

1 Introduction

An overall introduction to the Physical Development Plan including, purpose and basis, structure of the document, Vision and Principles and current challenges and imperatives to which the Plan needs to respond.



> The Careenage, Bridgetown

1.1 Overview

This document constitutes the Physical Development Plan Amended for Barbados. It provides a vision for the sustainable growth and development of the nation by setting out policies to guide relationships among land uses, built form, mobility, community facilities and physical infrastructure. It is also intended to be a framework to facilitate and guide investment, both public and private, in Barbados for the next 10 years to advance a healthy, prosperous and resilient nation.

Physical planning is undertaken in Barbados for the orderly and progressive development of land and to ensure that development furthers national goals such as greening the economy. Physical planning as a government function is based on the Town and Country Planning Act, Cap.240. The Act provides for the preparation of development plans relating to the whole island or to parts of the island. The first Physical Development Plan for Barbados was published in 1970 and came fully into operation in 1976. Since that time, Barbados has experienced many important changes in the pattern of economic, demographic and physical development, making it necessary at key intervals to carry out an island-wide review of settlement patterns and update the Physical Development Plan. This resulted in the adoption of an updated PDP in 1991 and again in 2003. The concept of sustainable development emerged in the 1986 review, leading up to the 1991 Plan, and remains a critical Government commitment today as is evidenced by Barbados' recent signing of the COP21 Paris Agreement and the New Urban Agenda.

Today, Barbados remains one of the few nations in the Caribbean region to have a current national physical development plan. The amendment to the Physical Development Plan, 2003, is a critical opportunity to respond to the key opportunities and concerns that have emerged over the past decade and a half and to strengthen this policy and investment framework to ensure Barbados is resilient, prosperous island with sustainable and healthy communities.

1.1.1 Purpose of the Plan

The main purposes of the Physical Development Plan are to:

- Foster the economic, environmental, physical and social well-being of the residents of Barbados;
- Address the critical impacts of climate change on Barbados as a Small Island Developing State (SIDS) through policies and strategies that enable the people of Barbados to thrive and remain resilient under changing climatic conditions;
- Establish a vision to guide the future form of development with respect to land use, settlement patterns, food production, infrastructure, mobility and environmental management;
- Guide the future form of development on the island and inform the public, business and government sectors as to the nature, scope and location of both development and protection areas for core assets; and
- Provide a clear and accessible framework for private and public investment in the physical environment.

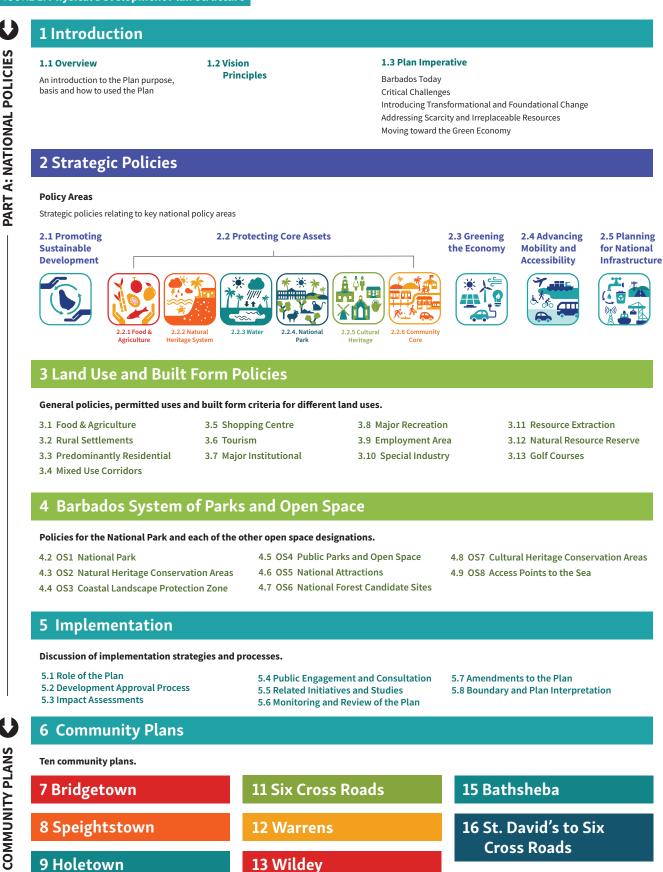
1.1.2 Basis of the Plan

The policies contained in the Physical Development Plan, 2003 were reviewed, refined and augmented during the PDP Amendment process. This process involved a detailed assessment of the effectiveness of the existing policies, an assessment of recent development and settlement patterns, and consideration of critical new factors, initiatives and commitments, including the Greening the Economy Scoping Strategy, Habitat III New Urban Agenda, COP 21 Paris Agreement on climate change, UNESCO World Heritage Site inscription for Historic Bridgetown and its Garrison and the Emerging and Sustainable Cities Initiative. This analysis was detailed in the following background reports:

- Background Review Sectoral Reports (24)
- White Paper: Key Considerations for the PDP Amendment
- Recommended Priority Policies Memorandum
- Development Studies, including Major Development Applications, Vacant Lands, Plot Coverage and assessment of the IRDP policies



> Tom Adams Financial Centre, Bridgetown



14 Belleplaine

4

10 Oistins

1.1.3 How to Use this Plan

The Physical Development Plan assists persons, the government and stakeholders who wish to develop land to understand how their parcel fits into the overall plan for the island and what land use permissions currently apply to it. It provides clear direction and facilitates investment by providing information to landowners about the development process and the framework that the Town and Country Development Planning Office (TCDPO) uses to evaluate applications. Additional, more detailed resources are available to guide citizens, land owners and investors include the *Applicants Handbook and Guide to Town Planning* and the *Applicants Handbook and Guide to Coastal Planning in Barbados*.

Figure 1 visually illustrates the structure of the Physical Development Plan Amended. It is organized as follows:

Part A of the contains the national policies. It is divided into five sections:

Section 1: Introduction sets the stage for the PDP Amendment. It presents the vision and principles that the PDP is based upon and explains the imperatives driving the amendment – the key issues facing Barbados today that have developed or gained prominence since the last PDP and must be addressed through land use policy.

Section 2: Strategic Policies contains island-wide directions organised into the overarching policy areas of promoting sustainable development, protecting core assets, advancing mobility and accessibility, greening the economy and planning for national infrastructure. Maps 1 to 12 accompany the strategic policies.

Section 3: Land Use and Built Form Policies sets out policies for each of the 13 land use designations that cover the island. Map 13 depicts where each land use designation applies. Map 14 accompanies the resource extraction designation and shows the areas where it applies.

Section 4: Barbados System of Parks and Open Spaces

contains policies for each of the seven open space categories. Map 15 depicts the areas where the open space categories apply. Policies related to the National Park Plan are found in this section and Map 16 shows greater detail within the National Park.

Section 5: Implementation provides information on the tools and strategies that will translate the PDP into reality.

Part B of the Plan contains community plans which give more place-specific direction for ten communities on the island. The national policies still apply in these areas but are augmented by the community plan policies.

Appendix A contains 11x17 fold outs of the national maps.

Appendix B contains the glossary, which defines key terms found in the PDP.

Appendix C contains the current inventory of archaeological monuments and listed buildings on the island.

1.2 Vision

The Physical Development Plan seeks to achieve a vision for Barbados over the next 10 years as:

- A nation of healthy, safe, distinct and ageand gender-responsive communities sharing a common economic base and community aspiration.
- A nation in which resilient, sustainable economic and physical growth are balanced with conservation and restoration of irreplaceable resources, rural working landscapes, cultural heritage and natural heritage.
- A nation which fosters a green economy focused on strategies to enhance resource efficiency and economic growth, in particular in the sectors of agriculture, fisheries, housing, transportation, renewable energy and tourism.
- A nation characterized by increasing social equity enabling meaningful participation in social and economic activities for all.
- A nation which is resilient and prepared for the impacts of climate change.

Principles

The following principles underlie the policies of this Plan:

- The efficient use of land, resources and finances of the nation.
- The adoption of adaptive planning approaches in all aspects of national and sectoral planning for the consideration of climate variability and climate change impacts.
- The promotion of social equity, health and safety for all residents.
- The conservation, protection and restoration of irreplaceable core assets and man-made resources.
- The development of safe, vibrant places for people to live, work and play.
- The management of growth so that it occurs in a safe, logical and orderly fashion ensuring protection of core assets, reduction of environmental risks and ecological scarcities, promotion of sustainable development and efficiency in delivery of infrastructure.



> Jubilee Gardens and the Old Town Hall, Bridgetown

1.3 The Plan Imperative

Barbados is a small island developing state (SIDS) with significant accomplishments, diverse and strong assets and a high level of vulnerability. Over the last 20 years, much has changed globally and locally – economically, environmentally and socially. An increase in GDP and greater personal wealth and access to goods have changed Barbados' economic status from developing country to a recognized 'developed' nation by the UN's Human Development Index. These advancements have resulted in more choice for citizens, but also significant changes to the pattern, density and nature of development on the island.

New initiatives and commitments such as the Paris Agreement adopted at COP 21, an historic agreement to combat climate change and accelerate and intensify the actions and investments needed for a sustainable, low carbon future, the 2011 UNESCO World Heritage Site inscription for Historic Bridgetown and its Garrison, and Habitat III and the Emerging and Sustainable Cities Initiative have opened new doors to opportunity.

The 2017 amendment of the Physical Development Plan is a critical opportunity to review and refine the 2003 Plan. However, clearly there have been major changes in development drivers and government priorities in the past 15 years and there is a need to think beyond the present day context to the actions necessary to create a sustainable and economically vibrant nation in the future.

One observation is clear – Barbados is an island of tremendous opportunity and vulnerability, the latter of which is only going to increase. The current pattern of development and infrastructure is not seen as sustainable in this context. Today, the island is food, water and land scarce – a condition which increases vulnerability and strain on foreign currency. The imperative of climate change is increasingly clear and immediate.

The amendment of the PDP is an opportunity to set in place transformational and foundational change to patterns of growth and mobility and provision of infrastructure. It is an opportunity to support Barbados' transformation to a green economy and to plan sustainably for the needs of future generations of Barbadians.

BARBADOS' ASSETS:

The island enjoys:

92 km of coastline

348 km

of gulleys

7,454 ha of National Park and open spaces

Several endangered species including the Hawksbill turtle and Indian manatee

9,100 ha of super prime agricultural land

2,500 tonnes of fisheries output per year

396

Gazetted heritage properties

UNESCO World Heritage Site

one of the highest education levels

99.7% literacy

Increasing GDP/capital

Highest road and population densities in the region

1.3.1 Barbados Today

In 2016, Barbados celebrates the 50th anniversary of independence, marking one of many important and defining milestones of the nation and its people. The foundational influence of the island's early governance and constitution, innovation in the sugar and rum industry, high levels of literacy, and more recently the UNESCO World Heritage Site designation recognizing the value of Historic Bridgetown and its Garrison are a mere sampling of significant national accomplishments. The existence of the current Physical Development Plan and National Park Plan are also notable signs of leadership in planning, given that Barbados is the only nation in the region with a current comprehensive national land use plan.

Yet as a Small Island Developing State (SIDS), and one in which over 25% of the population and much of the critical infrastructure lie within an identified key risk zone within 2 km of the coast line/flood plain, the island remains vulnerable to economic and environmental conditions. In an island of scarcity, wise use of food, water and land resources will be critical, their conservation and the protection of their health and viability will be key.

Fundamental shifts in the agriculture and food production sectors have had an impact. Moving away from more traditional food production practices, Barbados has been increasingly reliant on food imports; in 2014, over BBD 600 million was spent on food imports. Further, food as a percentage of total imports has been on a concerning upward trajectory. Between 2000 and 2011, it increased from 15% to 25% of total imports, a level which is seen as unsustainable. The availability of clean, potable water is compromised by huge inefficiencies in the delivery system, wherein 62% of distributed water is not accounted for. Finally, lifestyles and patterns of development have been a significant contributor to the increasing rate of chronic non-communicable disease resulting in high rates of diabetes (17%), overweight (37%) and obesity (29%) within the population.

1.3.2 Critical Challenges

The development and growth patterns over the last two decades are not sustainable over the long term

While population has remained relatively stable over the past decades, there has been a significant increase in the amount of land consumed for development. As indicated by the Emerging Sustainable Cities Initiative, between 1991 and 2013, outward growth has consumed 228 ha/year cumulatively, resulting in an increase in the urban footprint by 64% to accommodate 6% population growth over the same period of time. Further, this growth has been accommodated in increasingly lower densities. Between 1983 and 2011, residential density in the urban corridor declined from 23 people per hectare (pph) to 18 pph. This demonstrated pattern of sprawl has implications on scarce and key assets (water, food production, land) and transportation patterns but also on the public cost of building, operating and maintaining infrastructure over the long term. Looking to the future, where forecasts anticipate a gradual long-term decline in population beginning in 20 years as well as a significant aging of the demographic, the location, scale and type of recent housing development is not likely to serve well the needs of the population.



> Warrens, St. Michael



> Development on the north side of the St. George Valley

Approved development has significantly impacted agricultural and water resources and health of natural ecosystems

While much of this development has occurred within the Urban Corridor, a significant amount of development has also occurred on agricultural land, in many instances on some of Barbados' most fertile soils in the St George's Valley. Between 1991 and 2013, the amount of agricultural land was reduced by 53% through conversion to other uses and lack of cultivation resulting in it turning to bush. This equates to a significant reduction in production capability as well as fragmentation of agricultural land. In many instances, growth is occurring well beyond the Urban Corridor or other planned centres for growth. In some instances, this growth has been occurring within groundwater protection areas or at a scale where provision of services is not efficient. The result is not planned, complete urban environments, rather it is fractured, disconnected and partial urbanization.

In addition, waste, wastewater and stormwater quality issues have had a significant impact on natural systems. Of particular note is the degradation to around 10% of historic levels in coral cover due to the influence of multiple sources of land-based pollution. Barbados' coastal resources are not only vital to environmental and human health but also to the economy. Further, waste generation and management is a significant challenge. Approximately 1,000 tons of solid waste are generated per day across the island. While garbage diversion rates are on the increase, having reached 70%, the incidence of dumping of waste, often into the water and gulley systems, appears to be on the increase as well. Unlike climate change, which Barbados cannot significantly impact on its own and therefore must simply plan for, the quality of discharges to groundwater and the sea is something that the country can exert direct control over through solid waste management and wastewater and stormwater practices.

New growth at the fringe has happened at the expense of historic community cores and existing settlements

Much of recent development has been occurring on the periphery of or outside the Urban Corridor in St James, St George and St Phillip. At the same time, St Michael lost over 9% of its population between 1990 and 2010. This trend in combination with an increase in vacant and derelict buildings, located predominantly within the traditional and historic urban areas, suggests that new growth in the periphery is to some degree happening at the cost of reinvestment in community cores and older neighbourhoods. More specifically, between 1990 and 2010 the number of overall housing units grew by 15% while unoccupied units grew by 118%. Further, the level of vacancy, demolition or destruction of recognized heritage properties is high. As can be evidenced in many rust belt cities in North America, the hollowing out of the cores of cities and destruction of historic fabric can have a devastating effect on the health, vitality and livability of the entire city. Barbados is well positioned to follow more recent western world trends of both the younger and the older population moving back to the city to take advantage of urban living, amenities and lifestyle choices.



> Bridgetown



> Bathsheba, St. John

There is a growing infrastructure deficit

Despite having expanded the development footprint on the island by over 60% and almost doubling the number of cars over the last two decades, there has been little expansion in infrastructure capacity to accommodate these patterns. The transportation network of highways and roads is fundamentally the same as it was 20 years ago. There is a significant backlog of maintenance of existing infrastructure. The potable water system has major inefficiencies in delivery. Outward growth has created inefficient infrastructure to operate and maintain, in fact more costly than older, more compact phases of development. Also, high vacancy levels in urban areas means existing infrastructure is being underutilized.

Climate change requires new thinking in planing and design of future development

Barbados' sustainable socio-economic development is dependent on the comprehensive and explicit consideration of climate change and disaster risk management in the PDP, the guide for national land use and development. The implications of recent island-wide growth and development patterns are accentuated by the immediate and ongoing imperative created by climate change. Trends of steady state growth projections, changing demographics, increasing national scarcity in terms of food, water and land, declining densities and outward growth, loss of agricultural land, increasing rates of lot and building vacancy, impacts on groundwater protection zones, and infrastructure deficit are all related to the potential impacts of climate change. This is the context in which planning for the next 20 years must be understood.

1.3.3. Introducing Transformational and Foundational Change

This Physical Development Plan Amendment is a critical opportunity to change the traditional growth paradigm and introduce transformational and foundational policy directions that can guide more sustainable investment, land use and infrastructure decisions in Barbados. Several transformational ideas form the foundational concepts of the PDP amendment.

Addressing the urgency of climate change

As a SIDS, Barbados is at significant risk of experiencing the negative effects associated with climate change. To respond to this reality, the PDP must introduce new policy directions that focus on resiliency and adaptation strategies. Addressing climate change must become a central objective of the PDP, becoming integrated as a cross-cutting consideration touching on all of the components of the Plan. The concepts and theories of climate change must urgently be realized as actionable goals and objectives – the time to act is now.

Reframing planning for steady state growth

Over the long term, Barbados will experience modest population growth and then decline, resulting overall in steady state growth. The departure point for planning the land, water and food base to sustain a steady state island is markedly different from a situation where there is a need to accommodate an increasing number of people and jobs. This is the context in which planning for the next 20 years needs to be reframed.

Redefining the island's urban structure

The current planned island structure defined simply by a contained Urban Corridor balanced against natural systems and agricultural lands has not translated into on the ground land use decisions and does not represent a solid departure point for the PDP amendment and the long term future of the island. The PDP amendment is an opportunity to revisit and redefine the urban structure to reflect existing development patterns and create a framework that responds to scarcity in part through the clear definition and protection of core assets.



> Freights Bay, Oistins, Christ Church



> Independence Square, Bridgetown

1.3.4. Addressing Scarcity and Irreplaceable Resources

Moving toward food security, sovereignty and a viable food and agriculture sector

Addressing scarcity - in terms of food, water and land - is a crucial objective of the PDP amendment. While much of the island is arable, the best agricultural soils occupy only 9.5% of Barbados. These lands are irreplaceable, representing some of the best places on the island to farm and cultivate local sources of food. Yet many areas with super prime soils have already been developed and built over, or have been approved for future development. It is critical in order that the lands that remain are strictly protected as places NOT to develop to increase the island's food security. Further, investment in the Island's fisher-folk and fishery sector can enhance this key source of local food, as the current fleet catches only half of the local fish demand. Finally, increasing opportunities for value added agricultural activity related to food and fish can increase economic, trade and job opportunities.

Celebrating heritage and the stories of Barbados

Barbados' cultural heritage and the stories of Barbadians are irreplaceable core assets. The UNESCO World Heritage inscription in 2011 was a critical achievement, both in international recognition of the heritage value of Historic Bridgetown and its Garrison, but also in galvanizing national efforts to celebrate and capitalize on heritage assets. The challenge ahead is to implement the many commitments and practices detailed in the Management Plan. Integration of the World Heritage Site into the PDP amendment, along with complementary policies, is one critical step of many. Aligning PDP policies with contemporary heritage standards to support heritage throughout the island and in communities such as Speightstown, Oistins and the National Park is another.

Integrating the island's eco-systems

Significant progress has been made over the past 20 years to increase the health of island's natural heritage – particularly as it relates to vegetative coverage and the gully systems. The Natural Heritage Department has been very successful in working with local operations at Harrison's Cave, the Walkers Sand Mine Restoration and the Codrington Trust to advance environmental health and awareness. However, significant degradation of other systems such as the marine ecology has occurred – an area critical to the tourism sector as well as for the local fishing industry. In particular, as an island the symbiotic nature of the terrestrial and aquatic systems must be recognized and reinforced by taking an eco-systems approach and integrating Barbados' natural heritage features.

The recently launched Barbados National Park is an important example of area where natural heritage protection has effectively been applied using an ecosystems based approach. This approach should be expanded across the whole island to manage and protect natural heritage systems.



> Marchfield IRDP, Six Cross Roads, St. Philip



> Lewis-Wickman Boardwalk, The Careenage, Bridgetown

1.3.5. Moving toward the Green Economy

The Green Economy Scoping Study (GESS) sets a critical and divergent path for the future of Barbados. The PDP amendment embraces and integrates these directions. In particular, there are eight key areas of consideration.

From car-centric transportation to multi-modal mobility

Over the last 20 years, significant outward and disconnected suburban growth combined with a doubling of the number of cars has resulted in peak hour gridlock and increasing levels of congestion almost everywhere on the island. The system has a very strong reliance on private cars for mobility and as a driver in land use decisions. Today there is an absence of a national transportation mobility plan to guide future investment and propose transportation strategies at the island scale. While the Ministry of Transport and Works Draft Strategic Plan (2017) establishes key directions, it needs to be reinforced by a National Transport Strategy It is well demonstrated that constructing new roads alone will not solve transportation challenges. There must be a change in emphasis towards mobility - shifting the focus from planning for cars into planning a network where there is transportation choice for people and goods. The PDP must set the stage to ensure that a range of transportation strategies and modes are deployed that are appropriate to the context. These include: a reliable and effective transit network; urban transportation management strategies; introducing park and ride lots at key junctures; defining parkway drive; advancing existing and planned active transportation and trails; and introducing a water taxi or water ferry service. Not only will this help to move people and goods, it may also help to counteract the problem of chronic non-communicable diseases as it will encourage Barbadians to use more active forms of transportation.

Diversifying the housing offering to meet the future demographic

Housing is a fundamental human need and a critical element in community planning. Accommodating the population in adequate housing that meets residents' needs is one of the primary objectives of land use planning and has historically been one of the primary drivers of growth.

The housing need of the next 10 years will have a different complexion. Changing demographics in Barbados will shape housing requirements. Today, the demand for housing is largely driven by the formation of new households, rather than overall population growth. Yet, the needs of some of these new households are not being met by the type, size and location of new housing stock, the majority of which is single family housing. The aging population requires consideration of what seniors' housing and aging in place housing options look like, a relatively new housing sector in Barbados. Young singles and couples wishing to live on their own do not need a multi-bedroom house. Furthermore, the impacts of climate change touch every sector, including housing. Resiliency of the housing sector, including location, building standards and servicing of new housing, will be a primary concern. There is a need to encourage a greater diversity of housing with a focus on creating more complete and sustainable communities that allow people to access services and amenities within their community without a reliance on the automobile. Finally, there is an opportunity to align future housing development with the regeneration and reinvestment in traditional community cores through public and or private sector investments.

Optimizing existing infrastructure and investing in sustainable infrastructure

Barbados has an infrastructure deficit, both in terms of ongoing operations and maintenance of existing infrastructure and in terms of resilient and sustainable infrastructure to support people and businesses over the next 10 years. Greater emphasis must be placed on integration of land use and infrastructure planning, for example, encouraging development in places where



> Queen Street, Speightstown

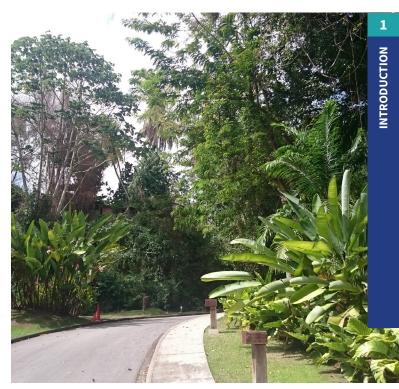
existing infrastructure and transportation choice can be optimized. There is an opportunity to factor in not only the capital but also the operating and maintenance costs of new development and infrastructure in planning decisions, to capture the true cost of development. There is an opportunity to promote and encourage conservation and sustainability measures. Perhaps most critically, there is an opportunity to integrate strategies for adaptation and resiliency into infrastructure plans, designs and decisions.

Strengthening existing communities

Community cores - the centres for commerce, local and tourism driven businesses, attributable places and community gathering - are amongst the core assets of the island and require continued efforts to stabilize and revitalize as the hearts of communities and critical drivers in a green economy. The cores are also the focal points for much of the island's cultural heritage, both physical and intangible. Strategies for reinvestment, growth, and reinforcement of place are key to reversing the trends of vacancy and disrepair, but also offer some of the best opportunities to encourage walkable, complete communities with a diverse range of housing choice. There is an opportunity to reinforce the distinct strengths and attributes of each community by focusing on their historic core areas.

Greening the tourism offering – beyond sun, sand and sea

A critical component of the Green Economy is the broadening of the existing tourism offering - focused around sun, sea and sand - to celebrate the island's natural heritage, cultural heritage, authenticity of place and demonstration of innovation and sustainability. Barbados is fortunate to have 15 national attractions, historical, beach and recreational parks and cultural and natural heritage conservation areas that could also be focal points of the tourism strategy. These need to be supported as distinct and important places individually, but also for what they collectively offer to expand the tourism sector.



> Graeme Hall Swamp, Christ Church



> The Esplanade, Speightstown



> The Risk, St. Peter,

Moving forward implementation of the National Park

Looking at current aerial photography (2015) and comparing it to the base case used to create the National Park Plan in 1998, it is apparent that the National Park has been successful at advancing the natural environment in Barbados. The overall coverage and linkage of naturalized areas has increased, on a general level, both within the National Park and throughout the gully and ridge areas in the central part of the island. Additionally, the TCDPO and the Natural Heritage Department have used the combination of the PDP and National Park Plan to achieve some of the desired outcomes for the National Park expressed in both plans. While formalized capital projects have not been abundant over the past 17 years, the idea of why the National Park was created, essentially to preserve and expand natural systems, seems to have not only held its ground, but in fact advanced on some levels, in particular the expansion of canopy and connectivity of the gully system. The launch of the Barbados System of Parks and Open Spaces in June 2016 was a critical reinforcement of this success.

Going forward, there are opportunities to build on this momentum: to increase awareness and resonance of the National Park for the people of Barbados and to further advance the integrated environmental framework or ecosystem approach inherent in the National Park Plan within an overall Natural Heritage System.

Promoting sustainable resource management

As an island of scarcity, sustainable resource management will be key in terms of natural resources but also energy production. A focus on greater self-sufficiency and resiliency are essential in light of economic and climate change challenges. There is a current dependency on oil and gas as an imported fuel source. The role energy consumption plays in terms of GHG emissions is significant, electricity generation being responsible for 67% of Barbados's GHG emissions. However, success in recent initiatives such as the introduction of photovoltaics to fuel domestic water heating and the planning for future initiatives for both solar and wind energy are indicative of change on the island. A focus on innovation, conservation and renewable resources will continue to be important.