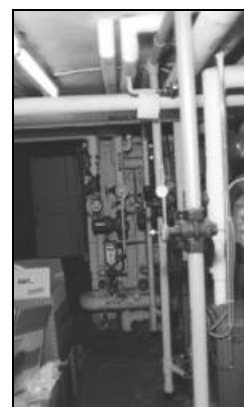
Issues:

- There are no issues at this time with gas installations.
- There is no emergency system to heat the residence in case of a major gas supply interruption or heating system breakdown.

Recommendations:

- A study for alternative emergency sources of heat should be undertaken.

Estimated Cost: \$ 3 K



Gas fired hot water heating.

INTERIORS

Introduction

Since 1951, 24 Sussex Drive has served as the home of the Prime Minister of Canada. This residence, as well as having a unique and intriguing architectural style and history, serves a distinct ceremonial purpose in our national life.

For management purposes, the government has divided space within the residence into two categories: private living areas and State Areas. The State Areas comprise 85 percent of the residence. They are used extensively for official business and functions involving Canadian and foreign dignitaries. The private areas provide the occupant a retreat from the functioning State Areas. As such, occupants have the liberty to decorate these areas to their personal tastes.

State Areas and private areas are listed in *Location and Floor Plans* section, p. 16

Guideline C22 - Interiors - Decor renewal, Main building, staterooms

Principles:

The present day decor of the staterooms in this residence is a mix of styles. The furnishings within these interiors are a combination of antique and contemporary.

- Room decors should respect the architecture of the building and the existing furnishings and the art collection to the greatest degree possible.
- Room decors should be practical and functional and serve the needs of the users, as well as being straight forward to maintain.
- Room decors should reflect Canadian content in the materials used, wherever appropriate. Room decors should contain artefacts, furniture and works of art that are original and distinctively Canadian.



New Interior Services plans are required for all state rooms.

- Room decors should show a concern for attention to detail and that use the highest quality of workmanship and materials.
- Room decor should remain basically unchanged for a generation.

Issues:

- Over the next ten years the decor in the majority of the staterooms will be reaching the end of their life cycle.

Recommendations:

- The interiors of the staterooms will require the development of new Interior Services plans. These documents will outline the proposed concepts and become the basis for any redecoration of these State Areas. Work on these Interior Services plans should begin as soon as possible.
- The beginning of a new decor life cycle begins with the implementation of the decor plan.

Estimated Cost: Design in-house; implementation = \$250 K

Guideline C23 - Interiors - Lighting

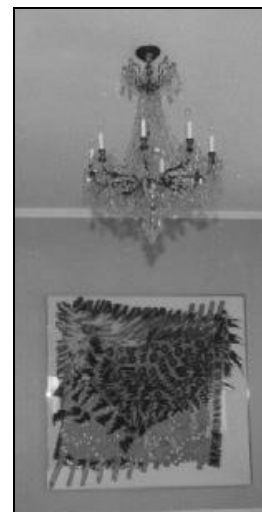
Principle:

- It is essential that interior lighting levels meet the safety requirements outlined in the ASHRAE lighting standards
- It is imperative that interior lighting levels meet the human comfort requirements of the occupant.
- It is important that in State Areas the interior lighting levels be set at levels that do not jeopardise artwork on display in the Residence and, accordingly, that the following (general) maximum light levels be respected:

<u>Object type</u>	<u>maximum light Level</u>
works on paper	100 lux
oil paintings	350 lux
most other objects	500 lux

Issues:

- Though the Residence is laid out in a fashion that offers most primary spaces at least one window, the proportion of window area to wall area is generally low. Significant zones of the main building suffer from inadequate natural lighting levels, relying instead on electrical lighting. Much of the current lighting system is dated and ineffective.
- Currently, some of the artwork in the Residence is exposed to excessive natural light levels, excessive electrical lighting, and/or inappropriate light types. Excessive and/or improper lighting can cause serious damage to artwork and fabrics (the items most susceptible to damage by improper light levels are works on paper).
- Currently much of the artwork in the Residence is poorly lit, reducing the art-appreciation experience.
- In service areas, there is a preponderance of ill-suited area lighting.



Works of art on display can be damaged by excessive natural light levels

Recommendations:

- That a general upgrade of luminaires be effected in both State Areas and service areas.
- That upgrades of luminaires be effected on an as-needed basis for the Private quarters.

- That the Interior Services plans establish art and furniture placement plans that minimize deteriorious lighting effects on the state collection while maximizing the art-appreciation experience to the occupant and/or visitor.
- That utmost care be given to ensure that light-sensitive artwork be placed away from windows and bright electrical light sources, and that any light reaching such artwork be evenly spread (otherwise the reduction of the colours will become very obvious to the eye due to the piece fading unevenly).
- Note: Inuit art and other stone sculptures are not affected by light.

Estimated Cost: \$ 10 K

Guideline C24 - Interiors - Pool building, decor renewal

Principle:

The pool decor should be refreshed or renewed at intervals corresponding to its life cycle.

Issues:

- The cedar wood interior finish of the pool is badly stained in places and requires cleaning. Various other decor elements such as floor covering and blinds also require replacement.



Pool building interior: a decor plan is required.

Recommendations:

- A decor plan should be developed for the pool building and implemented. It would outline the aesthetic, functional, and safety requirements for this area.

Estimated Cost: \$15 K (part of State Area upgrades in Treasury Board Submission)

Guideline C25 - Interiors - NCC art and furniture collections in main residence

Principle: State Areas should be furnished by the government with art and furniture appropriate to the official residence of the Prime Minister of Canada. Such government-supplied art and furniture collections should be reflective of the Canadian society and cultural context. Any such art and furniture holdings should be protected for future generations by ensuring it is placed in an appropriate environment (such as those described by the Dept. of Communication's "Cultural Property Export Review Guidelines"). Acquisition criteria for art and furniture must meet Interior Services plans.

Issues:

- The residence is not intended to be a museum gallery. Interior art is somewhat exposed to inappropriate conditions (e.g. cyclical ambient temperatures and humidity, excessive sunlight and lighting levels).
- There is no central fire suppression system to protect collections and furnishings. If there were ever a fire within the main residence, the collections would likely suffer irreparable damage.

Recommendations:

- Install UV filters in windows or redirect sunlight to protect works of art and furniture (see Guideline C22).
- Install a new lighting system that properly lights artwork without causing damage to the art (see Guideline C08).
- Ensure that any new HVAC systems can control temperature and humidity to [near] museum grade standards (see Guideline C07).
- Install a fire suppression system, which, if ever activated, would minimise damage to works of art, and other artefacts (see Guideline A02).

Estimated Cost: N/A (costs included in other items)

SECTION D FUNCTIONAL & PROTOCOL

FUNCTIONAL

Guideline D01 - Functional - Exterior lighting

Principle: There should be an exterior lighting system that meets the functional requirements of site users. Any such exterior lighting systems should satisfy security, heritage preservation and protocol (aesthetic) requirements.

Issues:

- There has never been an overall plan for exterior lighting. Changes over the last 46 years have been made in a piecemeal fashion. There is therefore a mixture of luminaire style and type.
- Some individual lighting fixtures and structures have deteriorated to the point that they need to be replaced.
- Highly inappropriate lighting affixed to the exterior of the residence (e.g. “parking garage” fixtures and exposed wiring are typical).



There has never been an overall plan for exterior lighting.

Recommendations:

- Develop and implement an exterior lighting plan appropriate to the site’s needs and sensitive to the heritage character of the property.
- Repair or replace problematic lighting system components

Estimated Cost: \$ 30 K

Guideline D02 - Functional - Storage and hospitality services

Principle:

The official residence of the Prime Minister of Canada requires significant on-site hospitality support services, and enough on-site storage areas to satisfy day-to-day housekeeping and event requirements. Storage and support service zones should make maximum use of available space and be arranged to achieve maximum efficiency.

Issues:

- Hospitality, administration and storage services in basement do not meet requirements:
 - a) Ironing and clothes-washing activities are housed in what is effectively a basement corridor;
 - b) Food and goods storage area is without proper temperature and humidity controls, and is of insufficient headroom;
 - c) Housekeeping storage zones are inadequate; the boiler room and adjoining spaces are on occasion being used for storage.



Food and goods storage has only four feet floor-to-ceiling height.

Recommendations:

- Encourage the occupant to maximise use of off-site storage.

- For storage that must remain, undertake renovations to consolidate storage zones into fewer larger spaces; ensure that any new storage room(s) meet yet-to-be-determined humidity and temperature standards.
- Provide efficient and safe working environments for housekeeping activities.
- Move the food and beverage storage room to a zone that offers min. 7ft ceilings; provide food and beverage storage room with proper humidity and temperature controls.
- Ensure that all storage is eliminated from boiler room, elevator mechanical room, and electrical vault.
- Ensure that there is sufficient secure storage (vaults) available within residence for occupants and guests.

Estimated Cost: \$ 70 K

Guideline D03 - Functional - Office for household staff

Principle: The residence of the Prime Minister of Canada requires an efficiently laid-out space for use as office for a household administrator, a chef and one part-time clerk. The office should be equipped with photocopier, telephones and fax stations, and should be easily reached from the service entrance.

Issues:

- The existing office area is undersized, poorly lit and without dedicated computer circuitry.
- The main electrical vault for 24 Sussex is only accessible through the office; this means:
 - a) there is a safety hazard (office & electrical vault incompatible);
 - b) the office cannot be locked.
- The existing office is off at one end of the basement:
 - a) office managers are not able to monitor comings-and-goings to the site;
 - b) visitors cannot easily access the office; persons visiting the office manager must pass through the labyrinthine ironing and washing areas.



Persons visiting the office manager must pass through the storage area.

Recommendations:

- Design & implement new office structure close to the back entrance.
- Transform existing office to other uses (e.g. hospitality).

Estimated Cost: \$ 17 K

Guideline D04 - Functional - Kitchen and dining room

Principles:

- Support systems and services should not generate noise that disrupts users of Staterooms.
- When a state dinner is being held in the main dining room, it is of particular importance that kitchen and servery services are undertaken in a discrete, efficient manner.

Issues:

- There is only one door separating the dining room from the kitchen. During dinner:
 - a) the noise of kitchen activity often disrupts the dining room;
 - b) there is a major risk of support staff colliding head-on as personnel head in and out of dining room with trays and trolleys.
- Within the kitchen, there is major circulation problem at the servery as support staff prepare plates prior to service into the dining room; there is insufficient space available, and what there is, is laid out in a fashion that requires contrary circulation.



There is a major circulation problem at the servery.

Recommendations:

- Redesign the servery area to better accommodate dinner preparation activities, and to reduce the circulation problems.
- Replace the one existing door providing two-way access with two doors each providing one-way access between kitchen and servery.

Estimated Cost: \$ 110 K

Guideline D05 - Functional - Exterior garbage storage

Principle:

- Garbage storage should discretely located away from State Areas, Private quarters and garden zones likely to be used by the occupants and their visitors.
- Garbage storage facilities should be arranged to offer maximum efficiency.
- There should be a small garbage storage location close to the main house to permit household staff to remove garbage each day.

Issues:

- The outdoor service area near the back door to the residence is disorganised; there is no structure to house the garbage cans and containers, nor is there adequate screening provided.



Inadequate screening for garbage containers

Recommendations:

- Redesign the back entrance zone to accommodate a reduced size garbage storage.
- Provide for new garbage storage zone farther away from main residence.

Estimated Cost: \$ 8 K (included in Exterior LCM item in TB Submission)

PROTOCOL

Guideline D06 - Protocol - Landscape (exterior screens, lighting & furniture)

Principle:

The landscape arrangement must accommodate the occupant's protocol requirements (e.g. private and state activities) while not compromising security requirements.

Issues:

- Tree and shrub planting along Sussex Drive should provide levels of security and privacy to satisfy the occupant and RCMP, whereas the public requires a view of the residence from the street.
- The side patio is currently not properly secluded from:
 - a) the front of house;
 - b) the adjacent embassies grounds;
 - c) Sussex Drive.
- The side patio provides insufficient privacy; the cedar hedges around the side patio are not providing an effective screening because they are overly thin (due to over-shading by large deciduous trees).
- Site furniture is functional but inappropriate.



The side patio is currently not properly secluded from front of house.

Recommendations:

- In developing a long range site planning strategy:
 - a) undertake an analysis of where and what nature of privacy screening is needed;
 - b) undertake an analysis of garden use patterns to ensure patios, walkways and paved areas are appropriate to the protocol requirements.
- Replace site furniture with furniture reflective of an official residence.

Estimated Cost: \$20K (included in Exterior LCM item in Treasury Board Submission)

Guideline D07 - Protocol - Main entrance canopy

Principle: The physical arrangement at the main residence's front door area must be able to accommodate typical protocol requirements for greeting visiting dignitaries. The greeting area should be able to accommodate groups of up to ten persons. In winter, there should be a means for the occupant to greet such groups within heated areas.

Issues:

- The practice in recent years had been to rent each winter a canvas enclosure to cover between the main residence front door and the limousine drop-off point; such canvas enclosures seriously detract



A suitable winter enclosure is needed at front entrance.

from the heritage character of the facade, and are unbecoming of a Prime Minister's residence.

- The practice of heating the canvas enclosure with multiple small space heaters represents a fire risk, and is clearly unbecoming of the Prime Minister's residence.

Recommendations:

- Design a suitable winter enclosure that can be used year after year, providing for a safe and efficient means to heat such an enclosure.
- Ensure a storage space is available for the winter enclosure.

Estimated Cost: \$ 25 K

Guideline D08 - Protocol - Main residence vestibule support spaces

Principles:

- There should be enough closet space to accommodate the boots and coats of visitors to the residence.
- There should be sufficient space for visitor's to discretely remove their boots and coats.
- There should be a powder room close to the front entrance.

Issues:

- There is currently not enough indoor vestibule space to greet large groups at the main residence vestibule. New Year's receiving lines have been held outside under the canvas entrance canopy.
- There is not enough closet space near the front vestibule for large groups of visitors
- There is a powder room near the front entrance, but it is not universally accessible (see Guideline A13).

Recommendations:

- Inside the main entrance, enlarge the closet to provide increased coat rack space and space for visitors to discretely remove their boots and coats.
- Upgrade the existing powder room to universal accessible standards.

Estimated Cost: \$ 15 K

SECTION E COST SUMMARY AND LIFE CYCLE