TRINIDAD AND TOBAGO URBAN REGENERATION AND REVITALIZATION PROGRAMME (TT-T1086)

RENOVATION OF EASTSIDE PLAZA IN PORT OF SPAIN

ENVIRONMENTAL AND SOCIAL ASSESSMENT (REVISION 1)

Eco Report No. 15/2019

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SUBMITTED BY

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EXECUTIVE SUMMARY

The Government of the Republic of Trinidad and Tobago has requested a loan from the Inter-American Development Bank (IDB) with four components:

1. **Urban Upgrading** based on the regularization of squatter settlements;
2. **Affordable Housing Grants** to reduce qualitative and quantitative housing deficits;
3. **Urban Regeneration and Revitalization** to improve the functionality of public space; and
4. **Strengthening of Stakeholder Capacities** in the Housing and Urban Development sectors.

The Urban Regeneration and Revitalization component intends to improve the quality of life of low-income households and to increase the vitality of urban areas by improving habitability and land tenure security in informal settlements on State-owned lands; enhance housing conditions for low-income households and improving the use of urban public spaces. One of the sample projects under Component 3 is the upgrade of Eastside Plaza, which is located in the city of Port of Spain, on the site of the former Eastern Market.

The present facility established in February 1991 is situated in economically-depressed East Port of Spain. It was originally developed as a business incubator facility for a mix of micro and traditional businesses so as to expand entrepreneurship, facilitate growth and financial independence, and increase opportunities for job and wealth creation. However, Eastside Plaza is functioning as a typical commercial mall where the stay by tenants is over an extended period rather than as a business incubator where tenants are expected to move to other locations as their businesses mature.

The objectives of the proposed upgrade will be to:

- enhance the environment for entrepreneurial activities,
- contribute to business expansion,
- encourage clientele growth and increase revenue generation, and.
- seek to preserve the historical significance of the building, including its architecture

This Environmental and Social Assessment (ESA) is intended to identify environmental and social impacts, recommend mitigation measures and identify management studies to be undertaken.

Legal Framework

The proposed upgrading and revitalization of the Eastside Plaza will be governed by relevant Trinidad and Tobago laws, policies, rules, guidelines and the respective regulatory agencies, as well as the following IDB policies and guidelines:

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- OP-703 Operational Policy on Environment and Safeguards Compliance and Guidelines;
- OP-761 Operational Policy on Gender Equality in Development and Guidelines;
- Meaningful Stakeholder Consultation: IDB Series on Environmental and Social Risk and Opportunity;
- OP-710 Operational Policy on Involuntary Resettlement and Guidelines;
- OP-704 Natural Disaster Risk Management Policy and Guidelines; and
- OP-102 Access to Information Policy.

Stakeholder Consultation

Consultation (engagement) with key stakeholders on this assignment took four forms:

- Census of Plaza Tenants,
- Interviews with Neighbouring Businesses,
- General Meeting with Tenants, and
- Meetings with Government Agencies and Institutions.

The objective of this stakeholder consultation exercise was to inform tenants, neighbours, agencies and institutions of the proposed renovation, receive general opinions and concerns about the present facility and the proposed upgrade, as well as obtain information on regulatory approvals. Data collected during the Census and opinions and concerns expresses at the meetings and during interviews were all used in the assessment of impacts on this study.

Project Description

Eastside Plaza was constructed in 1926, but has not undergone extensive renovation since 1991. At present, the 153 tenants are experiencing several problems: leaking roof, fluctuations in electricity supply, inoperable central air conditioning system, and unreliable mechanical services. In addition, the building lacks certain amenities which are normal in a modern building: a convenient access to the upper floor for handicapped persons; service elevators; and the layout of the booths does not encourage free circulation (movement of persons) within facility. Further, the external and internal façades do not convey the image of a typical tourist attraction. Therefore, the proposed renovation works include the following:

- Roof Works;
- Upper Floor Works;
- Ground Floor Works;
- Elevators;
- Services; and

- Finishes and Signage.

Description of the Environment

Physical Environment

- Rainfall: The isohyet maps from the Water Resources Agency show that the proposed project site lies between the 1,400 and 1,600 mm isohyets, which is low in comparison to the rest of the country which receives an average of 2,150 mm per year.

- Temperature and Relative Humidity: Between 1999 and 2018, the highest average monthly temperature was experienced in both May and September (28°C), with the lowest average monthly temperature of 26.2°C was experienced in January. Minimum Relative Humidity was observed in March (74.8%), with a maximum RH of 83.9% observed in November.

- Wind: Wind direction was predominantly from the east for both the dry and wet seasons, with an average monthly wind speed of 11.4 km/hr. Higher winds occurred during the dry season. Monthly average wind speeds ranged from a maximum of 14.2 km/hr (May) to a minimum of 8.0 km/hr (September).

- Tropical Cyclones: During the period 1974 to 2019, four tropical cyclones (as Tropical Storms) have made landfall on the island of Trinidad. However, heavy rainfall and high winds have been experienced in Trinidad due to the passage of tropical cyclones north of the islands.

- Climate Change: There has been an increase in the mean annual temperature by around 0.6°C, at an average rate of 0.13°C per decade for Trinidad and Tobago. The largest changes in rainfall are in June, July and August (wet season), where on average, rainfall has decreased by 6.1 mm per month (2.6%) per decade. There is an expected increase in intensity of tropical cyclones.

- Geology and Seismicity: The nearest major defined fault to the site is the Arima Fault which runs in a general east/west direction approximately 1 km to the north of the project site.

- Topography and Drainage: Eastside Plaza lies on flat land situated at an elevation of less than 7.6 m (25 feet) above sea level. Typical drainage within the city consists of roadside kerb and slipper drains which discharge at intervals into box drains below the sidewalks. The box drains located along Charlotte and George Streets flow in a north to south direction, eventually discharging into the Gulf of Paria just west of Sea Lots.

- Flooding: A number of recent drainage studies indicate flooding as a serious, relatively frequent problem within the Port of Spain area following periods of intense rainfall. This has been attributed to growing urbanization of the Northern Range, deforestation, the inadequacy of Port of Spain's drainage systems to handle increased runoff, the increasing frequency of high intensity rainfall events and the continual introduced waste into waterways.

- Air Quality and Noise: The predominant source of air emissions and noise within the study area is from road traffic. Vehicle emissions from the surrounding roadways include dust, oxides of nitrogen and carbon, and volatile organic compounds from un-burnt fuel. There

are frequent sound emissions from “boom boxes” and loud speakers during cultural events, as well as high-noise episodes associated with stationary or mobile loud-speakers broadcasting advertisements or music.

Socio-Cultural Environment

- Population and Demographics: Eastside Plaza is in the business district of East Port of Spain. The capital city has experienced a decline in the resident population (24.4%) as well as in the density (notwithstanding seemingly crowding with population and traffic on a daily basis). The density per square kilometre fell from 4,086 persons to 3,090 persons. The density of Port of Spain remains however, much above ten times the national average, even as the latter decreased over the period. There is little evidence of new residential accommodation within the city.

- Surrounding Land Use: Eastside Plaza extends from Charlotte Street to George Street and is located on lands owned by the State between Prince Street and Queen Street. Street vending occurs on the streets running north – south (Charlotte and George Streets). In addition to the commercial activities provided to the public by the tenants of Eastside Plaza, there are other economic activities neighbouring the Plaza.

- Economic Activity: the capital city of Port of Spain is centre of administration of Government, with many of the main offices of the Government located withiin the city. There has been some migration of business from the east of the city to the west, consequently some sections of the east of the city have suffered urban blight. Charlotte Street where Eastside Plaza is located, is one of the longest roadways in the nation’s capital, and considered one of the busiest streets in the urban sector of East Port of Spain.

- Public Utilities: Eastside Plaza is served by the public utility systems for electricity, water supply and sewerage. The city of Port of Spain is supplied with electricity off the national grid, which is considered to be quite robust. However, tenants have indicated that they sometimes experience low voltage fluctuations on the supply. The public water supply system serving Port of Spain comes from both treated surface water from sources outside of Port of Spain and wells in the Port of Spain area. Although the Water and Sewage Authority (WASA) states that Port of Spain generally receives a full time (24/7) water supply, Eastside Plaza reports low incoming water pressure from time to time. Port of Spain is a centrally sewered city, connected to a relatively new Beetham Sewage Treatment Plant (STP); refurbished and expanded between 2001 and 2004. Eastside Plaza reports a total of 35 connections to the sewer located on George Street.

- Traffic Patterns: According to the City Engineer’s Office, traffic on Charlotte and George Street complies with the patterns for the rest of the city, with peak traffic between 9:00 am and 5:00 pm. Traffic along Charlotte Street flows in a north to south direction, while traffic along George Street flows from south to north. Traffic is more intense on Charlotte Street than George Street.

< Public Safety and Security: Public Security in Trinidad and Tobago is maintained by the Trinidad and Tobago Police Service (TTPS). The Besson Street Police Station is less than two kilometres from Eastside Plaza. The Plaza has its own security in place but their personnel are not equipped with live ammunition.

Environmental and Social Impacts and Mitigation Measures

The possible benefits of this renovation project are economic, relating to Business Opportunities and Employment. The table below summarizes the potential environmental and social impacts of the proposed upgrade to Eastside Plaza, and presents mitigation measures:

POTENTIAL IMPACT	MITIGATION MEASURES
PHYSICAL ENVIRONMENT: CONSTRUCTION PHASE	
Impaired Air Quality	< Cover waste materials on all transport vehicles moving materials away from the site to minimize dust emissions. < Properly service all vehicles and equipment to ensure that there are no visible sooty emissions. Defective vehicles should be taken out to service and should not be permitted to operate until they are repaired. < Require the Contractor to prepare and implement a Traffic Management Plan prior to the start-up of any works, to reduce congestion along Charlotte and George Streets, as traffic congestion increases vehicle emissions and degrades ambient air quality
Noise	< Inform the vendors (both on-site and off-site), neighbouring businesses and school of noisy construction activities. < Schedule noise-intensive construction activities (such as demolition works) outside of school hours, where practical. < Regularly inspect and maintain construction vehicles and equipment (including mufflers on this equipment) to ensure noise emission control systems are properly functioning.
Vibration	< Choose alternative, lower-impact equipment or methods whenever possible. < Schedule the use of vibration-causing equipment such as jack-hammers at the least sensitive times of day (if possible) including avoiding activities during business hours/ school hours wherever possible to minimize the impact on the vendors within the Eastside Plaza, surrounding businesses and the secondary school located to the east of the Eastside Plaza. < Sequence the operations so that different / multiple vibration causing activities do not occur simultaneously. < Keep the equipment well maintained. < Inform neighbouring businesses / sensitive receptors (i.e.: school) of the vibration generating activities. Provide a mechanism by which feedback can be received from the surrounding businesses and school

POTENTIAL IMPACT	MITIGATION MEASURES
	and take steps to address any complaints whenever possible.
Improper Disposal of Solid Waste	< Require the Contractor to prepare and implement a Waste Management Plan prior to the start-up of any works. This should make provision for secure collection, segregation and storage of any hazardous waste which may be present (such as PCB-containing equipment) and treatment and disposal at an approved facility. < Remove all non-hazardous waste for reuse at another site, or for disposal at an appropriate landfill. < Properly secure waste loads during transport.
Impaired Water Quality	< Any fuel or construction chemicals which are stored on site must be kept in secure containers with secondary containment. < "Hosing down" spills or leaks of fuel/lubricant must be avoided. In the event of a leak, use dry clean up and mopping up techniques as appropriate and absorbent material to clean up. Place contaminated material in a plastic drum that is to be kept covered at all times and remove offsite for proper disposal. < Continuously maintain vehicles and heavy equipment to ensure no leakage. < Service all faulty equipment and machinery as soon as possible in a designated area on site. < prohibit discharge of surplus concrete and washings to city drains, streams or rivers, or the sea
PHYSICAL ENVIRONMENT: OPERATION PHASE	
Clogged Drains: Fats, Oils and Grease	< Install grease traps and grease interceptors in the kitchen facilities at the Eastside Plaza. < Routinely clean undersink grease traps and grease interceptors to ensure that accumulated grease does not allow for improper functioning. < Use absorbent pads or other material to clean up spilled material around equipment, containers or dumpsters. < Ensure that the effluents discharged from the kitchen facilities into the POS City sewer system complies with the Oil and Grease maximum permissible limit of 20mg/L, in addition to other maximum permissible limits for the relevant parameters stipulated in < TTS 639:2015 Trade Effluent Discharges into Public Sewerage Systems: Requirements < Develop a Waste Management Plan
SOCIAL ENVIRONMENT: CONSTRUCTION PHASE	
Economic Displacement of Tenants: Full Closure	< Identify a suitable alternative venue to house temporary displaced tenants during the construction phase (if available). < Ensure that selected building is safe and there are adequate amenities and security. < Assist tenants in removing their operations (material and equipment) to the alternative location just before construction work begins at the

POTENTIAL IMPACT	MITIGATION MEASURES
	Plaza, and back when the renovation works are complete. < Prepare a Temporary Relocation and Livelihood Restoration Plan, and consult and agree with affected tenants. o Prepare eligibility matrix, defining: o criteria to be eligible; o census of eligible tenants, and o provision of financial packages or compensation to temporarily relocated tenants.
Economic Displacement of Tenants: Phased Approach with Temporary Displacement	< Prepare a Temporary Relocation and Livelihood Restoration Plan (as described above under Full Closure) < Ensure adequacy of building (as described above under Full Closure). < Assist tenants in moving their operations (as described above under Full Closure) < Undertake renovation works in phases.
Economic Displacement of Tenants: Phased Approach relocating within Plaza	< Prepare a Temporary Relocation and Livelihood Restoration Plan (as described above under Full Closure) < Provide kiosks/ tents for relocated tenants. < Provide temporary storage for tenants. < Increase security.
Cultural Heritage	< Require Design Engineers to maintain the historical character of the Eastside Plaza in their design. < Ensure that upgrades do not impair historical aesthetics of the Eastside Plaza.
Traffic Congestion	< Require the Prime Contractor to liaise with the Trinidad and Tobago Police Service and prepare and implement a Traffic Management Plan prior to the start-up of any works. < Schedule the delivery of large loads for off-peak periods.

Summary of Impact Classification

Adverse impacts were assessed and classified using a structured approach. The results of the structures classification of adverse impacts are summarized as follows

CLASSIFICATION OF ADVERSE IMPACTS	
ADVERSE IMPACTS	**CLASSIFICATION**
NATURAL ENVIRONMENTS	
Construction Phase	
Impaired Air Quality	**LOW**
Noise	**LOW**
Vibration	**LOW**
Improper Disposal of Solid Waste	**MODERATE**

CLASSIFICATION OF ADVERSE IMPACTS	
ADVERSE IMPACTS	**CLASSIFICATION**
Impaired Water Quality – Hydrocarbon Leaks	**LOW**
Impaired Water Quality – Discharge of Improperly Treated Sewage	**ELIMINATED**
Operation Phase	
Clogged Drains - Fats, Oils and Greases	**MODERATE**
SOCIO-ECONOMIC ENVIRONMENT	
Construction Phase	
Economic Displacement of Tenants (Full Closure)	**HIGH**
Economic Displacement of Tenants (Phased Approach with Tenants Vacating the Plaza)	**HIGH**
Economic Displacement of Tenants (Phased Approach and Temporary Displacement within the Plaza)	**MODERATE**
Impacts on Neighbours	**ELIMINATED**
Cultural Heritage	**LOW**
Traffic Congestion	**LOW**

This ESA recommends that the following management plans be prepared as part of this project:

- Environmental and Social Management Plan,
- Temporary Relocation and Livelihood Restoration Plan,
- Traffic Management Plan,
- Waste Management Plan, and
- Emergency Response Plan.

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BOD	BIOCHEMICAL OXYGEN DEMAND
CEC	CERTIFICATE OF ENVIRONMENTAL CLEARANCE
CEDAW	CONVENTION ON THE ELIMINATION OF ALL FORMS OF DISCRIMINATION AGAINST WOMEN
CEDP	COMPREHENSIVE ECONOMIC DEVELOPMENT PLAN
COD	CHEMICAL OXYGEN DEMAND
CRPD	CONVENTION ON THE RIGHTS OF PERSONS WITH DISABILITIES
CSO	CENTRAL STATISTICAL OFFICE
dBA	A-WEIGHTED DECIBELS
DMU	DISASTER MANAGEMENT UNIT
DO	DISSOLVED OXYGEN
EA	ENVIRONMENTAL ASSESSMENT
EIA	ENVIRONMENTAL IMPACT ASSESSMENT
EM	ENVIRONMENTAL MANAGEMENT
EMA	ENVIRONMENTAL MANAGEMENT AUTHORITY
ERP	EMERGENCY RESPONSE PLAN
ESA	ENVIRONMENTAL AND SOCIAL ASSESSMENT
ESAs	ENVIRONMENTALLY SENSITIVE AREAS
ESMF	ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK
ESMP	ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN
FAO	FOOD AND AGRICULTURE ORGANIZATION
ESSs	ENVIRONMENTALLY SENSITIVE SPECIES
GORTT	GOVERNMENT OF THE REPUBLIC OF TRINIDAD AND TOBAGO
HEM	HEXANE EXTRACTABLE MATERIAL
HSE	HEALTH SAFETY AND ENVIRONMENTAL
IDB	INTER-AMERICAN DEVELOPMENT BANK
IPCC	INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE
IWRM	INTEGRATED WATER RESOURCES MANAGEMENT
kWH	KILO WATTS HOUR
LGBT	LESBIAN, GAY, BISEXUAL, AND TRANSSEXUAL
LSA	LAND SETTLEMENT AGENCY
MHUD	MINISTRY OF HOUSING AND URBAN DEVELOPMENT
MOH	MINISTRY OF HEALTH
MOWT	MINISTRY OF WORKS AND TRANSPORT
NEP	NATIONAL ENVIRONMENTAL POLICY
NSDP	NATIONAL SPATIAL DEVELOPMENT STRATEGY
OP	OPERATIONAL POLICY
NOAA	NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
OPP	OUTLINE PLANNING PERMISSION
OSH	OCCUPATIONAL SAFETY AND HEALTH
OSHA	OCCUPATIONAL SAFETY AND HEALTH AGENCY
PCB	POLYCHLORINATED BIPHENYLS
pH	POTENTIAL HYDROGEN
POSCC	PORT OF SPAIN CITY CORPORATION

PM	PARTICULATE MATTER
PP	PLANNING PERMISSION
RH	RELATIVE HUMIDITY
SEPOSSS	SOUTH EAST PORT OF SPAIN SECONDARY SCHOOL
STP	SEWAGE TREATMENT PLANT
TCP	TOWN AND COUNTRY PLANNING
TCPD	TOWN AND COUNTRY PLANNING DIVISION
TDS	TOTAL DISSOLVED SOLIDS
THA	TOBAGO HOUSE OF ASSEMBLY
TMP	TRAFFIC MANAGEMENT PLAN
TOR	TERMS OF REFERENCE
TPH	TOTAL PETROLEUM HYDROCARBONS
TTBS	TRINIDAD AND TOBAGO BUREAU OF STANDARDS
TTFS	TRINIDAD AND TOBAGO FIRE SERVICE
TTMS	TRINIDAD AND TOBAGO METEOROLOGICAL SERVICE
TTPS	TRINIDAD AND TOBAGO POLICE SERVICE
TTS	TRINIDAD AND TOBAGO STANDARD
TSP	TOTAL SUSPENDED SOLIDS
UDECOTT	URBAN DEVELOPMENT CORPORATION OF TRINIDAD AND TOBAGO
UN	UNITED NATIONS
UNDP	UNITED NATIONS DEVELOPMENT PROGRAM
WASA	WATER AND SEWERAGE AUTHORITY
WMP	WASTE MANAGEMENT PLAN
WRA	WATER RESOURCES AGENCY

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Eco Report No. 15/2019 **December 12, 2019**

TRINIDAD AND TOBAGO URBAN REGENERATION AND REVITALIZATION PROGRAMME (TT-T1086)

RENOVATION OF EASTSIDE PLAZA IN PORT OF SPAIN

ENVIRONMENTAL AND SOCIAL ASSESSMENT (REVISION 1)

1 INTRODUCTION

1.1 Authorization and Layout of Report

This Environmental and Social Assessment for the proposed upgrade of Eastside Plaza has been prepared in part-satisfaction of a Contract dated June 10, 2019 (TT-T1086), between the Inter-American Development Bank (IDB) and Ecoengineering Consultants Limited (Ecoengineering). It is formatted to comply with the requirements of the IDB's Operation Policy on Environment and Safeguards Compliance, and the corresponding Guidelines. Following this introductory chapter, information is presented on the project, its legal context, its environmental and social settings, impacts which have been predicted and measures to manage those impacts (including concerns expressed and suggestions made by Key Stakeholders during the consultation process). The final two chapters summarise the public consultation which was undertaken, and present an environmental and social management plan..

1.2 Background

The Government of Trinidad and Tobago has requested a loan from the IDB with four components:

5. **Urban Upgrading** based on the regularization of squatter settlements;
6. **Affordable Housing Grants** to reduce qualitative and quantitative housing deficits;
7. **Urban Regeneration and Revitalization** to improve the functionality of public space; and
8. **Strengthening of Stakeholder Capacities** in the Housing and Urban Development sectors.

One of the sample projects under Component 3 is the upgrade of Eastside Plaza, which is located in the city of Port of Spain, on the site of the old Eastern Market (see Figure 1-1). This is in the block bounded between George Street, Queen Janelle Commissiong Street, Charlotte Street and Prince Street (see Figure 1-2). This sub-project is the subject of this ESA.

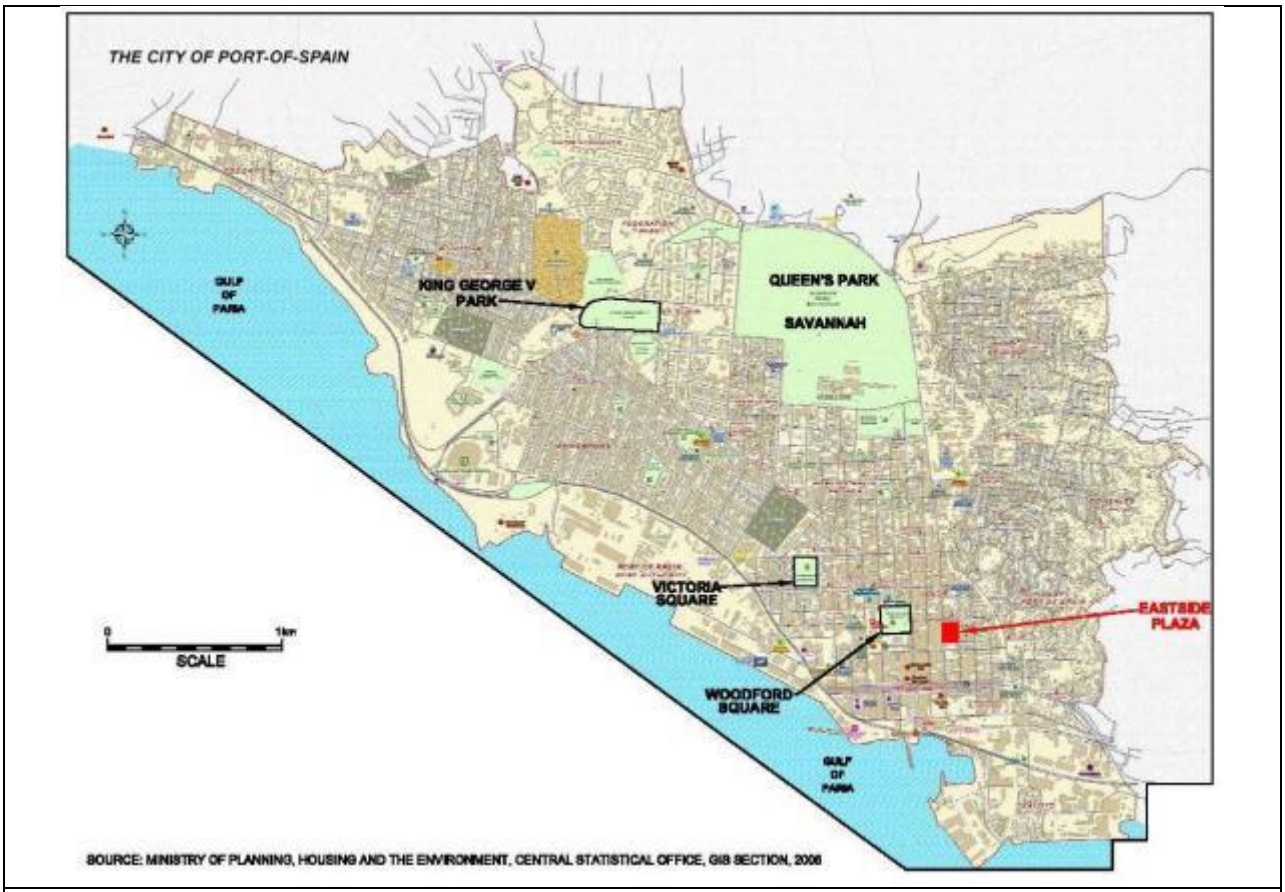


FIGURE 1-1: LOCATION MAP

FIGURE 1-2: VICINITY OF EASTSIDE PLAZA

2 PROJECT JUSTIFICATION AND DESCRIPTION

This chapter begins with a summary description of the existing facility at Eastside Plaza, indicating the rationale for its development and the layout. The second section is the justification for the proposed works, based on the problems being encountered. The final two sections of this chapter describe the works which are proposed and discuss options. All sections in this chapter are based on the TOR for this assignment, the Project Brief for Upgrading and Revitalization of Eastside Plaza, discussion and site visit with the Management of Eastside Plaza and meeting and discussion with URBASYS, the Designers.

2.1 Existing Facility

As noted in Section 1.2, Eastside Plaza occupies the building which originally housed the former Eastern Market. The present facility was established in February, 1991, primarily to:

- Alleviate challenges associated with the management of roadside vending, and
- Provide an avenue for the establishment of an entrepreneurial spirit among nationals.

Situated in economically-depressed East Port of Spain, this facility was originally developed as a business incubator facility for a mix of micro and traditional businesses so as to expand entrepreneurship, facilitate growth and financial independence, and increase opportunities for job and wealth creation. The results of the census of tenants (see Section 4.1) suggest that the Plaza is not currently functioning as a business incubator. The majority of tenants have been at the Plaza for more than 20 years, and there are very few young adults among the tenants. This suggests that the Plaza is functioning as a typical commercial mall where the stay by tenants is over an extended period rather than as a business incubator where tenants are expected to move to other locations as their businesses mature. The management of Eastside Plaza suggests that the low rents charged to tenants is a prime contributor to this situation. No data were collected on businesses that might have been established at the Mall and have moved on, nor is there evidence that there have been in place mechanisms to support incubator development, beyond low cost tenancy.

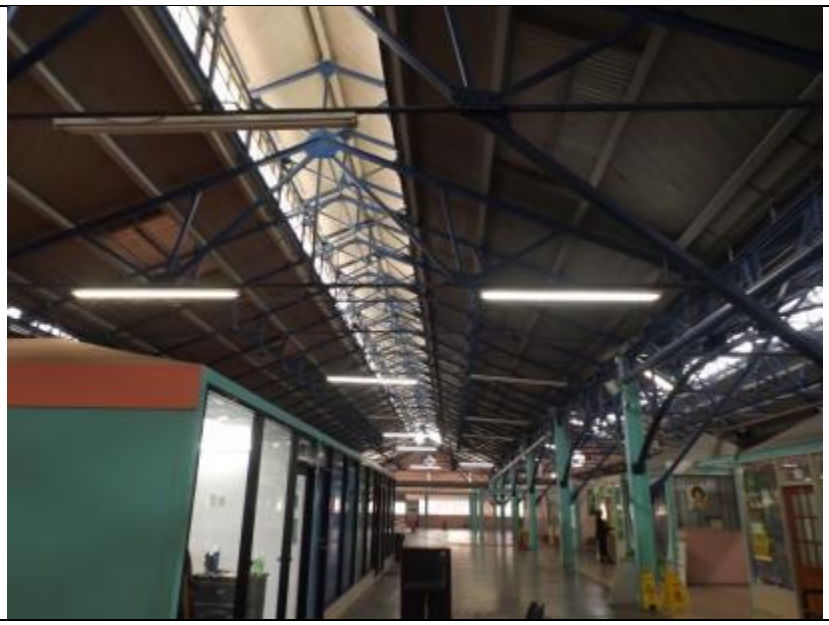
Eastside Plaza presently houses approximately 153 tenants engaged in various entrepreneurial activity ranging from local craft, spices and confectionery items, service type businesses such as tailors/seamstresses, hairdressers, nail technicians, book stores, travel agency services to electronic and optic repair shops, retail clothing, beauty products, market produce, food court and herbal shops.

2.2 Justification for Proposed Works

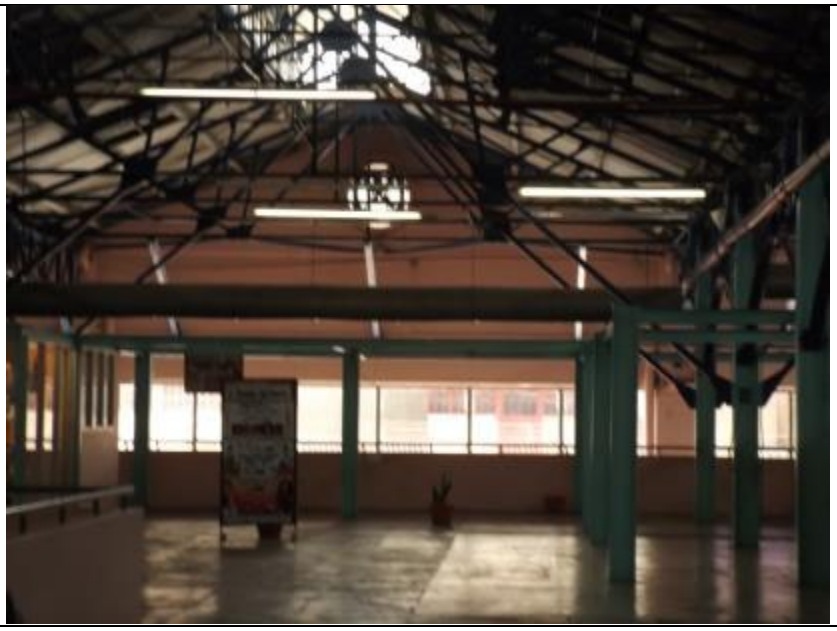
This is a colonial-era building which was originally built circa 1926. The roof structure consists of metal trusses which are relatively uncommon in Port of Spain, and so may be considered of historical importance (see Photographs 2-1 and 2-2). Despite its age, a structural inspection has revealed that the members of the steel frame (beams and columns) appear to be in good

condition with no signs of yielding or corrosion. However, the building has not undergone extensive renovation since 1991, so tenants are experiencing the following problems:

- Leaking Roof,
- Fluctuations in Electricity Supply,
- Inoperable Air Conditioning System.
- Unreliable Mechanical Services.

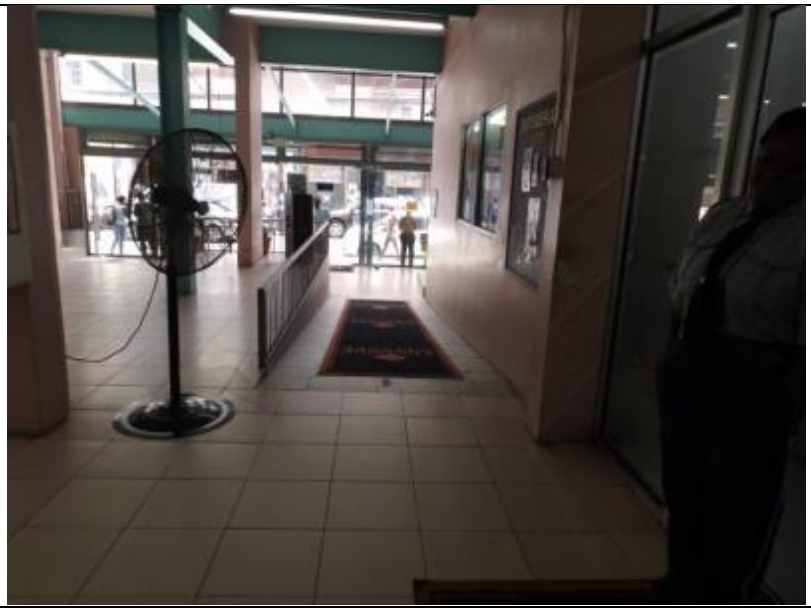


PHOTOGRAPH 2-1: ROOF TRUSSES



PHOTOGRAPH 2-2: ROOF TRUSSES

In addition to these necessary repairs, the building lacks certain amenities which are normal in a modern building. For example, while there is a wheel chair ramp (see Photograph 2-3) up from the sidewalk to the ground floor, there is no convenient access to the upper floor for handicapped persons. Similarly, there are no service elevators. Also, the external and internal façades do not convey the image of a typical tourist attraction (see Photographs 2-4 and 2-5).and the layout of the booths does not encourage free circulation (movement of persons) within facility.



PHOTOGRAPH 2-3: WHEEL CHAIR RAMP AT CHARLOTTE STREET ENTRANCE

PHOTOGRAPH 2-4: CHARLOTTE STREET FACADE

PHOTOGRAPH 2-5: GEORGE STREET FACADE

In summary, the objectives of the proposed upgrade will be to:

- enhance the environment for entrepreneurial activities,
- contribute to business expansion, and
- encourage clientele growth and increase revenue generation.

The upgrade will also seek to preserve the historical significance of the building, including its architecture in accordance with IDB's Policy OP-703 (see Section 3.2.1.4).

2.3 Proposed Works

This section describes the works which are anticipated for this project, inclusive of likely construction tasks. These descriptions are presented under the following headings:

- Roof Works;
- Upper Floor Works;
- Ground Floor Works;
- Elevators;
- Services; and
- Finishes and Signage.

These works will require careful planning to ensure that they proceed as efficiently as practical, and that necessary areas are restricted for ease of construction and safety. The next section will discuss two sets of options which may be considered for the construction phase.

2.3.1 Roof Works

The roof work consists largely of the replacement of galvanized sheeting and guttering, with minor repairs to the structural steel frames where required. Work on the steel frames may involve localized sand-blasting to remove paint, cutting away of small damaged sections, and/or welding to effect repairs. Replacement work will involve the removal of existing galvanized sheeting and guttering, and transporting from site for disposal. Replacement elements will be brought to site, hoisted to the roof and installed.

2.3.2 Upper Floor Works

The layout of the upper floor is to be remodelled, including the creation of a food court and possibly a performance space. This will involve the removal of certain booths, the relocation of others, and construction of partitions around and within the proposed food court as well as sinks and appliances within the individual food stalls. If the performance space is included, then provision may have to be made for a slightly raised stage area, a backstage area (changing rooms, etc.) and fixed or movable seating. To achieve this, material from demolished booths will have to be removed from the site for beneficial use elsewhere (as rubble) or disposal, and new material brought to the site and installed for the relocated booths.

2.3.3 Ground Floor Works

The layout of the ground floor will also be remodelled, to accommodate services and the elevators, increase the number of booths, improve the efficiency of circulation for customers and eliminate wasted space. This will involve the removal of certain booths and the relocation of others, as described in Section 2.3.2 for the upper floor. External walls in the southern annex will also have to be demolished and reconstructed. For these walls, too, demolished material will be treated as indicated above (Section 2.3.2) for the walls and new material brought to the site and installed.

2.3.4 Elevators

The present brief envisages the installation of two service elevators, but a passenger elevator may also be required to make the upper floor accessible to persons with disabilities. Installation of elevators will require breaking of both the ground floor slab and the first floor slab, construction of reinforced concrete elevator shafts, moving the elevators and all supporting equipment into the building, and installation. This will involve the use of jack hammers to break floor slabs; placement of steel and formwork and pouring and compacting of concrete for the shafts, and the use of temporary mechanical hoists to install the elevator cars.

2.3.5 Services

The works on services are as follows:

- **Electrical** - incoming service, earthing/ grounding, metering, distribution wiring, panels, terminal devices, lighting, and outlets.
- **Plumbing** – piping, toilets, urinals, sinks, water heaters, storage tanks, pumps, waste lines to sewers.
- **Air Conditioning** – dismantle and replace A/C system and ducting.
- **Smoke Detectors and Fire Alarms** – supply and install.
- **Security Systems** – supply and install.

These works will involve the removal of items to be replaced, and haulage from site for disposal. The replacement items will then be transported to site and installed. The largest items are those associated with the air conditioning system, which may pose challenges getting them into the building (especially the upper floor). The remainder of the items are relatively small and easier to handle.

2.3.6 Finishes and Signage

This work will include painting, decorative surfacing, installation of signs, etc. From a construction standpoint, these works may require external scaffolding, which will require permission from the City Corporation to temporarily close off sections of the sidewalk. Internally, it may be more efficient in some cases to install internal scaffolding rather than to use ladders for painting and installing signage that are beyond arms-length from the flooring.

2.4 Options

Alternative approaches to these works are discussed under two headings:

- Phasing of the Work, and
- Off-site Fabrication.

Both of these options were discussed with URBASYS, the designers. The final selection concerning each of these items will be made based on engineering considerations as well as the need to minimize financial impacts on the tenants of the Plaza (see Section 7.4.1.1)

2.4.1 Phasing the Work

URBASYS has indicted that there are two approaches to phasing, with different construction and compensation costs:

i. Close the whole facility for the duration of the construction work, a period of 1 year to 18 months. If this option is chosen, all vendors presently using the facility will have to vacate for the duration of the construction. The management of Eastside Plaza envisages that this approach will allow more control in ensuring that persons with valid claims to places are given priority when repopulating the Plaza when the upgrade is completed. However, this is not in harmony with the IDB's policy on resettlement (OP 710).

ii. Execute the work in phases, while keeping parts of the facility in use. For example, work can progress on half the upper floor, then the remainder of the upper floor, then successive parts of the ground floor in thirds. Such an approach will permit some of the vendors to continue to operate while work progresses on other parts of the facility. It is estimated that particular vendors will have to vacate their booths for approximately 6 months (as opposed to 12 to 18 months if the whole facility is closed).

These two approaches have different sets of construction and compensation costs (see Section 7.4.1.1).

2.4.2 Offsite Fabrication

This would involve the fabrication of some of the building elements at a remote location, and bringing them to site for installation. This can reduce the construction time on site, as well as some of the potential impacts like dust, noise, etc.

3 POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

This Chapter describes the legislative and regulatory framework which will govern the proposed upgrading and revitalization of Eastside Plaza, taking into consideration both Trinidad and Tobago regulatory framework as well as IDB policies and Guidelines. Information in this chapter will be discussed under the following headings:

- Trinidad and Tobago Regulatory Framework
  - Key Policies;
  - Key Laws and Agencies;
  - Other Laws and Agencies;
  - EMA Rules and other Guidelines; and
  - Summary of Environmental Approvals.
- IDB Policies and Guidelines

3.1 Trinidad and Tobago Regulatory Framework

3.1.1 Key Policies

This sub-section introduces the following policies which would be relevant to the Eastside Plaza Project:

- National Environmental Policy,
- National Policy on Gender and Development, and
- National Policy on Persons with Disabilities.

3.1.1.1 National Environmental Policy, 2018

The National Environmental Policy (NEP) of Trinidad and Tobago was prepared to satisfy the requirements of the Environmental Management Act, Chapter 35:05 (see Section 3.1.2.1). It focuses on the sustainable management of the country's environmental assets rather than the narrower concept of environmental protection, so as to avoid conflict between environment and development. The goal of this policy is environmentally sustainable development, meaning that a balance between economic growth and environmentally sound practices is required in order to enhance the quality of life and meet the needs of present and future development. The Eastside Plaza Project will seek to be environmentally sustainable vis-à-vis waste water discharges, air emissions and noise emissions.

3.1.1.2 National Policy on Gender and Development

The National Policy on Gender and Development aims to eliminate all barriers to gender equality and to advance measures to promote such equality (at this time, this Policy does not address LGBTQ issues). The Policy is aligned to the rights of the individual in Trinidad and Tobago's 1976 Republican Constitution, and the Government's national development framework. It is also consistent with the Government's commitments and obligations under the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW).

CEDAW defines discrimination against women as "...any distinction, exclusion or restriction made on the basis of sex which has the effect or purpose of impairing or nullifying the recognition, enjoyment or exercise by women, irrespective of their marital status, on a basis of equality of men and women, of human rights and fundamental freedoms in the political, economic, social, cultural, civil or any other field". The Eastside Plaza project will seek to ensure that gender equality is a cornerstone of the redevelopment process.

3.1.1.3 National Policy on Persons with Disabilities

The National Policy on Persons with Disabilities provides a comprehensive framework for achieving social inclusion and equality of opportunity for all persons with disabilities in Trinidad and Tobago. Trinidad and Tobago has also ratified the United Nations Convention on the Rights of Persons with Disabilities (CRPD) and its protocol. Countries that join in the Convention engage themselves to develop and carry out policies, laws and administrative measures for securing the rights recognized in the Convention and abolish laws, regulations, customs and practices that constitute discrimination

Under the CRPD "Discrimination on the basis of disability" means "any distinction, exclusion or restriction on the basis of disability which has the purpose or effect of impairing or nullifying the recognition, enjoyment or exercise, on an equal basis with others, of all human rights and fundamental freedoms in the political, economic, social, cultural, civil or any other field. It includes all forms of discrimination, including denial of reasonable accommodation." Eastside Plaza does not presently have any system to facilitate access to the upper floor by persons with disabilities, and this must be corrected in the upgrade.

3.1.2 Key Laws and Agencies

The main regulatory agencies that will govern the activities of the proposed project in Trinidad and Tobago are:

- The Environmental Management Act and Authority (EMA);
- The Town and Country Planning Act and Division; and
- The Port of Spain City Corporation.

These agencies are introduced in this sub-section. Other Agencies with jurisdiction are discussed in Section 3.1.3.

3.1.2.1 The Environmental Management Act and Authority

The Environmental Management Act, Act 3 of 2000 (EM Act), is the governing legislation for the development of a national strategy for sustainable development within Trinidad and Tobago. The EMA, created under this Act, is an independent body. The objective of the Act which is most relevant to the Eastside Plaza Project is to encourage the integration of environmental concerns into private and public decisions.

The Environmental Management Authority (EMA) is an independent body, created under the EM Act, which is responsible for environmental management and protection of the natural resources of Trinidad and Tobago. The Authority is governed by a ten-member multi-disciplinary board appointed by the President of the Republic of Trinidad and Tobago. The EMA has issued a series of Rules by which they regulate environmental matters in Trinidad and Tobago, some of which will apply to the Eastside Plaza Project (see Section 3.1.4).

Section 81 of the Environmental Management Act makes provision for the establishment of a tribunal known as the Environmental Commission, which is a superior court of record. The Commission has jurisdiction to hear and determine appeals against decisions or actions of the EMA, and complaints brought by persons (the direct private party action provision). The Commission will therefore become involved in this project if either of those events occurs.

3.1.2.2 The Town and Country Planning Act and Division

The Town and Country Planning Act (Ch. 35:01) makes provision for the orderly and progressive development of land in both urban and rural areas and to preserve and improve the amenities thereof; and for the grant of permission to develop land and for other powers of control over the use of land. Under the provisions of the Act, the Minister responsible for Town and Country Planning has a responsibility to secure consistency and continuity in the framing and execution of a comprehensive policy with respect to the use and development of all land in Trinidad and Tobago. The functions of the Division derive from this mandate of the Minister. TCPD's core functions relative to the Eastside Plaza Project include:

- Evaluate and determine on behalf of the Minister, applications for planning permission to develop land, in accordance with land use policies and plans;
- Evaluate and determine applications for the display of advertisements; and
- Enforcement of planning control.

Approvals pertaining to water and sewer, electricity and telecommunications connections are granted by the respective utility companies, and therefore are separate from planning approval. Notwithstanding this, TCPD consults these utility companies on an on-going basis when reviewing applications for planning permission.

Planning Permission is required for any activity which constitutes "development" under the Town and Country Planning Act. The TCP Act defines "development" as follows

> *(2) In this Act, except where the context otherwise requires, the expression "development" means the carrying out of building, engineering, mining or other operations in, on, over or under any land, the making of any material change in the use of any buildings or other land, or the subdivision of any land, except that the following operations or uses of land shall not be deemed for the purposes of this Act to involve development of the land, that is to say-*
>
> *(a) the carrying out of works for the maintenance, improvement or other alteration of any building, if the works affect only the interior of the building or do not materially affect the external appearance of the building*;

TCPD administers a two-tier system of approvals, which consists of:

i. Outline Planning Permission (OPP), and

ii. Planning Permission (PP).

Outline Planning Permission is based on land use and planning grounds. In essence, this level of permission seeks to ensure that the proposed development is compatible with the intended land use in the area, as defined in national, regional or local area plans. Since the Eastside Plaza has been in existence since 1926, prior to the enactment of the Town and Country Planning Act in 1960, no Outline Planning Permission is required.

The grant of Outline Planning Permission comes with conditions to be satisfied in the application for Planning Permission (commonly referred to as "Final Planning Permission"). This latter stage deals with engineering and architectural details of a development, and the application is expected to include design and layout drawings to provide these details. The grant of Planning Permission is only one of the requirements to be satisfied before the start of construction. Therefore, the Ministry of Housing and Urban Development (MHUD) will need to apply for Planning Permission (PP) for the proposed works to TCPD who will then make a determination if PP is required. It should be noted that construction should only commence after Final/Building Approval has been obtained from the respective Regional Corporation (Port of Spain City Corporation) of the Ministry of Local Government.

TCPD has issued a Guide to Developers and Applicants for Planning Permission, which provides guidance on allowable building coverage of sites, road widths, sidewalk widths, etc. This is available to the designers of the Plaza Renovation.

3.1.2.3 Port of Spain City Corporation

The Port of Spain City Corporation (the Corporation) has jurisdiction over developments within the boundary of the city. After planning permission has been received from TCPD (see Section 3.1.2.2), developers are required to seek approval from the Corporation, but even if planning permission is not required approval from the City Corporation must be obtained. Furthermore, during the on-going operation of Eastside Plaza, the Corporation's Disaster Management Unit (DMU) has responsibility as first responders in the event of an emergency; and they will coordinate with other agencies as necessary.

Three activities of the City Corporation with direct relevance to the operations at Eastside Plaza are as follows:

- The Corporation is responsible for the collection and disposal of garbage from public and private property in accordance with the Municipal Corporations Act.

- The Public Health Department of the Corporation has a responsibility to ensure the abatement of all environmental health problems which can be hazardous or injurious to human health.

- The Insect and Vector Control Unit within this Department conducts periodic inspections of properties to foster the removal of vermin, and this will include inspections at Eastside Plaza.

3.1.3 Other Laws and Agencies

This sub-section discusses laws and agencies related to:

- Occupational Safety and Health
- Litter,
- Water Supply and Sewerage,
- National Trust, and
- Equal Opportunities.

It then introduces several other agencies which will have jurisdiction over the Eastside Plaza Project.

3.1.3.1 Occupational Safety and Health

The Occupational Safety and Health (OSH) Act, 2004 (as amended), is a comprehensive law governing all aspects of health and safety in the workplace. It replaced the Factories Ordinance, but Orders and Regulations made under the Factories Ordinance remain in force. The Occupational Safety and Health Agency (OSHA), Ministry of Labour and Small and Micro-Enterprises Development is the executing agency under this Act.

Part II of this Act identifies the General Duties of employers and employees. The selected Contractor(s) for the Eastside Plaza project will be required to comply with the requirements of the OSH Act; including the preparation of Risk Assessments for their work. In the event that any of the Contractor(s) selected for the proposed works employs twenty-five or more employees, he shall keep a record in accordance with section 75 of the following:

(a) the findings of the assessment; and

(b) any group of his employees identified by the assessment as being exposed to an occupational safety and health risk.

Under Part V of the OSH Act, 2004, Eastside Plaza is required to obtain certification from the Fire Authority every 24 months. This involves inspections to verify that adequate means of escape are provided at the premises. In addition, a new inspection and certification will be required following the renovation.

Under Part VI of the OSH Act, 2004, premises such as Eastside Plaza must be properly sized based on the number of workers, and kept clean, well-drained, well ventilated and free of vermin. These requirements must be taken into account when designing the renovation.

3.1.3.2 Litter

According to the Litter Act Chapter 30:52, ‘‘litter means any solid or liquid material or product or combination of solid or liquid materials or products including but not limited to any bottles, tins, logs, sawdust, derelict vehicles, cartons, packages, packing materials, paper, glass, food, animal remains, garbage, debris, sand, gravel, stone, aggregate, dirt, waste (including any human and animal waste) or any other refuse or rubbish or waste material, and any other material or product that is designated as litter by the Minister by notice published in the Gazette.’’ This Act states the laws by which litter is punishable when disposed of improperly and is applicable to the proposed project. Compliance with this Act will be required both by Contractors implementing the upgrade at Eastside Plaza and by vendors at the upgraded facility once it becomes operational.

3.1.3.3 Water and Sewerage

The Water and Sewerage Act, Chapter 54:40 of the Laws of Trinidad and Tobago, regulates the development and control of water supply and sewerage facilities in Trinidad and Tobago, and promotes the conservation and proper use of water resources. The Act established the Water and Sewerage Authority (WASA) as its executing agency, which is responsible for providing potable water to the Eastside Plaza, and collection and treatment of sewage from this facility. Surface drainage is regulated by WASA if surface drains flow into the sewerage system. Otherwise, surface drainage is regulated by the Drainage Division of the Ministry of Works and Transport. The Trinidad and Tobago Bureau of Standards (TTBS) has published a standard concerning the quality of sewage that may be discharged into its sewers (see Section 3.1.4.6).

3.1.3.4 National Trust

The National Trust of Trinidad and Tobago was established by Act No. 11 of 1991 (the National Trust of Trinidad and Tobago Act, 1991). To complete the Act prior to its proclamation, amendments were effected by way of Act No. 31 of 1999 – the National Trust of Trinidad and Tobago (Amendment) Act, 1999. The purpose of the act includes:

(a) listing and acquiring such property of interest as the Trust considers appropriate;
(b) permanently preserving lands that are property of interest and as far as practicable, retaining their natural features and conserving the animal and plant life;
(c) preserving, maintaining, repairing and servicing or, arranging for the preservation of property of interest other than land and where such property of interest comprises buildings, augmenting the amenities of such buildings and their surroundings;
(d) making provision for the access to and enjoyment of property of interest by the public;
(e) encouraging research into property of interest including, where applicable, any animal, plant or marine life associated therewith;
(f) compiling photographic or architectural records of property of interest;
(g) making the public aware of the value and beauty of the heritage of Trinidad and Tobago; and
(h) advising the Government on the conservation and preservation of property of interest and on any or all of the matters referred to above.

The National Trust declares sites and buildings to be Heritage Properties, which designation seeks to protect structures and features of the site that are considered of national importance. Some projects under this programme may involve Heritage Sites or Buildings, and these will require protection as set forth by the National Trust. Based on the listing of Heritage Sites and Buildings on the website of the National Trust, the Eastside Plaza building is not listed as a Heritage Building.

3.1.3.5 Equal Opportunity

The Equal Opportunity Act, 2000, prohibits certain kinds of discrimination in order to promote equality of opportunity between persons of different status, where according to the Act, “status” in relation to a person, means: - (a) the sex; (b) the race; (c) the ethnicity; (d) the origin, including geographical origin; (e) the religion; (f) the marital status; or (g) any disability of that person. It also establishes an equal opportunity Commission and an Equal Opportunity Tribunal and for matters connected therewith. Contractors implementing the upgrade at Eastside Plaza and the management and vendors at the upgraded facility once it becomes operational must comply with the requirements of this act.

3.1.3.6 Other Agencies

Table 3-1 summarizes the roles of other agencies which will have jurisdiction over the Eastside Plaza Project.

TABLE 3-1: SUMMARY OF OTHER AGENCIES

AGENCY	FUNCTION
Highways Division, Ministry of Works and Transport (MoWT)	The Highways Division of the MoWT provides the physical infrastructure necessary for land transportation. Of relevance to the proposed upgrade/ renovations to the Eastside Plaza, consultations will be required with the Highways Division regarding: < Traffic management during the haulage of equipment and materials during construction activities; and < Repairs to roads and bridges under their jurisdiction, if there is damage from construction vehicles.
Trinidad and Tobago Fire Service (TTFS), Ministry of National Security	Inspect and certify premises such as Eastside Plaza. Assist in responding to emergencies during both construction and operation of the Plaza; accidents, fires, explosions and / or spills of any kind. TTFS will require the preparation of an emergency response plan. TTFS has a HazMat Unit which can provide search and rescue operations in the event of a building collapse.
Trinidad and Tobago Police Service (TTPS), Ministry of National Security	Responsible for safe-guarding the rights and freedoms of the citizens of Trinidad and Tobago, while maintaining social order. Eastside Plaza will need to submit a Traffic Management Plan to TTPS for approval one month in advance of transport and should notify them about movement of large equipment one week in advance. They will also provide backup emergency response to site security during the construction project and after the renovated Plaza is operational.
Ministry of Health (MoH)	Registers and inspects food establishments. This includes training and issuing food badges for persons involved in the sale of food.

3.1.4 EMA Rules and Other Regulations

This sub-section discusses the following EMA Rules and other Regulations:

- < Certificate of Environmental Clearance Rules;
- < Noise Pollution Control Rules;
- < Water Pollution Rules;
- < Air Pollution Rules;
- < Draft Waste Management (Registration and Permitting) Rules; and
- < Trade Effluent Discharges into Public Sewerage Systems – Requirements (TTS 638-2015).

Other Rules, such as the Environmentally Sensitive Areas and Environmentally Sensitive Species Rules, are not relevant to the Eastside Plaza project.

3.1.4.1 Certificate of Environmental Clearance Rules

The Certificate of Environmental Clearance (CEC) Rules, 2001 came into effect on July 07, 2001. These Rules, which apply to new developments or the expansion of existing developments, require that a Certificate of Environmental Clearance (CEC) be obtained from the EMA prior to the start of any work on any project which involves a Designated Activity. A review of the listing of Designated Activities shows two activities which may be relevant to the Eastside Plaza Project:

NO.	ACTIVITY	DEFINITION
10	Establishment of institutional facilities and other facilities	(b) The modification or expansion (inclusive of associated works) of the following facilities in order to cater for 500 or more persons including staff: (ii) other facilities such as sporting complexes, shopping malls etc.
43	Provision of other service-oriented activities	The establishment, modification, decommissioning or abandonment (inclusive of associated works) of a commercial kitchen with a water consumption of 9 cubic metres or more per day

There are at present 153 tenants/vendors at Eastside Plaza. If the Plaza were to accommodate an additional 75 workers (one for every two booths) plus 300 shoppers (two per booth) at peak, the total occupancy would exceed 500, which would be covered by Designated Activity 10.

At a meeting with the EMA on August 15, 2019, the interpretation of Designated Activity 43 was discussed. The specific question was whether each individual kitchen in the facility would be required to obtain a separate CEC if they used more than 9 cubic metres or more of water per day, or whether the facility would require a joint CEC if all of the kitchens used 9 cubic metres or more of water per day. The EMA clarified that the Plaza would be considered a single entity so that Designated Activity 43 would apply if all of the kitchens together used 9 cubic metres or more of water per day.

Despite their requirement to consult with potential applicants, the EMA has consistently declined to indicate at meetings whether a CEC would be required for a particular project. Instead, they will only make that determination when a CEC Application is submitted. Eastside Plaza will therefore be required to submit an application to the EMA who will then determine if a CEC is required.

If a CEC is required for the upgrade of Eastside Plaza, the Process is set out in the CEC Rules (2001), as follows:

i. The Developer submits an application for a CEC on the prescribed form. The CEC Application Fee is $TT 500.00. This should not be confused with the EIA Review Charge, which will be explained later.

ii. Because this project will ultimately require planning permission, the submittal is made to the Port of Spain office of the Town and Country Planning Division (TCPD). Within 5 working days, the TCPD must forward the CEC Application to the EMA.

iii. Within a further 10 working days, the EMA must respond to acknowledge the receipt of the application and to indicate either that-
- < no CEC is required, or
- < further information is needed, or
- < a CEC is required but an Environmental Impact Assessment (EIA) is not needed, or
- < a CEC is required and an EIA must be submitted.

Note: If an EIA is required, no other Government Agency may issue any permit, license or approval unless the CEC has been granted.

iv. If a CEC is required but an EIA is not needed, the EMA must determine the CEC application within 30 working days of the acknowledgement (or of the receipt of further information if such is requested).

v. If an EIA must be submitted, the EMA must prepare draft Terms of Reference (TOR) for the EIA within 21 working days. The Developer may collect the draft TOR upon notification and upon payment of the prescribed charges. For Designated Activity No. 10, the charge is $TT 5,000.00, while for Designated Activity 43 it is $TT 10,000.00.

vi. The Developer has 28 calendar days following issue of the draft TOR to consult with key stakeholders and make representations to the EMA for modifications to the TOR.

vii. Within 10 working days, the EMA must consider the requested modifications, and issue Final Terms of Reference for the EIA.

viii. The EMA must determine the CEC Application within 80 working days of receipt of the EIA, which includes a statutory period of 30 days for receipt of public comment on the EIA. However, the EMA can “stop the clock” by requesting further information. In addition, if they consider that they are unable to make a determination within 80 working days, they can so advise the Developer before the expiration of the 80 working days, and set a new deadline date.

For the renovation of Eastside Plaza, even if a CEC is required, it is the view of Ecoengineering (based on our past experience) that an EIA will not be requested. However, this opinion in no way binds the EMA, who have sole jurisdiction on whether an EIA is required. During our meeting on August 14, 2019, the EMA confirmed their practice that they will not offer an opinion whether an EIA is required until a CEC Application has been submitted.

3.1.4.2 Noise Pollution Control Rules

Under the Environmental Management Act, 2000, the Environmental Management Authority has issued Noise Pollution Control Rules, 2001 which are in effect. These rules recognize the following noise zones:

- Zone I - Industrial Areas,
- Zone II - Environmentally Sensitive Areas, and
- Zone III - General Area.

Under Section 2 of the Noise Pollution Rules, 2001, Zone I (Industrial Areas) is defined as areas 'expressly approved for industry by a competent governmental entity'. Zone II, Environmentally Sensitive Areas means a portion of the environment so designated under Section 41 of the Act, and Zone III (General Area) means all of Trinidad and Tobago except Environmentally Sensitive Areas and Industrial Areas. The proposed renovation and upgrade of the Eastside Plaza falls within the General Area zone.

Section 7 of the Noise Rules lists a number of activities which are exempt from the prescribed standards and include the following which is applicable to this project:

> *(k) construction activity when conducted on a construction site between the hours of 7:00 a.m. and 7:00 p.m. of the same day.*

Under the Prescribed Standards in the First Schedule, the Rules state that for both Daytime and Nighttime levels for General Areas “the sound pressure level when measured as equivalent continuous sound pressure level shall not be more than 5 dBA above the background sound pressure level.” Therefore, background sound pressure level will have to be measured at or beyond the property boundary of the Eastside Plaza in order to determine if there are exceedances of the noise pollution rules either during construction work or during occupancy of the facility after the upgrade.

The proposed project will require a variation if work is to proceed at night, and if that work is expected to exceed the specified limits. Section 9 of the Rules describes the procedures for the application of a Noise Variation.

The relevant subsections read as follows:

> *9.(1) Subject to subrule (3) where a person proposes to conduct an activity or an event that will cause sound in excess of the prescribed standards, that person shall submit an application to the Authority for a variation.*
>
> *(4) Notwithstanding anything to the contrary in these rules, where a person emits a sound in a noise zone within the prescribed standards for that noise zone but which results in the creation of a sound in excess of the prescribed standards in an adjoining noise zone, the Authority may notify that person to submit an application for a variation.*

The granting of a variation is made by the EMA based on the advice of the Noise Advisory Council (appointed by the board of the EMA) and the variation will be valid for a fixed period. The EMA may establish maximum permissible sound pressure levels and conditions as required (which may include measures to minimise environmental impacts, a monitoring programme, a procedure for reporting non-compliance, etc.) in each variation.

3.1.4.3 Water Pollution Rules

The Water Pollution Rules (WPR) were first introduced in 2001 (with amendments in 2006) as a requirement of the Environmental Management Act to develop and execute programmes for the control and management of point and non-point sources of water pollution. The amended WPR, 2019, and the Water Pollution (Fees) Regulation, 2019, are aligned to the Sustainable Development Goals (SDGs), core principles of the National Environmental Policy (NEP) (2018), and national policies and commitments on the environment envisioned in Vision 2020. The salient features of these Rules are:

i. An application for a permit must be submitted to the EMA by person/ company when releasing a parameter or substance listed in Schedule I (see Table 3-2) into a receiving environment.

ii. The application must be submitted no later than 45 working days from the commencement of these rules or otherwise guided by the EMA.

iii. The operation of the facility from which the water pollutant is released shall be allowed to continue until final determination of the application for the permit by the EMA.

iv. Where a person/ company receives a final determination of the application for a permit, that person/ company shall not release any water pollutants outside the permissible levels unless that person has been granted a permit by the EMA.

v. Where a person/ company is not granted a permit by the EMA, that person/ company may be required to participate in a watershed improvement plan.

vi. If additional information is requested by the EMA, the applicant shall provide the additional information within 20 working days.

vii. Within 30 working days of receipt of a completed application, the EMA shall grant or refuse to grant with or without conditions, a permit to the applicant.

viii. Permits may be issued for a period not exceeding 5 years, or effective until a fixed date specified in the permit,

ix. The EMA shall establish in each permit the following:

(a) the water pollutants authorised to be released;
(b) the quantity, conditions and concentrations the permittee may release;
(c) the exact location where the sampling of the release shall be performed and frequency of sampling; and
(d) reporting requirements.

TABLE 3-2: WATER POLLUTANTS

(Source: Water Pollution Rules, 2019)

PARAMETER OR SUBSTANCE	QUANTITY, CONDITION OR CONCENTRATION AT WHICH SUBSTANCE OR PARAMETER IS DEFINED AS A POLLUTANT (*)
Temperature	Maximum variation of 3°C from ambient
pH	Less than 6 or greater than 9
Dissolved Oxygen	<4
Biological Oxygen Demand (5-day)	>10
Chemical Oxygen Demand	>60
Total Suspended Solids	>15
N-Hexane Extractable Material (HEM)(mg/L)	>10
Ammoniacal Nitrogen (as NH_3-N)	>0.01
Total Phosphorus (as P)	>0.1
Sulphide (as H_2S)	>0.2
Chloride (as Cl^-)	>250
Total Residual Chlorine (as Cl_2)	>0.2
Dissolved Hexavalent Chromium (Cr^{6+})	>0.01
Total Chromium	>0.1
Dissolved Iron (Fe)	>0.1
Total Petroleum Hydrocarbons (TPH)	NIAA
Total Nickel (Ni)	>0.5
Total Copper (Cu)	>0.01
Total Zinc (Zn)	>0.1
Total Arsenic (As)	>0.01
Total Cadmium (Cd)	>0.01
Total Mercury (Hg)	>0.005
Total Lead (Pb)	>0.05
Cyanide (as CN^-)	>0.01
Phenolic Compounds (as Phenol)	>0.1
Radioactivity	NIAA
Toxicity	NATE
Faecal Coliforms	>100

Note: (*) all units are in milligrams per litre (mg/L) except for temperature (°C), pH (pH units), turbidity (NTU), faecal coliforms (counts per 100 ml), radioactivity (Bq/L) and toxicity (toxic units)

It should be noted that the fees payable to the Environmental Management Authority are set out as follows in the WPR (Fees) Regulation, 2019:

(1) in Schedule I, the initial and renewal application fees which are based on the facility type (size);
(2) in Schedule II, the calculation for the annual discharge fee; and
(3) in Schedule III, all other fees payable.

The operation of the proposed upgraded and renovated Eastside Plaza is not expected to require a Permit under the WPR 2019, since the wastewater from the facility is fed into the existing sewerage system within the City of Port of Spain. Therefore, instead of complying with the discharge limits in the Water Pollution Rules, the wastewater discharged from the upgraded facility will need to conform to the Trade Effluent Standards for Discharge into Sewers discussed in Section 3.1.4.6.

3.1.4.4 Air Pollution Rules, 2014

The Rules define an air pollutant as any substance listed in Schedule 1 or 2 which is emitted into the air in excess of the maximum permissible level prescribed therein. This listing includes some greenhouse gases, but the Air Pollution Rules do not comprehensively regulate Greenhouse Gas Emissions per se. Schedule 3 contains a list of designated activities from which pollutants may be released, but this does not include the construction industry. However, of relevance to this project is Commercial and Institutional Food Preparation listed under Category 1: Food and Agriculture which is described as "use of equipment that produces grease, vapours, steam, fumes, smoke and odours."

Air emissions of concern during the proposed construction activities and operation of a commercial kitchen may include Particulate Matter (PM10 and PM2.5), Carbon Monoxide (CO), Carbon Dioxide (CO2), Nitrogen Dioxides (NO2), and Sulphur Dioxide (SO2). Permissible levels are shown in Table 3-3 below.

TABLE 3-3: AIR POLLUTANTS

(Source: Air Pollution Rules, 2014)

COMPOUND	SHORT TERM MAXIMUM PERMISSIBLE LEVELS		LONG TERM MAXIMUM PERMISSIBLE LEVELS	
	MAXIMUM PERMISSIBLE LEVELS ($\mu g/m^3$)	AVERAGING TIME	MAXIMUM PERMISSIBLE LEVELS ($\mu g/m^3$)	AVERAGING TIME
Total Suspended Particulates (TSP)	150	24 hours	NA	NA
Particulate Matter (PM_{10})	75	24 hours	50	1 year
Particulate Matter ($PM_{2.5}$)	65	24 hours	15	1 year
Carbon Monoxide (CO)	100,000	15 min	NA	NA
	60,000	30 min	NA	NA
	30,000	1 hour	NA	NA
	10,000	8 hour	NA	NA
Nitrogen Dioxide (NO_2)	200	1 hour	40	1 year
Sulphur Dioxide (SO_2)	500	10 min	50	1 year
	125	24 hours	NA	NA

NA- Not Applicable

3.1.4.5 Draft Waste Management (Registration and Permitting) Rules, 2018

Sections 55 to 58 of the EM Act, 2000, outline responsibilities for the EMA to regulate waste generation and its handling. Several iterations of legislation were developed which included:

- Draft Waste Management Rules, 2008;
- Draft Waste Management (Hazardous Waste) Rules, 2014 (the draft Hazardous; Waste Rules); and
- Draft Solid Waste (Non-hazardous) Management Rules, 2014 (the draft Non-hazardous Waste Rules).

However, the EMA decided to return to a single piece of legislation to regulate waste management. Therefore, the intent of the Draft Waste Management (Registration and Permitting) Rules, 2018, is to support the current waste management system in Trinidad and Tobago and the objectives defined in national policies on waste management. It should be noted that unlike the previous versions of the Rules, this version has removed the regulation of transboundary movement of hazardous wastes. This will be addressed under separate primary legislation. The Rules also require the EMA to establish a National Register which allows the public to identify persons who are registered or permitted under the Rules and so promote an authorized list of generators and waste handlers.

The Draft Waste Management (Registration & Permitting) Rules, 2018, state that "waste" has the meaning assigned to it by the Act and includes any waste listed in the Schedules to the Rules. However, it does not regulate radioactive wastes. Additionally, the draft Rules define:

*"**generator'** as a person or owner of a facility who produces waste above the registrable quantities mentioned in Part II of the draft Rules,*

*"**handler**" as a person who collects, transports, stores, produces, processes, treats, recovers, recycles or disposes of waste received from another person or generated on his own premises or, as a broker, has control of it.*

The salient features of these Rules are:

a) An Application Form (together with an Application Fee) must be submitted to the EMA by a generator or handler.

b) The Application Form must be submitted within 40 days of commencement of the Waste Management Rules.

c) EMA acknowledges receipt within 20 days of submittal of application form, and may or may not request any further information.

d) EMA issues a Waste Registration Certificate valid for a period of 3 years from the date of issue.

e) EMA may at any time after the commencement of the Rules, notify the holder of a Waste Management Certificate to apply for a Waste Management Permit within 45 days of notice.

f) Registrant submits Application Form with Application Fee.

g) EMA acknowledges receipt within 20 days of submittal of application form, and indicates whether any further action is required.

h) EMA issues or refuses to grant a Waste Management Permit, valid for 5 years from the date of issue and subject to renewal for such period deemed by the EMA.

Solid wastes generated as a result of the proposed renovation and operation of the Eastside Plaza must be collected and appropriately disposed of in a manner compliant with these Rules when they come into force. It is therefore prudent to consider the requirements of the draft Rules when designing the renovated Plaza, so as to enable compliance in the future when the Rules come into force.

3.1.4.6 Trade Effluent Discharges into Public Sewerage Systems

The Trade Effluent Discharges into Public Sewerage Systems – Requirements (TTS 638-2015) was developed to address concerns by WASA regarding the inadequate pretreatment of industrial and commercial wastewater (trade effluent) discharges into public sewerage systems, which may choke or damage sewers and impair the proper operation of wastewater treatment plants. The establishment of these discharge limits is the first step towards the development of a comprehensive pollution control programme within the Authority. Table 3-4 lists the maximum permissible limits for selected parameters. In addition, the standard includes the methods of sampling and testing to be used by the discharger.

TABLE 3-4: MAXIMUM PERMISSIBLE LIMITS FOR TRADE EFFLUENT DISCHARGES INTO PUBLIC SEWERAGE SYSTEMS

(Source: TTS 638:2015)

PARAMETER	DISCHARGE LIMIT
5-day/ 3-day Biochemical Oxygen Demand (BOD_5)(BOD_3)	300 mg/L
Chemical Oxygen Demand (COD)	600 mg/L
pH	5.5 – 9.0
Temperature	35°C
Total Dissolved Solids (TDS)	2,000 mg/L
Suspended Suspended Solids	350 mg/L
Chloride	250 mg/L
Total Residual Chlorine	1.0 mg/l
Oil and Grease	20 mg/L

Presently there are a number of hairdressing and spa type facilities in the Eastside Plaza, where chemical products (such as dyes and other products) are used, and washed down into the internal drains within the building which discharge into the POS public sewers. Additionally, if a food court is proposed for the Eastside Plaza, liquid effluents from the preparation of foods (oils and grease) may also be generated and drained into the existing sewers. Therefore, the Eastside Plaza will be required to conduct testing on their effluent to ensure compliance with this standard.

3.1.5 Summary of Environmental Approvals

Table 3-5 presents a summary of the relevant environmental approvals required for the proposed renovation of the Eastside Plaza.

TABLE 3-5: LIST OF RELEVANT APPROVALS

AUTHORITIES	PERMIT/LICENSE	DESCRIPTION
Environmental Management Authority	Certificate of Environmental Clearance	Required by Eastside Plaza before work can begin on the renovation, and by TCPD for issuing final planning permission.
Town & Country Planning Division	Final Planning Permission	Project planning approval
Highways Division, Ministry of Works and Transport	Consultation/ Approval	Transportation of heavy equipment and material on the roadways/ highways
Traffic Management Branch, Ministry of Works and Transport	Consultation/ Approval	Rerouting of traffic (including construction vehicles) during construction
Trinidad and Tobago Fire Services	Fire Certificate	Issued after inspection of the premises and renewable every two years or when there are structural changes to the building.
Public Health Inspectors (Ministry of Health and Port of Spain City Corporation)	Approval of Food Premises and issuing of Food Badges	Approval is required for facilities which prepare and serve food, and food badges are required for workers at these premises.

3.2 IDB Policies and Guidelines

Six IDB Policies and Guidelines will apply to this assignment which are described below

- OP-703 Operational Policy on Environment and Safeguards Compliance and Guidelines;
- OP-761 Operational Policy on Gender Equality in Development and Guidelines;
- Meaningful Stakeholder Consultation: IDB Series on Environmental and Social Risk and Opportunity;
- OP-710 Operational Policy on Involuntary Resettlement and Guidelines;
- OP-704 Natural Disaster Risk Management Policy and Guidelines; and
- OP-102 Access to Information Policy.

3.2.1 Environment and Safeguards Compliance

The Environmental and Safeguards Policy (OP-703) is meant to ensure that projects of this nature adhere to the principles of sustainable development as set out in the Declaration of Rio 92, Agenda 21, and in the World Summit on Sustainable Development in Johannesburg. This policy causes the examination of physical and biological changes associated with the project. This policy makes for environmental concerns to be mainstreamed across all sectors and is a means to implement the IDB's commitment to promoting corporate environmental responsibility. The following sub-sections relate to:

i. Project Screening,
ii. Environmental Assessment,
iii. Environmental Management Plan, and
iv. Historical Sites.

Requirements for Stakeholder Consultation will be provided in Section 3.2.3.

3.2.1.1 Screening

At the screening stage, IDB classifies projects into three categories (from OP 703), as follows:

Category "A": Any operation that is likely to cause significant negative environmental and associated social impacts, or have profound implications affecting natural resources. These operations will require an environmental assessment.

Category "B": Operations that are likely to cause mostly local and short-term negative environmental and associated social impacts and for which effective mitigation measures are readily available. These operations will normally require an environmental and/or social analysis which is focused on the specific issues identified, as well as an environmental and social management plan (ESMP).

Category "C": Operations that are likely to cause minimal or no negative environmental and associated social impacts. This category does not require an environmental or social analysis beyond the screening and scoping analysis, but should establish safeguard or monitoring requirements.

The Eastside Plaza Upgrade Project was screened by IDB prior to its inclusion in this programme, and it was determined to be a Category B project. Ecoengineering agrees with this classification. As a result, it requires a focussed Environmental and Social Assessment (ESA) along with an Environmental and Social Management Plan (ESMP).

3.2.1.2 Environmental and Social Assessment

Environmental risks can undermine the achievement of the IDB's development goals and targets. Identifying such risk early on in proposed programs and projects will allow the enacting of timely and adequate measures to minimize risks, enhance benefits, and foster broad social and political acceptance (Guidelines). Typical contents of an Environmental and Social Assessment (Guidelines) include:

Section 1 – Executive Summary,

Section 2 – Project Objectives and Description,

Section 3 – Policy, Legal and Regulatory Framework,

Section 4 – Environmental and Social Conditions,

Section 5 – Environmental and Social Impacts and Mitigation Measures,

Section 6 – Analysis of Alternatives,

Section 7 – Environmental and Social Management Plan, and

Section 8 – Public Consultation and Disclosure.

Because this is a Category B project, the level of detail in some of these sections is less than would be required for a full Environmental and Social Impact Assessment (ESIA). Specifically,

- The Description of Environmental and Social Conditions is based on field observations published information, and information obtained during stakeholder consultation (see Chapter 7); but without original instrumental measurements, and

- The Assessment of potential Environmental Impacts is based on qualitative descriptions rather than numerical quantification.

3.2.1.3 Environmental and Social Management Plans

The contents of an IDB ESMP are as follows (Guidelines):

- Listing of key direct and indirect impacts and risks of the proposed operation;
- Design of social/environmental measures to avoid, minimize, compensate and/or mitigate those impacts and risks;
- Institutional responsibilities to implement these measures;
- Schedule and budget allocated for the implementation and management of such measures;
- Consultation or participation program agreed for the operation; and
- Framework for monitoring social and environmental impacts and risks throughout the operation.

ESMPs are intended to be "living documents", with provision for revision over the life of the project. As a result, specific mechanisms for corrective action to address feedback from inspection and monitoring programs should be included in the ESMP.

3.2.1.4 Historical Sites

In addition, this Policy comprises preservation of historical sites, and defines critical cultural sites and cultural sites as follows:

Critical cultural sites include but are not restricted to those protected (or officially proposed by governments for protection) such as World Heritage Sites and National Monuments, and areas initially recognized as protected by traditional local communities (e.g., sacred groves).

Cultural sites are any natural or manmade areas, structures, natural features and/or objects valued by a people or associated people to be of spiritual, historical and or archaeological significance. Material remains may be prominent, but will often be minimal or absent.

Noncritical Cultural Sites: Cultural sites that do not fall under the definition of "critical" should also be identified as part of the EA process and be assessed on the basis of their relative value and significance for local and affected communities. If significantly impacted, appropriate measures to protect, mitigate, or compensate noncritical cultural sites need to be integrated into the ESMP.

Under these definitions, Eastside Plaza may be defined as a non-critical cultural site due to the architecture and materials of construction of some of its walls and its roof structure. Therefore, appropriate measures will be taken to protect its integrity and function.

3.2.2 Gender Equality

The IDB's Operational Policy on Gender Equality in Development is based on the premise that gender equality contributes to poverty reduction and higher levels of human capital for future generations. Evidence confirms that equality within the household, labour market, access to financial services and technology, civic and political participation contribute to the effectiveness of its development efforts. The objective of the Policy is to promote gender equality and the empowerment of women.

The Policy pursues two types of action:

i. Proactive action: which actively promotes gender equality and the empowerment of women through all the Bank's development interventions. These include direct investment in areas strategic to gender equality and mainstreaming the gender perspective in development interventions; and

ii. Preventive action: which introduces safeguards to prevent or mitigate adverse impacts on women or men due to gender resulting from the Bank's actions through its financial operations.

According to the IDB's Policy, gender equality means that women and men enjoy the same conditions and opportunities to exercise their rights and reach their social, economic, political, and cultural potential. Gender mainstreaming is the process that seeks to have gender equality and the needs of women and men be heard and addressed in the design, implementation, monitoring, and evaluation of the Bank's interventions, with special emphasis on public- and private-sector loan operations, given their importance within the institution.

The Bank will conduct its financial operations so as to identify and address adverse impacts and the risk of gender-based exclusion, include women and men in consultation processes, and comply with applicable legislation relating to equality between men and women. In its public consultation processes, the Bank will seek the equitable participation of women and men, as well as the participation of civil society organizations. In project-related consultations, the Bank will seek the inclusion of the women and men affected in a gender-sensitive and socio-culturally appropriate manner.

The Policy also looks at the way that gender inequalities interact with other inequalities that are based on socioeconomic, ethnic, and racial factors, exacerbating the barriers; specifically, vulnerabilities of poor, indigenous, and Afro-descendant women. Unlike the Trinidad and Tobago National Policy on Gender and Development (see Section 3.1.1.2) the IDB's No discrimination Policy specifically lists LBGTQ persons as a group to be considered when planning to avoid discrimination. On the Eastside Plaza upgrade project, there was no gender bias in the way that stakeholders were consulted.

Specifically:

- All Vendors were approached to take part in the census, and to attend the stakeholder meeting, regardless of gender, which ensured women's participation; and

- All Neighbouring Businesses and the Principal of the adjacent Secondary School were approached for discussions, regardless of gender;

thus allowing meaningful participation by all groups.

3.2.3 Stakeholder Consultations

The IDB Technical Note entitled "Meaningful Stakeholder Consultations" identifies the following ten elements of stakeholder consultation:

1. Identification of priority issues: The likely risks and opportunities arising from the project to people and the environment.

2. Stakeholder analysis and consultation plan: Identify and meaningfully engage those affected by the project and those who can influence outcomes.

3. Prior information: Dissemination of information prior to consultation meetings.

4. Appropriate forums and methods for the consultation process: Use of public hearings or meetings at each location.

5. Grievance redress mechanisms: Development of an accessible mechanism to report any aspect of the project perceived to be causing harm to affected stakeholders.

6. Design and implementation decisions considering stakeholder perspectives: Using feedback from the meetings to inform the ESMP and where fitting, design of the renovated Plaza.

7. Feedback to stakeholders and transparency in decision-making: Devising a method to report to stakeholders continually during the project.

8. Baseline data, action plans, and management systems: Description of the mitigation, management and monitoring planned to ensure that the project meets its environmental and socio-economic objectives.

9. Documentation and public disclosure: A mechanism for the public to access information on the project.

10. On-going stakeholder consultation during implementation: Use of a Stakeholder Engagement Plan to maintain communication with the stakeholders during the life of project execution.

On the Eastside Plaza upgrade project, four elements of Stakeholder Engagement were undertaken:

i. A Census of Vendors at the Plaza, seeking information on their business practices;

ii. A General Meeting with Vendors at the Plaza, to hear their Attitudes to and Concerns about the Upgrade (as agreed during the conceptualization stage of this assignment);

iii. Individual Meetings with Neighbouring Businesses and the Principal of the adjacent Secondary School, to understand their present interactions with the Plaza and hear their Concerns about the Upgrade; and

iv. A Meeting with the Port of Spain City Corporation on the general subject of Street Vending.

On this assignment, different consultation approaches were taken:

i. The Census of Vendors/Tenants was intended to obtain information from specific users of the plaza, such as their reliance on this form of employment, nature of their operations, etc.

ii. The Meeting with Vendors/Tenants was intended to obtain more general information and opinions on the proposed renovation. It was agreed with the IDB at the proposal stage that a meeting with Vendors and Tenants would provide more meaningful information for these environmental studies than a public meeting.

The questionnaire of Neighbouring Businesses was intended to obtain specific information on neighbours of the mall and how they might be affected by the proposed renovation.

3.2.4 Involuntary Resettlement

Involuntary resettlement is one of the highest social risks when it comes to project sustainability. The stated objective of the IDB's OP-710 Involuntary Resettlement Policy approved in July 1998, is to minimize the disruption of the livelihood of people living in the project's area of influence, by avoiding or minimizing the need for physical displacement, ensuring that when people must be displaced they are treated equitably and, where feasible, can share in the benefits of the project that requires their resettlement.

Two fundamental principles that should guide any operations that may require resettlement are:

- Every effort should be made to avoid or minimize the need for involuntary resettlement, and
- When displacement is unavoidable, a resettlement plan must be prepared to ensure that the affected people receive fair and adequate compensation and rehabilitation.

Other considerations when planning for involuntary resettlement / relocation include:

- Affected persons must be consulted when planning resettlement and compensation measures.
- Affected persons must not be disenfranchised simply because they do not have clear title to property or contracts for use of places of work.

Several other factors must be considered when planning for involuntary resettlement/ relocation, such as:

- Loss of employment or means of production,
- Loss of access to or increased distance from traditional sources of goods and services,
- Loss of access to education, and
- Disruption of social networks.

The Eastside Plaza project does not involve any relocation of residents, nor permanent relocation of any tenants. However, depending on the arrangements which are made to facilitate construction work, tenants may be asked to vacate their booths temporarily, on a phased basis. If the decision is taken to close the Plaza for the construction period, then all tenants will be asked to vacate the Plaza temporarily.

3.2.5 Disaster Risk Management Policy

The IDB's OP- 704 Disaster Risk Management Policy was developed due to the increase in the number and seriousness of disasters in Latin America and the Caribbean, and the awareness that disasters have significant impact on the economic and social development of most countries in the region, affecting disproportionately the poorest countries and people.

The objectives of the Policy are:

i. to provide effective and efficient support to borrowing members in reducing disaster risks; and
ii. to facilitate rapid and appropriate assistance by the Bank to its borrowers after a disaster.

The Policy provides two lines of action addressing:

a. the prevention and mitigation of disasters that occur as a result of natural hazards, through programming and proactive project work at regional, national and local levels; and
b. post disaster response to the impacts of natural hazard events, and physical damage (such as structural collapse and explosions) resulting from technological accidents or other types of disasters resulting from human activity.

With respect to natural hazards, this policy covers the range of events from low frequency/ high consequence hazards to high frequency/low consequence hazards.

The policy guidelines are part of the Bank's framework for the management of development risk at the country and project levels. There are four possible strategies to manage risks:

i. acceptance, when risks remain below levels deemed tolerable by the parties involved;
ii. prevention and mitigation;
iii. sharing, when risks can be effectively transferred to a third party, for example through insurance; and
iv. rejection ("avoidance"), when the level of risk exceeds the risk level deemed acceptable but cannot be lowered at a reasonable cost.

Eastside Plaza, like the rest of Trinidad and Tobago, can experience natural disasters due to the passing of tropical cyclones (see Sections 5.2.4 and 5.3), flooding from heavy rainfall events and the occurrence of earthquakes (often due to its location on the tectonic boundary between the South American and Caribbean plates). This ESA will explore the likelihood of flooding in this area, report on the passage of tropical storm Karen in September 2019, and consider the frequency of earthquakes in the vicinity of Port of Spain. The design of the works must take all of these into account.

3.2.6 Access to Information Policy

Effective since January 1, 2004, the Disclosure of Information Policy (OP-102) ("the Policy") is applicable to the release of all Bank information (data or documents) to the public. The Policy is based on the principle that information concerning the Bank and its activities shall be made available to the public unless there is a compelling reason for it to remain confidential and shall be disclosed in a form and at a time that enhances the transparency and therefore the quality of Bank activities. The Bank's primary tools for making Information available to the public are the Bank's website and the online request form.

This policy is based on the following principles:

- **Principle 1**: Maximize access to information.
- **Principle 2**: Narrow and clear exceptions
- **Principle 3**: Simple and broad access to information
- **Principle 4**: Explanations of decisions and right to review

Information that is deemed confidential in accordance with Bank policy, or that has been identified as confidential by the government of a member country, a private sector client, the donor of a trust fund or co-financing resources administered by the Bank, or by the Bank itself will not be published. On the Eastside Plaza Project, none of the information concerning the nature and phasing of the work has been deemed confidential. However, in order to maintain a fair bidding process for contractors, budget information should not be released to the public.

To conform with this policy, specifics of the proposed work were disclosed to Tenants of the Plaza during the Census and the Meeting with Tenants, to government agencies and the neighbouring secondary school during meetings with them, and to a small sample of neighbouring businesses when they were interviewed. The Environmental and Social Assessment (ESA) which includes the Environmental and Social Management Plan (ESMP), as well as the Stakeholder Consultation Report for the Eastside Plaza will be published on the Bank's website. In addition, the Environmental and Social Management Framework that pertains to the Trinidad and Tobago Urban Regeneration and Revitalization Programme will also be published on the Bank's website.

4 STAKEHOLDER CONSULTATION

Consultation (engagement) with key stakeholders on this assignment took four forms:

- Census of Plaza Tenants,
- Interviews with Neighbours,
- General Meeting with Tenants, and
- Meetings with Other Agencies.

These consultations are documented in some detail in the Consultation Report (Eco Report No. 21/2019), so that information will not be repeated here. Instead, this chapter summarizes the key information obtained and issues raised at each consultation event.

4.1 Census of Tenants

The objective of this consultation exercise was to inform tenants of the proposed renovation, seek information for use in this ESA Report, and obtain opinions of the tenants about the facility and the proposed upgrade. This consultation consisted of meetings with each tenant, when a structured questionnaire was administered. Of 153 tenants that were approached, 139 agreed to be interviewed. Of these, the gender distribution was 106 (76%) women and 33 (24%) men. This indicates that women are heavily represented among the tenants, and an underlying segment in the labour market and in their participation in the economic activity at the Plaza.

The age group distribution among interviewees was:

AGE GROUP	NUMBER	PERCENTAGE
Under 40	7	5
40-44	12	8.7
45-49	19	13.8
50-54	32	22.5
55-59	27	19.6
60+	42	30.4

As shown in the table above, almost three-quarters of the tenants who were interviewed are older than 50 years, and about 30% are older than 60 years. In contrast, only 5% are under 40. This may be due to the fact that most of the tenancy has been long term so that young entrepreneurs have not had ready access to this facility. In other words, initially or in earlier years, the tenants were young when the Plaza was established, however, once full occupancy was achieved, it ceased being able to cater to young entrepreneurs.

The main categories of business activities encountered at the Eastside Plaza consisted of:

- Retail Sales (35.3%);
- Manufacturing (33.8%);
- Services (26%); and
- Other (4.3%).

Retail sales included Variety stores (39%), Clothing and Accessories stores (37%), and other types (24%). Manufacturing included Seamstresses/Tailors (56%), Garment Construction activities (22%) and other types of manufacturing activities (24%). Services offered included Barber Shops/ Beauty Salons (50%), Seamstresses/ Designers (15%) and other services (34%).

Information on the number of years in business of the present tenants at the Eastside Plaza was as follows:

YEARS IN BUSINESS	PERCENTAGE
Under 5	9
5 - 10	7
10 - 14	9
15 - 19	15
20+	57

As noted in the table above, a significant majority of the businesses report operations at Eastside Plaza of more than 20 years. This suggests that this facility is not operating as a business incubator, where businesses would start up, reach a stage of financial security, and then move on to other premises making room for new start-up businesses. The management of Eastside Plaza has expressed the view that the lease charges at the Plaza are so low as to actively discourage businesses from seeking other premises as they mature.

Information on services accessible to tenants in the individual units was as follows:

SERVICES	PERCENTAGE
Electricity	100
Air Conditioning	27
Water	21
Waste Disposal	1

Key findings from this census include common services in need of Improvement as well as other services needed. Responses from the interviews were as follows:

COMMON SERVICES IN NEED OF IMPROVEMENT	PERCENTAGE
Toilet facilities	74
Security	63
Waste Disposal	30
Internet	27

OTHER SERVICES NEEDED	PERCENTAGE
Air Conditioning	58
Available ATM	16
Property Maintenance	16
Promoting Eastside Plaza	16
Internet Services	14
Better Security	9
Food Court	7

4.2 Interviews with Neighbours

The objective of this consultation exercise was to inform neighbours about the proposed renovation, seek information for use in this ESA Report, and obtain neighbours' views on the proposed renovation and how it may affect them. This consultation consisted of meetings with a sample of neighbours including at least one neighbouring business on each street, where a structured questionnaire was administered. A total of four neighbours agreed to be interviewed.

These businesses have been in operation for at least ten years. Outside of specific time periods (Christmas and August school vacation), the businesses all indicated that business activity booms during the end of month periods.

The utilities offered by the capital (Port of Spain City Corporation) received excellent reviews. However, police service, on average, was rated 'fair.' Common among the businesses was their lack of knowledge about the Eastside Plaza project, but they all agreed that such improvements would benefit their own businesses.

4.3 General Meeting with Tenants

On September 4, 2019, a general meeting was held with the tenants of the Eastside Plaza. The objective of this consultation exercise was to inform the tenants about the proposed renovation to the Plaza, seek information for use in this ESA Report, and obtain their views on the proposed upgrade and how it may affect them.

A total of 80 tenants attended the meeting which was held in the open space on the second floor of the Eastside Plaza. The meeting began with Words of Welcome and an Introduction of the ESA Team, followed by information on the Current Status of the project, the Need for the Project, and the Proposed Works. The tenants were then split up into seven groups of approximately 10-12 persons per group, each group having a Moderator / Note-Taker.

Each group was given five guidance questions to discuss, of which four were the same for all seven groups:

1. What is your general impression of the upgrade project?
   Do you consider it necessary?

2. What do you consider to be the items that require the most critical upgrading or repair?
   Please provide the type of upgrade or repair that you consider necessary in each case.

3. Do you expect any inconvenience during the renovation work?
   What would you suggest be done to lessen this inconvenience?

4. If it is necessary to ask some tenants to temporarily vacate the premises to facilitate construction, what measures would you suggest to minimize hardship to those tenants?

The other guidance questions which were discussed by different groups were as follows:

5. Are safety and security a challenge at this mall?
   Please suggest ways that this can be improved during construction and then at the renovated mall.

6. Do any of the following groups experience particular difficulties as tenants or customers at this mall?
   - Women,
   - Men,
   - Family Groups.

   Please explain the types of difficulties experienced.

7. Do any of the following groups experience particular difficulties as tenants or customers at this mall?
   - Persons with disabilities,
   - Elderly Persons,
   - Young Persons

   Please explain the types of difficulties experienced.

8. What is your relationship with other surrounding businesses?
   If there are problems, please explain.
   Can the mall benefit from the large number of customers visiting other businesses on Charlotte and George Street in particular?

The following sub-sections summarize responses from the tenants to each of the guidance questions.

4.3.1 General Impression and Need for Upgrade

All groups agreed that the upgrade to the Eastside Plaza was very necessary. Two groups indicated that they were dissatisfied with the lack of information on exactly what is proposed (i.e.: detailed designs). It was explained that these detailed designs were not yet available.

4.3.2 Items requiring Critical Upgrading or Repair

The most critical items that needed upgrading/ repair included:

- Non-functional Central Air Conditioning system,
- Leaking Roof,
- Security (suggestions included armed guards, functional security cameras covering more areas of the Plaza, more security patrols, emergency/panic button in booths), and
- Electrical Supply needs to be more reliable (avoiding fluctuations).

Other items that were cited less frequently included:

- Access for the Elderly to the second floor (escalator preferred),
- Upgrading of Toilets (plumbing, shower facilities for females, separate for tenants and pay system for the public),
- Food Court to attract customers,
- Loading and Off-loading Area with reserved space including to protect tenants from bandits that prey on them when goods are being loaded or off-loaded,
- Car Park (possibly at a close-by location, but pan yard should not be removed),
- Maintain the Entrances Clear (particularly from street vendors) in case of an emergency (fire, etc.),
- Pest Control
- Space for a Nursery/ Children after school hours
- Improved External Appearance
- Billboard to Advise Products sold in Plaza

Many of these items are already incorporated in the scope of the renovation project (see Section 2.3), and the others will be considered by the design team.

4.3.3 Inconvenience during Renovation

All groups agreed that they expect inconveniences during renovation works. These included: loss of customers, noise, dust, obstructed entrances, and increased heat inside the building.

Suggestions included:

- Provide Temporary Storage for Tenants,
- Minimize Inconvenience by undertaking Works during the hours of 6 pm and 6 am, and on Sundays (but not on Saturdays since this is a prime business day for hairdressers),
- Contractor to keep their Work Areas clean, and generally clean the building at the end of each work shift, and
- Adjust Rents temporarily.

4.3.4 Temporary Relocation of Tenants

Tenants were generally not in favour of closing the Plaza entirely to facilitate construction work, and they suggested that the work be done in phases so that tenants in the area being worked on can be relocated to other open areas of the Plaza. They felt that there was enough space within the Plaza to provide kiosks, or erect temporary booths which may just be tents rather than more permanent structures. One group even offered to share booths with other tenants as long as it was only for a limited time.

If it is necessary to temporarily relocate some tenants, consideration must be given to providing compensation or a stipend for the time they were not at the Plaza. They also suggested relocation to another building in Port of Spain (such as the Drag Brothers Mall at 43 Independence Square or New City Mall), but insisted that they be charged the same rent at the new building as at the present building.

Tenants sought a guarantee that any tenant who had to move (either to another location in the Plaza or to another location outside the Plaza) would be allowed to return to their original location within the Plaza, and given the same size booth as they relocated. It was explained to them that re-organization of the floor layout of the Plaza may not allow tenants to return to the exact location from which they were moved. Tenants accepted this but expected to be returned to generally the same area.

4.3.5 Safety and Security

It was generally agreed that safety and security were a challenge at the Plaza and in surrounding areas. Suggestions included:

- Increase Security during Construction by having workers sign in and out,
- Install additional Cameras, and maintain them in working order,
- Increase Security Patrols within the Plaza, and
- Deploy more Armed Guards (presently there is only one).

4.3.6 Difficulties for Women, Men and Family Groups

The general feeling was that the Plaza was not "family friendly". Women are also subjected to unwanted attention by males within the Plaza. These issues were discussed, but few clear suggestions were made beyond increased policing.

4.3.7 Difficulties for Persons with Disabilities, the Elderly and the Young

It was generally agreed that these three groups face special challenges at the Plaza, and the following specific suggestions were made:

- Provide better access to upstairs, in the form of Elevators, Escalators or Ramps,
- Provide Toilets accessible to persons with disabilities,
- Provide proper Guard Rails on Ramps and Stairs, and
- Provide Parking specifically for the elderly and persons with disabilities.

4.3.8 Problems and Benefits at this Locale

Problems encountered at this locale include:

- No loading/ off-loading zone,
- Street Vendors hamper loading/off-loading of goods and access to the Plaza,
- Snatch-and-Run Bandits run through the Plaza to avoid the police, and
- Robberies during off-loading of goods.

The Plaza can benefit from:

- Purchases from Neighbouring Businesses,
- Sales to Neighbouring Businesses, and
- Lots of Shoppers in this part of Port of Spain.

4.3.9 Other Comments

Two other comments were made which deserve repetition here:

i. One tenant insisted that the true purpose of the "renovation project" was to allow the Management of Eastside Plaza to eject certain tenants from the Plaza in order to bring in other, more favoured, persons. This type of distrust affected the consultation efforts to a limited extent.

ii. Several other tenants commented that the consultation efforts were a sham, and that the views of the tenants would not be taken into account during the design and implementation of the renovation work. To combat this doubt, it is recommended that positive steps be taken to keep the tenants involved in the process as the renovation work proceeds through design and into implementation.

4.4 Meetings with Other Agencies

Meetings were held with the following agencies and institution:

- Environmental Management Authority,
- Port of Spain City Corporation,
- Downtown Owners and Merchants Association,
- South East Port of Spain Secondary School

The objectives of these meetings were to inform the agencies and institution about this project, to obtain information on regulatory approvals and to receive general opinions and concerns related to the project. Specifics of each meeting are presented in a separate sub-section below.

4.4.1 Environmental Management Authority

A meeting was held with the Environmental Management Authority at their offices on August 14, 2019. Following a brief presentation of the proposed renovation to the Eastside Plaza, interpretation of particular Designated Activities under the CEC Rules relevant to the project was discussed.

The EMA agreed that the Plaza would be considered as a single facility, and therefore the water use criterion of 9 cubic meters of water use per day (Designated Activity 43) would apply to the sum of all kitchen facilities within the Plaza (considered as a single facility) and not to each individual kitchen. Additionally, Designated Activity 10 may also be applicable if 500 per day or more persons including staff would be using the upgraded Plaza.

The EMA advised to ensure that an adequate water supply, electricity supply and sewerage capacity was available to serve the upgraded Plaza.

4.4.2 Port of Spain City Corporation

A meeting was held with the Port of Spain City Corporation (POSCC) at their offices on August 22 2019. Following a brief presentation of the proposed renovation to the Eastside Plaza, the approval process within the POSCC was discussed, as well as existing traffic patterns and street vending in the area.

The POSCC indicated that an application with a conceptual design/ layout of the proposed renovations to the Eastside Plaza will need to be submitted to the POSCC Engineering and Health Departments, simultaneously with the applications to TCPD and the EMA. However, approvals from the POSCC will only be granted after the project has been approved by the EMA, TCPD, Fire Department and WASA.

Traffic on Charlotte and George Street complies with the patterns for the rest of the city, with peak traffic between 9:00 am and 5:00 pm. Peak traffic along Charlotte and George Streets occurs between 9:00 am and 5:00 pm, as in the rest of the City. Traffic is more intense on Charlotte Street than George Street. Official vending is allowed on Charlotte Street from Duke Street to Independence Square North on Thursdays, Fridays and Saturdays. Along George Street, there are official and unofficial vending areas. It was therefore suggested that goods be off-loaded on George Street, and this could occur during evening and weekends when there is less traffic (both vehicular and pedestrian).

The POSCC main concerns related to the construction phase of this project and included the following:

- Ensure that final approval is received prior to the start of construction;
- Ensure compliance with approved construction plans as the site will be visited by the POSCC Building Inspector;
- ensure public safety is adhered to per OSHA as there is a lot of foot traffic in the project area;
- Ensure construction standards and good-practices (i.e.: maintaining clear drains during construction phase) are observed.

4.4.3 South East Port of Spain Secondary School

A meeting was held with the South East Port of Spain Secondary School (SEPOSSS) on September 05, 2019. Following a brief presentation of the proposed renovation to the Eastside Plaza, the relationship between the Eastside Plaza and the school was discussed, as well as expected impacts from construction activities on the school.

Students may buy food after school at the Plaza, as they are not allowed to leave the school grounds during school hours. Photocopying services at the Plaza may be used at times. For the Emancipation celebrations held at the Plaza, school children have been asked to model clothes made by the tenants of the Plaza. The idea of a central food court is welcomed, as teachers would not have far to go and buy food.

The SEPOSSS main concerns during renovation works include:

- Traffic disruptions: If construction equipment/ materials are brought into the Plaza from George Street, staff and parents may be inconvenienced as they drive up this road, take a right onto Prince Street and then drive down Nelson Street to the school's entrance. An alternative option may be to drive up Duncan Street then take a right onto Prince Street, a left onto Piccadilly Street, then a left onto Duke Street, and then come down Nelson Street. SEPOSSS suggested that construction equipment/ materials should be brought in on weekends or during night hours with police presence (very important).

- Noise: although the school is not impacted by noise on a regular basis, there is concern if jack-hammering activities take place. SEPOSSS suggest than noisy activities be conducted outside of school hours or during the weekends.

- Dust: There may be an issue with dust from the construction activities on the western side of the school. Dust screens could be installed either on school windows or at the Eastside Plaza. If placed over the school windows on the western side, it would be necessary to ensure that they do not constrict the air flow into the classrooms

4.5 On-going Consultation

All of the parties who were consulted expressed the expectation that this round of consultations would only be the start of the process, with further consultation taking place as the project progresses. The Tenants/Vendors were particularly happy to have been included in the consultation process to date, but expect to be included further as the design continues, as the contracts for the project are let, and as the renovation work is implemented. Such on-going consultation would be in harmony with both the expectations of the Environmental Management Authority and the IDB.

5 DESCRIPTION OF THE NATURAL ENVIRONMENT

This chapter presents baseline information on various components of the natural (physical and biological) environment which may be affected by the proposed upgrade and renovation to the Eastside Plaza (or, in the case of climate, may affect the dispersion of dust or the potential for flooding). The chapter begins with a discussion of the study area and then addresses the following environmental components:

- Climate;
- Climate Change;
- Geology and Seismicity;
- Topography and Drainage
- Flooding;
- Air Quality; and
- Noise.

Due to the highly built-up (urban) nature of the study area, there is no significant component of the biological environment (terrestrial and aquatic flora and fauna) to be discussed.

5.1 Study Area

Figure 1-1 shows the general location Eastside Plaza within the City of Port of Spain. The baseline study areas for different environmental components are defined as the areas potentially impacted by the proposed works described in Chapter 2 (see Table 5-1).

TABLE 5-1: DEFINITION OF THE STUDY AREAS

COMPONENT	STUDY AREA
Climate	City of Port of Spain (based on National Data from Piarco International Airport).
Geology and Seismicity	City of Port of Spain (see Figure 1-1).
Topography	Project Site and immediate environs (see Figure 1-2).
Surface Drainage	Municipal drains along Charlotte and George Streets that flow to the Gulf of Paria (see Figure 5-5).
Air Quality	Project Site and immediate environs bounded to the North by Prince Street, to the East by George Street, to the West by Charlotte Street and south by Queen Janelle Commissiong Street (see Figure 1-2).
Noise	Project Site and immediate environs (as for Air Quality, above).

5.2 Climate

Trinidad and Tobago experiences two seasons per year: a dry season which extends from about January to May, and a wet season which extends from about June to November (Burton, 1999). The periods May / June and December / January are usually considered as the transitional periods between both seasons and may exhibit dry or wet season conditions or a

combination of both. The specific characteristics exhibited in these months vary from year to year. The proposed project will not affect climatic conditions, so this description of climate is presented in the context of its effect on the dispersion of emissions and discharges from the proposed upgrading works. The following selected meteorological variables were examined to establish the baseline climatology for Trinidad and Tobago generally and the Port of Spain area (see Table 5-2):

- Rainfall;
- Temperature and Relative Humidity;
- Wind Regimes; and
- Tropical Cyclones.

Additionally, the passage of tropical cyclones in the vicinity of Trinidad and Tobago was examined.

Much of the information in this section was obtained from the Trinidad and Tobago Meteorological Service (TTMS), collected at Piarco International Airport. This data from Piarco is taken to be representative of the entire island and therefore, in the absence of site-specific data is considered applicable to the study area.

5.2.1 Rainfall

The distributional variation in rainfall recordings across the country was sourced from isohyetal maps from the Water Resources Agency (WRA, 1990). This map shows that the proposed project site lies in an area which receives between the 1,400 mm and 1,600 mm isohyets of rainfall per year (see Figure 5-1). This is low in comparison to the rest of the country, which receives an average of 2,150 mm of rainfall per year. However, very intense short duration storms occur every year.

5.2.2 Temperature and Relative Humidity

5.2.2.1 Temperature

Temperature data recorded by the Forecast Office at the Piarco International Airport was acquired from the TTMS. Generally, temperature data from Piarco is taken to be representative of the entire island. This data set provides a general idea of the annual and seasonal variation in the average monthly temperature. Table 5-2 shows the average, maximum and minimum temperature for the period 1999 to 2018, and the following observations were made:

- The highest average monthly temperature is 28°C experienced in both May and September,
- The lowest average monthly temperature is 26.2°C in January,
- The highest average monthly maximum temperature is 33.5°C in September, and
- The lowest average monthly minimum temperature is 21.8°C in February.

TABLE 5-2: MONTHLY AVERAGE METEOROLOGICAL VARIABLES

Source: Trinidad & Tobago Meteorological Office (Piarco data)

MONTH	PIARCO					
	TEMPERATURE / °C (1999 TO 2018)			WIND (1998 TO 2018)		RELATIVE HUMIDITY / % (1998 TO 2016)
	AVERAGE	MAXIMUM	MINIMUM	DIRECTION (°)*	SPEED / km/hr	
JANUARY	26.2	31.3	22.0	74	12.6	79.4
FEBRUARY	26.3	31.7	21.8	78	13.3	76.3
MARCH	26.9	32.4	22.4	84	13.5	74.8
APRIL	27.7	33.1	23.4	83	13.8	75.2
MAY	28.0	33.0	24.1	86	14.2	77.5
JUNE	27.6	32.2	24.1	80	13.1	81.3
JULY	27.6	32.5	23.9	80	11.2	81.2
AUGUST	27.8	33.3	23.8	78	8.8	81.2
SEPTEMBER	28.0	33.5	23.8	83	8.0	80.9
OCTOBER	27.7	33.3	23.6	82	8.7	82.3
NOVEMBER	27.2	32.3	23.4	83	9.1	83.9
DECEMBER	26.5	31.5	22.6	78	10.3	82.0
AVERAGE	**27.3**	**32.5**	**23.2**	**81**	**11.4**	**79.7**

*Note: * 2007 data was not available*

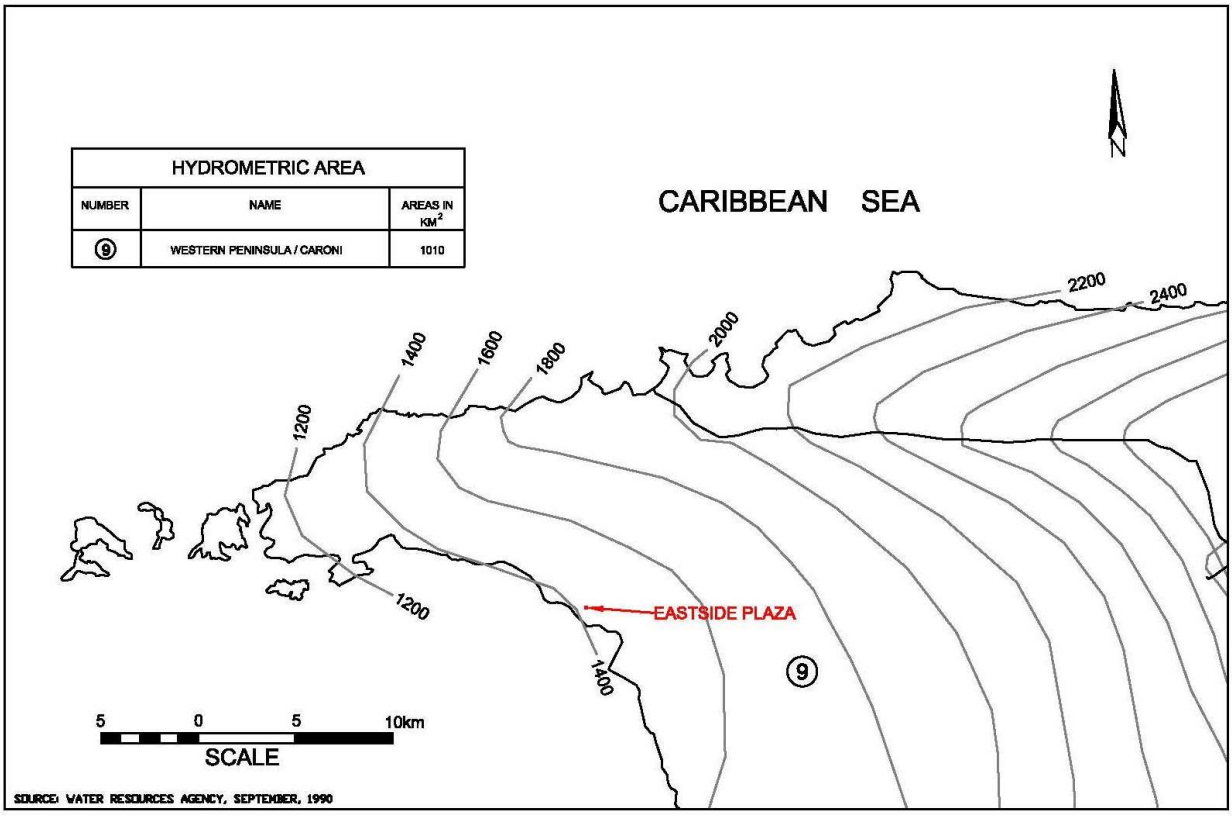


FIGURE 5-1: ISOHYTAL MAP

Modified temperature variances over the study area are expected to occur at specific locations such as in urban areas. Slightly higher than average atmospheric temperatures are experienced at these locations due to the urban heat island effect where the temperature in built up areas are higher than nearby rural areas.

5.2.2.2 Relative Humidity

Relative Humidity (RH) indicates how close the air is to becoming saturated and is expressed as a percentage. RH is affected by many factors, both of the physical environment; such as proximity to a water body, as well as of the atmospheric environment; such as temperature and wind speed. RH is usually defined for a single location at a single point in time. However, for climatological considerations, averages over both space and time are made.

RH data collected by the Forecast Office at the Piarco International Airport was acquired from the TTMS. Generally RH data from Piarco is taken to be representative of the entire island. Therefore, in the absence of site-specific data for the project area, the Piarco data set will be used to describe the annual variation in the average monthly RH over the study area. For the

period 1998 to 2018, RH was slightly higher during the latter part of the year (wet season). The minimum RH observed is 74.8% in March, while the maximum RH is 83.9%, observed in November (see Table 5-2).

Beyond the national averages, localised effects play a role in differences in the RH experienced at any given location. These include relative proximity to the sea and the effect of urban areas which tend to increase RH. Both these factors are present at the site of Eastside Plaza.

5.2.3 Wind Regimes

Wind data recorded by the Forecast Office of the Piarco International Airport was acquired from the TTMS. Generally, wind data from Piarco is taken to be representative of the island. In the absence of in situ site data, Piarco data will be used to describe the annual variation in the average monthly wind speed and direction across the study area.

Figure 5-2 is a wind rose generated for Piarco for the period 1998 to 2018. Based on the wind roses, wind direction was predominantly from the east for both the dry and wet seasons. Table 5-2 shows the average monthly wind direction (over the period 1998 to 2018) to be 81° that is, approximately from the east. Wind speed data from Table 5-2 are summarised as follows:

- higher wind speeds occur during the dry season months,
- the maximum monthly average wind speed observed is 14.2 km/hr in May,
- the minimum monthly average wind speed observed is 8.0 km/hr in September, and
- the average monthly wind speed is 11.4 km/hr.

5.2.4 Tropical Cyclones

Trinidad and Tobago are the most southerly islands of the Caribbean chain and are bounded by the area delineated by 10ºN, 62ºW; 12ºN, 62ºW; 12ºN, 60ºW and 10ºN, 60ºW. Historically, they have experienced fewer direct “hits” from tropical cyclones than other islands further to the north. The official Atlantic Hurricane Season extends from June 1st through to November 30th. Trinidad and Tobago is affected generally during the months of August and September. Tropical storms are classified as cyclones when their maximum wind speeds are between 34 knots (63 km/h) and 63.7 knots (118 km/h). Hurricanes have maximum winds in excess of 63.7 knots (118 km/h).

For the proposed project, tropical cyclones from 1974 to 2018, with tracking coordinates falling anywhere inside of the delineated area will be considered as “close passages”. Table 5-3 was compiled using unaltered tracking data from the UNYSIS and NOAA databases.

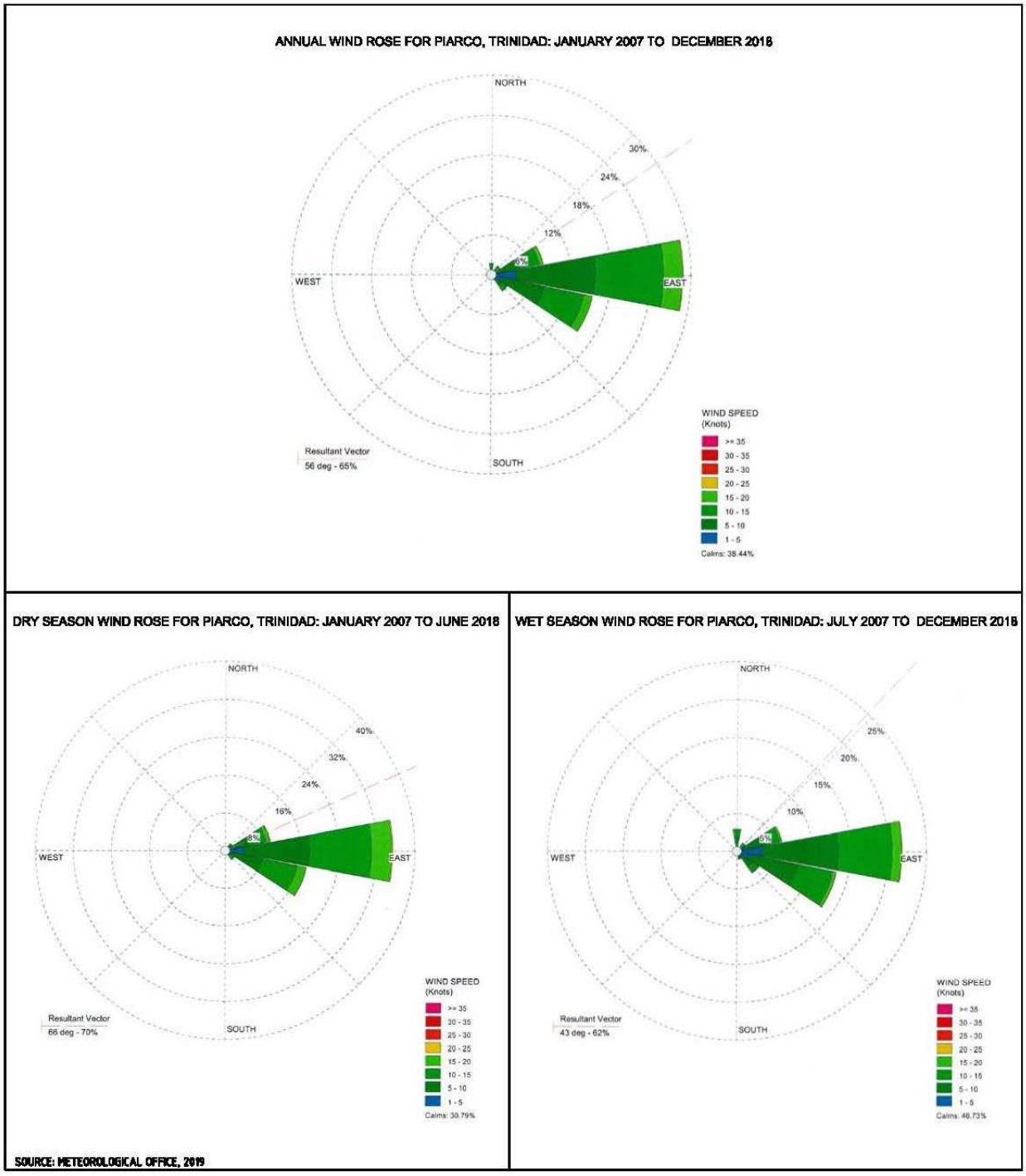


FIGURE 5-2: WIND ROSES

Out of the 15 tropical cyclones tracked within the area designated as “close passages”, four tropical cyclones made landfall on the island of Trinidad and one skirted the northeast coast:

- Tropical Storm Alma (1974),
- Tropical Storm Fran (1990),
- Tropical Storm Bret (1993), and
- Hurricane Isidore (2002) which was a tropical depression when it made landfall.

TABLE 5-3: TROPICAL CYCLONES AFFECTING TRINIDAD AND TOBAGO (1974 – 2019)

Source: National Hurricane Center, 2019

YEAR	FINAL DESIGNATION	NAME	MONTH	DAY	TIME (UTC)	LAT (°)	LONG. (°)	STRENGTH UPON PASSAGE
1974	TS	Alma	Aug	14	1200	10.20	-60.50	TS
1978	H	Cora	Aug	11	0000	12.00	-60.90	TS
1988	TS	Isaac	Oct	01	1200	12.00	-61.20	TD
1988	H	Joan	Oct	14	1800	12.00	-60.80	TS
1990	TS	Arthur	Jul	25	0000	11.10	-60.00	TS
					0060	11.70	-61.30	TS
1990	TS	Fran	Aug	14	1200	10.20	-61.30	TS
1993	TS	Bret	Aug	07	0600	10.70	-60.50	TS
2000	H	Joyce	Oct	01	1200	11.30	-60.90	TS
2002	H	Isidore	Sep	14	1800	10.00	-60.50	TD
2004	H	Charley	Aug	09	1800	11.70	-61.10	TD
2004	TS	Earl	Aug	15	1200	11.80	-60.80	TS
2004	H	Ivan	Sep	07	1800	11.80	-61.10	H-3
2005	H	Dennis	Jul	04	1800	12.00	-60.80	TD
2005	H	Emily	Jul	14	0000	11.60	-60.20	H-1
			Jul	14	6000	11.90	-61.50	H-1
2017	TS	Bret	Jun	19	2300	10.00	-61.30	TS

Note: H: Hurricane
TS: Tropical Storm
TD: Tropical Depression

The island experienced severe flooding in 2004 as a result of heavy rainfall associated with the passage of Ivan. In July 2005, Trinidad and Tobago experienced the effects of Hurricane Emily which passed north of the islands. There were torrential rains and high winds, followed by flooding in low-lying areas of north and central Trinidad. In addition, Tropical Storm Bret passed across the southeast of the island on June 20, 2017. On September 22, 2019, tropical Storm Karen passed just north of Tobago, producing high winds and heavy rains with flooding across parts of Trinidad.

5.3 Climate Change

Climate change refers to a statistically significant variation in either the mean state of the climate or in its natural variability, persisting for an extended period, typically decades or longer (O'Hare, Sweeney and Wilby, 2005 and IPCC, 2007). This section gives an overview of climate change for Trinidad and Tobago; observed trends (1960 to 2012) and predicted trends (within the 21st Century). The United Nations Development Program (UNDP, 2012) has established Climate Change Country Profiles for the globe. The Trinidad and Tobago country profile describes the following observed trends in climate change since 1960:

- There has been an increase in the mean annual temperature by around 0.6°C, at an average rate of 0.13°C per decade.
- Mean Rainfall has decreased fractionally since 1960, but this is not a statistically significant trend. The largest changes are in June, July and August (wet season), where, on average, rainfall has decreased by 6.1 mm per month (2.6%) per decade.
- The Intergovernmental Panel on Climate Change (IPCC) has made several predictions for the Caribbean Region:
    - The mean annual temperature is projected to increase by 0.7 to 2.6 °C by the 2060s, and 1.1 to 4.3 degrees by the 2090s. The range of projections by the 2090s under any one emissions scenario is around 1-2°C. The projected rate of warming is similar throughout the year.
    - All projections indicate substantial increases in the frequency of days and nights that are considered 'hot' in current climate.
        - Annually, 'hot' days will occur on 33-66% of days by the 2060s, and 41-94% of days by 2090s.
        - Nights that are considered 'hot' for the annual climate of 1970-99 are projected to increase in frequency more rapidly than hot days, occurring on 33-83% of nights by the 2060s and 41-99% of nights by 2090s
    - There is an expected percentage change in precipitation with annual projections varying between -61% and + 23% by the 2090s, with ensemble median values of -13 to -21%. The IPCC has thus stated that the region is likely to experience a decrease in precipitation during this century.
    - There is a projected rise in sea level of 0.13 m to 0.56 m by the 2090s, relative to 1980-1999 sea-levels.
    - Model simulations show wide disagreements in projected changes in the amplitude of future El Niño events, contributing to uncertainty in future climate variability in projections for the Caribbean region.

Additionally, note should be made that there have been many uncertainties and variations in different model predictions for tropical cyclones. This has resulted in the IPCC stating that there is no clear picture with respect to regional changes in frequency and movement however there is an expected increase in intensity of tropical cyclones.

5.4 Geology and Seismicity

Information on the geology at the proposed project site was sourced from the Geological Map of Trinidad and Tobago. Trinidad lies on the tectonic boundary between the South American and Caribbean plates, with a geology largely composed of faulted sediments and low-grade metamorphic rocks. The fissured limestone northwest of the Northern Range has small springs, while the alluvial deposits within the metamorphic rocks form coastal aquifers.

The nearest major defined fault is the Arima Fault which runs in a general east/west direction approximately 1 km to the north of the project site (see Figure 5-3). The southern edge of the Northern Range is dominated by the Arima Fault (Kugler, 1959) and associated faults of this system (Saunders, 1997). On August 21, 2018, a 6.9 magnitude earthquake was recorded by the UWI Seismic Research Unit, followed by a 6.0 magnitude aftershock on August 22, 2018. However, this earthquake occurred along the El Pilar Fault which is located approximately 3 km south of the project site.

5.5 Topography and Drainage

Eastside Plaza lies on flat land situated at an elevation of less than 7.6 m (25 feet) above sea level. Typical drainage within the city consists of roadside kerb and slipper drains which discharge at intervals into box drains below the sidewalks (see Figure 5-4). The box drains located along Charlotte and George Streets flow in a north to south direction. These drains eventually cross Independence Square and South Quay, discharging into the Gulf of Paria just west of Sea Lots (IDB, 2013) (see Figure 5-5).

5.6 Flooding

A number of recent drainage studies indicate flooding as a serious, relatively frequent problem within the Port of Spain area following periods of intense rainfall. This has been attributed to growing urbanization of the Northern Range, deforestation, the inadequacy of Port of Spain's drainage systems to handle increased runoff, the increasing frequency of high intensity rainfall events and the continual introduced waste into waterways (WSP, 2012). Additionally, extension of existing drains to new outfalls but with limited or no gradient has resulted in backwater effects from the sea, especially during high tide. All of these factors lead to overflowing of drains and flooding of the streets (UDECOTT, 2015). According to the Port of Spain City Engineer's office, there is short-term flooding on the roadway at Charlotte and George Streets during times of intense rainfall, but this dissipates rapidly (suggesting that the problem is flow from the streets into the underground box drains rather than the capacity of the box drains themselves). There were no reports of flooding to the level of the ground floor of Eastside Plaza.

FIGURE 5-3: GEOLOGY MAP

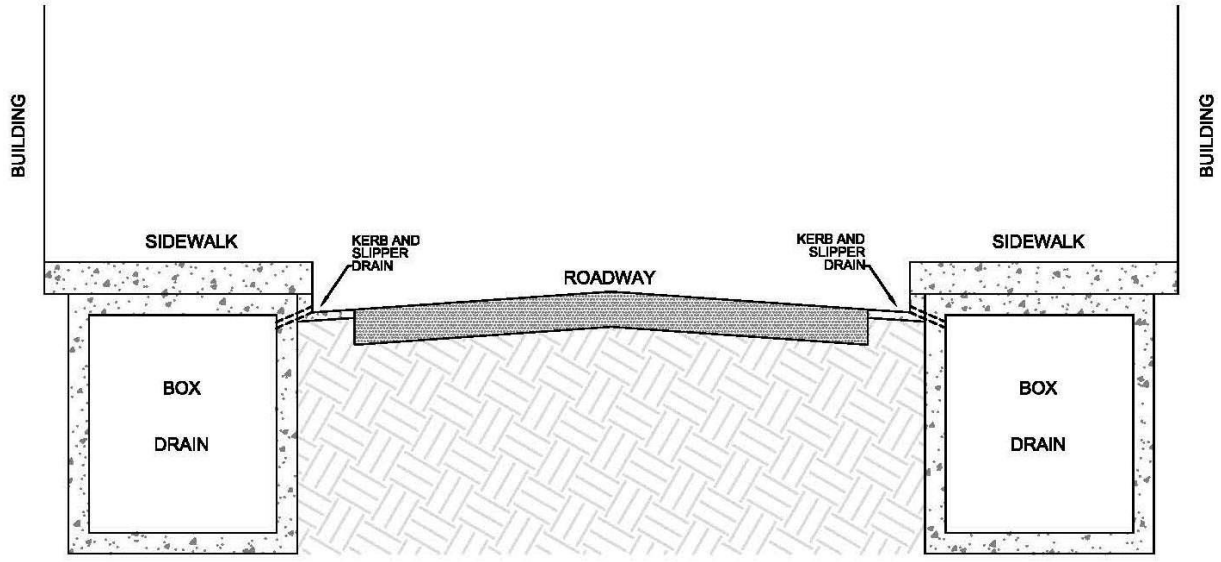


FIGURE 5-4: SCHEMATIC OF DRAINS

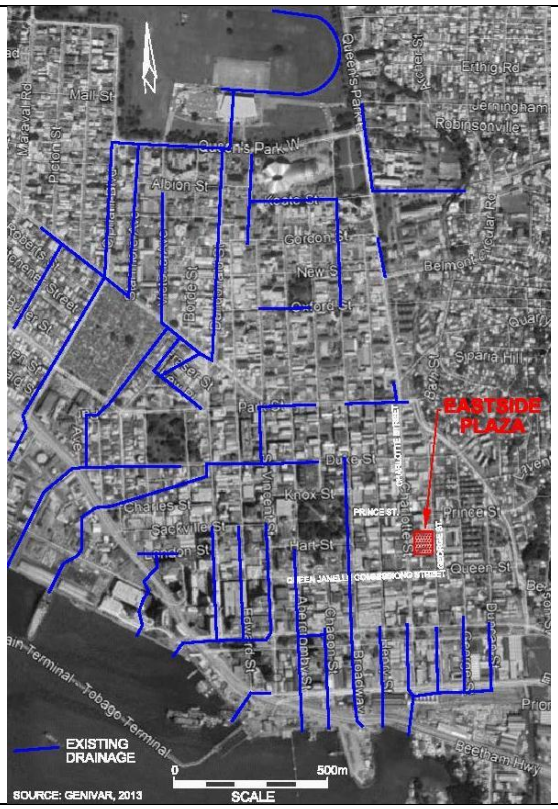


FIGURE 5-5: LAYOUT OF ADJACENT DRAINS

5.7 Air Quality

The predominant source of air emissions within the study area is vehicle emissions from the surrounding roadways; including dust, oxides of nitrogen and carbon, and volatile organic compounds from unburnt fuel. Air quality test results for the specific vicinity of Eastside Plaza are not available, but tests on another project at another location in Port of Spain showed relatively frequent exceedences of the limits for ambient Sulphur Dioxide and Nitrogen Dioxide stipulated in the Air Pollution Rules, 2014.

5.8 Noise

As with air emissions, a predominant source of continuous noise within the study area is road traffic. In addition, there are frequent sound emissions from "boom boxes" and loud speakers during cultural events. Such sound emissions result in undesirable sound levels in adjacent properties, and would therefore be classified as "noise". Noise results for the specific vicinity of Eastside Plaza are not available, but tests on another project at another location in Port of Spain showed that traffic noise can be of the range of 60 to 75 dBA during the daytime, and only slightly lower at night. In addition, there are high-noise episodes associated with stationary or mobile loud-speakers broadcasting advertisements or music.

6 DESCRIPTION OF THE SOCIAL SETTING

This chapter presents baseline information on various components of the human (socio-cultural) environment which may be affected by the proposed upgrade and renovation to the Eastside Plaza, under the following headings:

- Population and Demographics;
- Surrounding Land Use;
- Economic Activity;
- Public Utilities;
- Traffic Patterns; and
- Public Safety and Security.

6.1 Population and Demographics

Eastside Plaza is in the business district of East Port of Spain. In that regard, it has an identity with Port of Spain. The capital city itself has experienced a decline in the resident population, notwithstanding seemingly crowding with population and traffic on a daily basis.

Tables 6-1 and 6-2 provide data on the population size and growth rates of the country and of Port of Spain over census years 2000 and 2011. While there was a net increase in the population over the decade of 5.2 percent, Port of Spain experienced a substantial decline of 24.4 percent. Table 6-3 shows that a decrease in household size as well as a decrease in the number of households.

At the national level, while there was also a decrease in household size from 3.6 to 3.3, there was an increase in the number of households. Thus, while the annual average in the number of households was 1.5 percent over the period, the exact opposite occurred in Port of Spain with an average annual decrease of 1.5 percent.

TABLE 6-1: POPULATION BY ADMINISTRATIVE DIVISION (2000 & 2011)

Source: CSO: 2000 and 2011 Population and Housing Census

ADMINISTRATIVE DIVISIONS	2000	2011
POPULATION		
Trinidad and Tobago	1,262,366	1,328,019
Trinidad	1,208,282	1,267,145
Tobago	54,084	60,874
City of Port of Spain	49,031	37,074

TABLE 6-2: POPULATION GROWTH RATES

DECADAL GROWTH	2000-2011
Trinidad and Tobago	5.2%
Trinidad	4.9%
Tobago	12.6%
City of Port of Spain	-24.4%

TABLE 6-3: HOUSEHOLDS BY ADMINISTRATIVE DIVISION

Source: CSO: 2011 Population and Housing Census

COUNTRY/ REGION	NON-INSTITUTIONAL POPULATION		NUMBER OF OCCUPIED PRIVATE HOUSEHOLDS		AVERAGE HOUSEHOLD SIZE		AVERAGE ANNUAL RATE OF GROWTH IN POPULATION	AVERAGE ANNUAL RATE OF GROWTH IN HOUSE-HOLDS
	2011	2000	2011	2000	2011	2000	2000-2011	2000-2011
City of Port of Spain	35,914	46,021	12,333	14,487	2.9	3.2	-2.3%	-1.5%
Trinidad and Tobago	1,322,546	1,250,652	401,382	343,180	3.3	3.6	0.5%	1.5%
Trinidad	1,261,812	1,197,426	381,257	328,000	3.3	3.7	0.5%	1.4%

It is likely that in the period since the last census, the trend observed in the period 2000-2011, has continued and there would have been a continuing decline in the population of Port of Spain. There is little evidence of new residential accommodation. One Woodbrook Place was constructed in the last decade and View Fort has been the only new significant housing built out in Port of Spain in the present decade. Meanwhile, the commercialization of much of the west of the city has been accompanied by a decline in residential accommodation.

Another significant feature of demography of the city has been the decline in density. This is seen in Table 6-4. The density per square kilometer fell from 4086 persons to 3090 persons. The density of Port of Spain remains however, much above ten times the national average, even as the latter decreased over the period.

TABLE 6-4: POPULATION DENSITY OF TRINIDAD AND TOBAGO AND THE SELECTED MUNICIPALITIES

Source: CSO: 2011 Population and Housing Census

MUNICIPALITY/PARISH	LAND AREA (SQ. KM)	DENSITY (PER SQ. KM) 2011	DENSITY (PER SQ. KM) 2000	TOTAL POPULATION 2011	TOTAL POPULATION 2000
Trinidad and Tobago	5,127	259	246	1,328,019	1,262,366
Trinidad	4,827	263	250	1,267,145	1,208,282
City of Port of Spain	**12**	**3090**	**4086**	**37074**	**49031**
Tobago	300	203	180	60,874	54,084

It should be noted as well, that the Eastside Plaza is located proximate to the community of Laventille which is in the San Juan/Laventille municipality. Laventille is one of the most densely populated areas of the country.

6.2 Surrounding Land Use

The main entrance to Eastside Plaza is located on Charlotte Street. More specifically, the building extends from Charlotte Street to George Street and is located on lands owned by the State between Prince Street and Queen Street. Street vending occurs on the streets running north – south (Charlotte and George Streets). In addition to the commercial activities provided to the public by the tenants of Eastside Plaza, there are other economic activities neighbouring the Plaza (see Figure 6-1).

On the busy stretch of Charlotte Street, business establishments and vending flank either side of the Eastside Plaza. From Prince and Charlotte Streets (eastern side), the following are the establishments: *Everbright Trading company* (a variety store), a former eatery (now out of business), an unnamed variety store and neighbouring casino, *All in One* variety store, two unnamed variety stores, Arlene's mall (contains a number of commercial activities), two more unnamed variety stores, Eastside Plaza, two variety stores, a former Chinese restaurant and a stretch of seven more variety stores.

On the western side of Charlotte Street, from Prince Street, there is a casino followed by two clothing stores, *IAM* variety store, Yips variety store, another casino, Conway, casino, a Chinese retail store, a walk through mall, a kids clothing store and a casino.

Across Prince Street on the southern side, from Charlotte to George, there is a clothing establishment, followed by a provision/produce stall, two meat establishments, a food court, a former pharmacy, two provision/produce stalls and a wholesale establishment. Alongside Queen Street on the northern side, from George to Charlotte Street, there is a large clothing store, followed by a grocery, a Chinese restaurant, a Muslim variety store, and three small clothing stores.

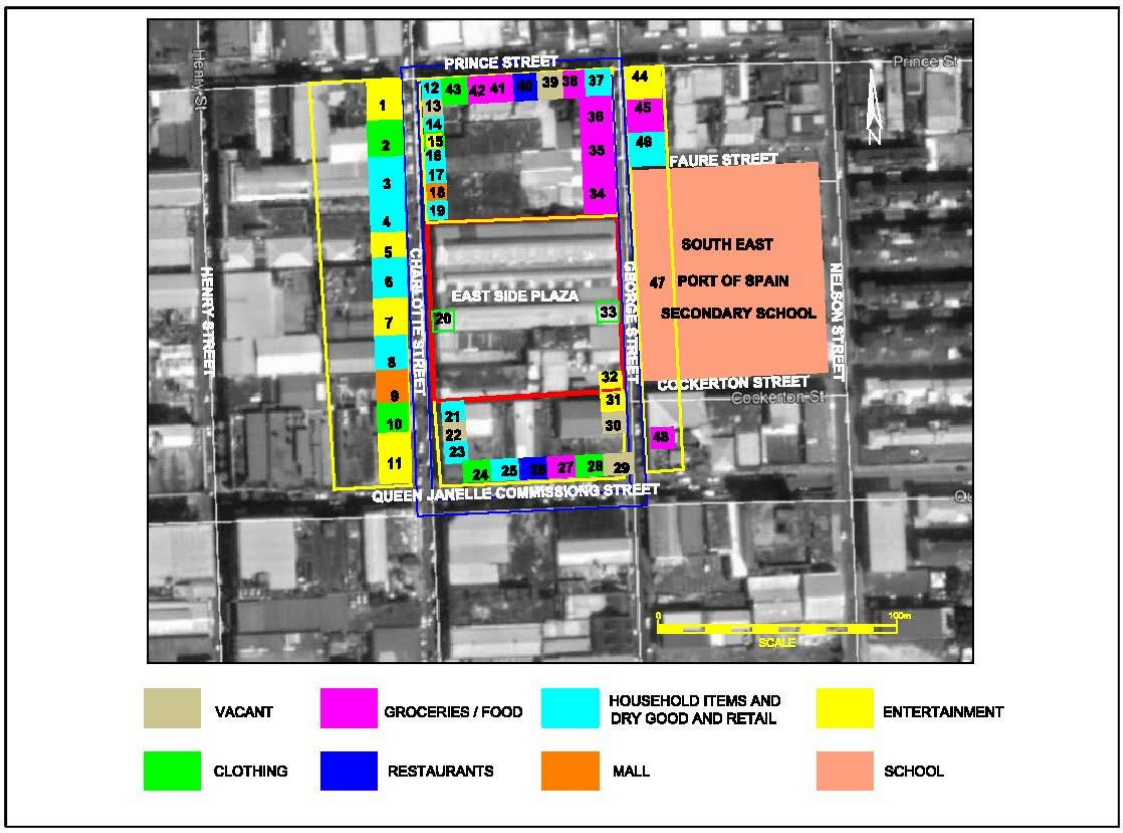


FIGURE 6-1: SURROUNDING BUSINESS TYPES

Along the western side of George Street, going north from Queen to Prince Street, there is a former grocery, an open lot, a bar, Blue Diamonds steel band, Eastside Plaza, two small groceries, a feed depot, a meat stall and the above mentioned wholesale establishment on the corner of Prince and George Street.

On the eastern side of George Street there are two groceries, South East Port of Spain Secondary School, a wholesale establishment, a meat stall and a bar.

On the roadway of the street there is vending activity. There are three provision/produce stalls each, at the beginning (Prince and Charlotte) and at the end (Queen Street) of Charlotte Street, on either side (or sandwiching) seventeen clothing stalls. The Port of Spain City Engineer's office has indicated that street vending is "officially permitted" on Charlotte Street on Thursdays, Fridays and Saturdays, but this does not prevent unauthorized street vending on other days. Tenants at Eastside Plaza have complained about what they consider to be unfair competition from street vendors, who do not pay rents to vend, and also tend to block the entrances to the Plaza.

There are also street vending activities on George Street. Starting from Queen Street, there are three provision stalls and four fruit stalls. The first two fruit stalls are located outside of the Eastside Plaza space and the other two closer to Prince Street corner. There is also vending on the eastern side of George Street; provision and fish stalls.

6.1 Economic Activity

Port of Spain, as the long established capital of Trinidad and Tobago, is centre of administration of Government, with many of the main offices of the Government in the city. The main financial institutions – the largest banks, the Central Bank, and the main large-scale commercial organisations have their head offices in the city. While the Port of Port of Spain is no longer the entry point for all cargo – exports and imports – the city retains a presence for entry by sea into the country and now is the point of entry for cruise ships visiting the country.

While new commercial centres have developed in other parts of Trinidad, Port of Spain is still dominant in respect of business and commerce in the country. Within Port of Spain itself, there has been some migration of business from the east of the city to the west, as some sections of the east has suffered urban blight.
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Charlotte Street where Eastside Plaza is located, is one of the longest roadways in the nation's capital. It is considered one of the busiest streets in the urban sector of East Port of Spain. The middle and lower portions of the street are populated with commercial activities, which include business establishments providing goods and services. It is also a location in which there is considerable street vending. The upper portion of Charlotte Street has access to housing and other public institutions, including the General Hospital which was the main hospital providing secondary care in the country in the mid-20th century.

6.2 Public Utilities

Eastside Plaza is served by the public utility systems for electricity, water supply and sewerage.

6.2.1 Electricity

The city of Port of Spain is supplied with electricity off the national grid, which is considered to be quite robust. The Port of Spain Power Station was decommissioned in 2016, so electricity to the grid is generated at the Point Lisas Power Station. Eastside Plaza has a single incoming electricity supply, and currently uses approximately 73,500 kWH every month (based on their electricity bills). They have indicated that they sometimes experience low voltage fluctuations on the supply.

6.2.2 Water Supply

The public water supply system serving Port of Spain comes from both treated surface water from sources outside of Port of Spain and wells in the Port of Spain area. Based on a population of approximately 37,074 for the City, and a daily rate of use of 0.75 cubic metres per person (FAO, 2016 and draft IWRM Policy, 2017), the total supply to the city is 27,806 cubic metres per day. Based on their water meter, Eastside Plaza uses approximately 400 cubic meters per month, or 13.33 cubic meters per day. This represents water use by tenants and customers, and can be expressed as 0.087 m^3 (87 litres) per day per tenant on a generic basis. This total rate of use is only a very small part of the supply to the city. The Water and Sewage Authority (WASA) states that Port of Spain generally receives a full time (24/7) water supply. However, Eastside Plaza reports low incoming water pressure from time to time.

6.2.3 Sewerage

Port of Spain is a centrally sewered city, connected to a relatively new Beetham Sewage Treatment Plant (STP); refurbishment and expansion completed between 2001 and 2004. It is the largest wastewater treatment facility in the Caribbean with a treatment capacity of 180 million litres per day.

That plant was designed for its treated effluent to meet the discharge standards in the Water Pollution Rules, 2001 (as amended). Eastside Plaza reports a total of 35 connections to the sewer located on George Street.

6.3 Traffic Patterns

According to the City Engineer's Office, traffic on Charlotte and George Street complies with the patterns for the rest of the city, with peak traffic between 9:00 am and 5:00 pm. Traffic along Charlotte Street flows in a north to south direction, while traffic along George Street flows in a south to north direction. Traffic is more intense on Charlotte Street than George Street. Unfortunately, actual traffic count results were not available for use on this study. There is significant traffic congestion on both streets during peak hours, resulting in part from indiscriminate roadside parking on these streets.

6.4 Public Security

Public Security in Trinidad and Tobago is maintained by the Trinidad and Tobago Police Service (TTPS). The Headquarters of the Police Service are located in Port of Spain. There are nine Divisions serving the security needs of the country, with Police Stations, Police Posts, and Mobile Units. The Port of Spain Division is comprised of eight units, of which five are Police Stations, two are Posts and one is a Special Unit. The Besson Street Police Station is less than two kilometres from Eastside Plaza.

The Special Unit is even closer and is located on the upper section of Duncan Street, and while outside of the official city limits, is available to keep the peace in East Port of Spain and neighbouring Laventille. It is endowed with special capacity to deal with gang violence in the area. This Unit is sometimes reinforced with personnel from the Trinidad and Tobago Defence Force.

There is also a Municipal Police Force under the control of the Port of Spain City Corporation. However, this force exercises a police function mainly in the Central Market and in other facilities under the control of the Corporation, like vending on the streets of the city.

Eastside Plaza has its own security in place but their personnel are not equipped with live ammunition. Table 6-5 shows that the highest level of serious crimes was registered at the Besson Street Station which is in the area where Eastside Plaza is located.

TABLE 6-5: TOTAL SERIOUS CRIMES IN PORT OF SPAIN 2017

PORT OF SPAIN	TOTAL SERIOUS CRIMES REPORTED	TOTAL SERIOUS CRIMES DETECTED	DETECTION %
Besson Street	592	118	20
Central	561	111	20
Belmont	315	47	15
St. Clair	166	18	11
Woodbrook	172	23	13
Total	1806	317	18

7 ENVIRONMENTAL AND SOCIAL IMPACTS AND MITIGATION MEASURES

This chapter describes potential environmental and social impacts (both positive and negative) of the proposed upgrade and improvement works to the Eastside Plaza on the environment, both adverse and beneficial, and (where this has been done) rates the residual (post-mitigation) impacts on a systematic basis. The chapter starts with a description of the Impact Assessment process which was used on this assignment, and then addresses:

- Project Benefits,
- Impacts on the Natural Environment, and
- Impacts on the Human (Socio-Economic Environment).

The impacts of each section are further divided into construction phase impacts and operation phase impacts.

7.1 Impact Identification and Significance

On this assignment, the assessment of impacts was undertaken in three steps:

i. Identification of Potential Impacts,
ii. Mitigation Measures, and
iii. Classification of the Impacts.

7.1.1 Identification of Potential Impacts

To identify potential impacts, the following documents were reviewed:

- Commonwealth Secretariat GTASD (1993): Environmental Impact Assessment: A Practical Handbook, commissioned by the General Technical Assistance Services Division of the Commonwealth Secretariat and prepared by Environmental Resources Limited, October 1993, London, England.
- World Bank Environment Department (1991): "Environmental Assessment Sourcebook Volume II, Sectoral Guidelines", World Bank Technical Paper No. 140.

Additionally, potential impacts were also identified based on past experience on other similar projects undertaken by Ecoengineering throughout Trinidad and Tobago and the Caribbean. Each potential impact was considered in the context of the project description in Chapter 2 and the baseline conditions in Chapters 4 and 5, to verify that the potential impacts are, in fact, relevant to this project.

7.1.2 Mitigation Measures

For each of the potential impacts which were considered relevant to this project, wherever practical, mitigation measures were recommended to minimize (or where possible eliminate) adverse impacts. These included both administrative and physical measures, as will be described in this chapter.

7.1.3 Classifications of Impacts

Having recommended available mitigation measures, for particular impacts, the post-mitigation effect was classified on a structured basis, as will be described in this section. Classification is based on three criteria: extent, intensity, and duration, and impacts were classified overall as Low, Moderate, High or Extreme. Where adverse impacts were considered to be insignificant, no classification was applied. The classification of each impact is indicated in the respective sub-section of this chapter, and a summary of the classification is provided in Section 7.5.

7.1.3.1 Parameters

In this system, environmental impacts are rated on the basis of three parameters:

- Extent,
- Intensity, and
- Duration.

"**Extent**" describes the geographical area likely to be impacted by the project. In this rating system, three (3) "extents" were used:

ON-SITE	The extent of the site is shown in Figure 1-2
LOCALIZED	Within 500m of the site
REGIONAL	Beyond the limits of the localized area

"**Intensity**" describes the degree of change which may result from the potential impact and in this rating system four (4) "intensities" were used:

VERY SMALL	Effects on an individual, but no significant effects on the functioning or sustainability of social groups, specific ecosystems or services.
MINOR	Marked effects on several individuals, and limited effects on the functioning or sustainability of specific ecosystems, or resources.
MEDIUM	Significant effects on the functioning or sustainability of specific ecosystems, or resources.
MAJOR	Serious impairment on the functioning or sustainability of specific ecosystems, or resources.

"**Duration**" considers the length of time that the potential impact is expected to last. In this rating system, three "durations" were used:

SHORT TERM	Limited to the construction phase of the upgrade works to the Eastside Plaza, or
	Occurring intermittently during the operation phase of the improvements but for no more than two (2) years
MEDIUM TERM	Extending from the construction phase into the operation phase, but not for more than one (1) year
	Occurring intermittently during the operation of the upgraded Eastside Plaza for a period of two (2) years or more.
LONG TERM	Extending from the construction phase into the operation phase by more than one (1) year, or
	Occurring continually during the operation of the upgraded Eastside Plaza

7.1.3.2 Classification of Impacts

Using the extent, intensity and duration of each impact, assuming the effective implementation of mitigation measures, that impact was classified using the appropriate matrix below (Table 7-1, 7-2 or 7-3).

TABLE7-1: POST MITIGATION RATING OF SHORT-TERM IMPACTS

INTENSITY	AREA		
	ON-SITE	LOCALIZED	REGIONAL
Very Small	LOW	LOW	LOW
Minor	LOW	LOW	MODERATE
Medium	LOW	MODERATE	MODERATE
Major	MODERATE	MODERATE	HIGH

TABLE 7-2: POST MITIGATION RATING OF MEDIUM-TERM IMPACTS

INTENSITY	AREA		
	ON-SITE	LOCALIZED	REGIONAL
Very Small	LOW	LOW	MODERATE
Minor	LOW	MODERATE	MODERATE
Medium	MODERATE	MODERATE	HIGH
Major	MODERATE	HIGH	HIGH

TABLE 7-3: POST MITIGATION RATING OF LONG-TERM IMPACTS

INTENSITY	AREA		
	ON-SITE	LOCALIZED	REGIONAL
Very Small	LOW	MODERATE	MODERATE
Minor	MODERATE	MODERATE	HIGH
Medium	MODERATE	HIGH	HIGH
Major	HIGH	HIGH	EXTREME

7.1.4 Appropriate Response and Prioritization

To properly interpret the classification of each impact, the following appropriate responses may be applied:

- **Extreme**: Intolerable environmental risk with significant and urgent actions required to reduce risk.
- **High and Moderate**: Implement actions necessary to reduce risk to as low a level as reasonably practical.
- **Low**: Monitor and manage risk to the extent necessary.

7.2 Project Benefits

The possible benefits are economic, relating to Business Opportunities and Employment. During the construction phase, a prime contractor is likely to be hired for this work (see Appendix A), who in turn will likely hire specialist subcontractors for some aspects of the work. Business opportunities will also be available for suppliers of material and equipment, as well as food vendors to serve workers on the site. Employment opportunities will relate to workers hired by the prime contractor and subcontractors, and will last for the duration of the contract period.

The upgraded Plaza is expected to accommodate a somewhat larger number of vendors / tenants than the present number (see Section 2.1). The improvements are also expected to attract a larger clientele, both local purchasers and tourists, to the Plaza, which will result in increased sales and hence increased opportunities for entrepreneurship and employment. This will be more permanent employment, in contrast to the employment opportunities for construction workers. In addition, over time there will be demand for specialists to service and maintain the elevators and the upgraded services. It is likely that Eastside Plaza will hire some maintenance workers on a full-time basis, but periodic servicing and maintenance will probably be done by specialists who are not hired full-time by the Plaza.

7.3 Impacts on the Natural Environment

7.3.1 Construction Phase Impacts

Potential impacts on the natural (physical) environment, associated with construction include:

- Impaired Air Quality (dust and emissions);
- Vibration;
- Noise;
- Improper Disposal of Solid Waste, and
- Impaired Water Quality.

For each of these potential impacts a description is provided, mitigation measures are recommended and the classification is provided (based on effective implementation of the mitigation measures.

7.3.1.1 Impaired Air Quality

Nature of Concern

Sources of impaired air quality include dust from construction activities and exhaust emissions from construction equipment and vehicles, dust / particulate matter being the primary concern during construction on this project. Dust and exhaust emissions would be emitted by construction equipment and vehicles during demolition, and from exposed stockpiles of waste materials before these are removed from the site. When exposed to winds, dust can be blown off from these sources, but normally dissipates within 100 m from a construction site. Dust is a nuisance to residents and businesses in proximity to the construction works as well as along the transport routes, and is especially undesired around sensitive receptors including schools and health care facilities.

Vehicular and equipment emissions will contain: fuel combustion products (Oxides of Carbon, Nitrogen and Sulphur), dust (soot and particulate matter) and unburnt fuel (Volatile Organic Compounds), but on this project these are likely to be a much more limited concern which are expected to be noticeable more than about 20 m from the source (experience on previous projects in Trinidad & Tobago suggests that, under local conditions, these are easily dispersed).

Mitigation Measures

The concerns related to emissions of dust / particulate matter and from vehicle emissions may be addressed using the following management options:

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< Cover waste materials on all transport vehicles moving materials away from the site to minimize dust emissions.

- Properly service all vehicles and equipment to ensure that there are no visible sooty emissions. Defective vehicles should be taken out to service and should not be permitted to operate until they are repaired.

- Require the Contractor to prepare and implement a Traffic Management Plan prior to the start-up of any works, to reduce congestion along Charlotte and George Streets, as traffic congestion increases vehicle emissions and degrades ambient air quality.

Rating

Assuming effective implementation of the mitigation measures, this construction impact is rated as:

EXTENT	INTENSITY	DURATION	CLASSIFICATION
Localized	Minor	Short term	**LOW**

7.3.1.2 Noise

Nature of Concern

During the construction phase of this project, noise will be generated during several activities at the Eastside Plaza, including the following:

- Removal and replacement of the existing galvanized roof sheeting and guttering;
- Remodelling of the Upper Floor (relocation and removal of booths, the construction of a food court);
- Ground Floor Works (the demolition and reconstruction of the external walls in the southern annex)
- Installation of elevators; and
- Installation of Services (including plumbing and air conditioning works)

Additional sources of noise outside the plaza will involve the movement of trucks and reverse alarms during off-loading of new construction material for the improvement works. Noise will also be emitted during the trucking of construction waste to off-site approved disposal facilities.

Based on the foregoing comments, noise will be experienced by vendors operating within the Eastside Plaza, by adjacent businesses and street vendors along Charlotte Street as well as by staff and students at the South East Port of Spain Secondary School on George Street.

As noted in Section 5.8, the primary source of noise at this location at present is from adjacent road traffic. Construction noise is expected to increase those noise levels, but will only be for a short duration.

Mitigation Measures

Several mitigation measures may be implemented to reduce the potential impact of construction noise:

- Inform the vendors (both on-site and off-site), businesses and school of noisy construction activities.
- Schedule noise-intensive construction activities (such as demolition works) outside of school hours, where practical.
- Regularly inspect and maintain construction vehicles and equipment (including mufflers on this equipment) to ensure noise emission control systems are properly functioning.

Rating

The suggested mitigation measures are expected to reduce the impact associated with noise emissions and therefore the impact is classified as:

EXTENT	INTENSITY	DURATION	CLASSIFICATION
On-Site	Very Small	Short Term	**LOW**

7.3.1.3 Vibration

Nature of Concern

Vibration ranging from no perceptible effects (at the lowest levels), low rumbling (at moderate levels) and slight damage (at high levels) may occur as part of the construction phase of a project where replacement, construction, and/or demolition of structures may take place.

During the construction phase of this project, vibrations may be produced during roof works, installation of elevators which will require the use of jack hammers to break both the ground floor and first floor slabs, as well as during work to upgrade existing services. Vibrations may be detected by vendors and clients within the Eastside Plaza, adjacent businesses and the East Side Port of Spain Secondary School located across George Street, which may result in complaint. However, vibration damage will be unlikely to these businesses and the Secondary School.

Mitigation Measures

Measures that may be taken to reduce these effects include:

- Choose alternative, lower-impact equipment or methods whenever possible.
- Schedule the use of vibration-causing equipment such as jack-hammers at the least sensitive times of day (if possible) including avoiding activities during business hours/ school hours wherever possible to minimize the impact on the vendors within the Eastside Plaza, surrounding businesses and the secondary school located to the east of the Eastside Plaza.
- Sequence the operations so that different / multiple vibration causing activities do not occur simultaneously.
- Keep the equipment well maintained.
- Inform neighbouring businesses / sensitive receptors (i.e.: school) of the vibration generating activities. Provide a mechanism by which feedback can be received from the surrounding businesses and school and take steps to address any complaints whenever possible.

Rating

Assuming effective implementation of the mitigation measures, this construction impact is rated as:

EXTENT	INTENSITY	DURATION	CLASSIFICATION
On-site	Very Small	Short Term	**LOW**

7.3.1.4 Improper Disposal of Solid Waste

Nature of Concern

The nature of this concern is the improper disposal of waste generated during the improvement works to the Eastside Plaza. During construction, solid waste generated will consist of non-hazardous material such as garbage generated by the site workers (bottles, food waste, etc.), as well as construction waste. Improper disposal of solid waste can become unsightly and increase vermin in the area. If electrical equipment is to be removed and replaced, the present equipment may be PCB-containing if they were manufactured prior to 1980.

Mitigation Measures

Mitigation measures available to address waste disposal concerns include:

- Require the Contractor to prepare and implement a Waste Management Plan prior to the start-up of any works. This should make provision for secure collection, segregation and storage of any hazardous waste which may be present (such as PCB-containing equipment) and treatment and disposal at an approved facility.

- Remove all non-hazardous waste for reuse at another site, or for disposal at an appropriate landfill.

- Properly secure waste loads during transport.

Rating

Assuming hazardous material is to be treated and disposed, the potential area of impact would include the transport route to the treatment facility. If there is effective implementation of the mitigation measures, this construction impact is rated as:

EXTENT	INTENSITY	DURATION	CLASSIFICATION
Regional	Minor	Short Term	**MODERATE**

7.3.1.5 Impaired Water Quality

There is no "effluent" anticipated from the construction phase of this project. However, wastewater run-off may be contaminated by:

- Hydrocarbon Spills and Leaks,
- Concrete Washings, and
- Discharge of Improperly Treated Sewage.

7.3.1.5.1 Hydrocarbon Spills and Leaks

Nature of Concern

Water quality may be impaired due to fuel/ lubricant spills and leaks from vehicles and equipment during the construction phase. Fuels can travel significant distances in surface drains, depending on the volume of the contaminant source, and flow rate of the city drains. The presence of these hydrocarbons in water renders it unattractive. Storage of significant volumes of fuel or chemicals on site is not expected, so a large spill of hydrocarbons is not expected.

Mitigation Measures

Steps that can be taken to reduce these spills or leaks and their effects on water quality during construction include:

- Any fuel or construction chemicals which are stored on site must be kept in secure containers with secondary containment.
- "Hosing down" spills or leaks of fuel/lubricant must be avoided. In the event of a leak, use dry clean up and mopping up techniques as appropriate and absorbent material to clean up. Place contaminated material in a plastic drum that is to be kept covered at all times and remove offsite for proper disposal.
- Continuously maintain vehicles and heavy equipment to ensure no leakage.
- Service all faulty equipment and machinery as soon as possible in a designated area on site.

Rating

The mitigation measures are expected to effectively control impacts associated with fuel spills and disposal of spent lubricants and this impact is therefore rated as:

EXTENT	INTENSITY	DURATION	CLASSIFICATION
Localized	Very Small	Short Term	**LOW**

7.3.1.5.2 Concrete Washings

Nature of Concern

Premixed concrete is likely to be brought to this site in mixer trucks. When the concrete has been discharged, the mixer drum is washed to avoid hardening of the concrete in the drum. Surplus concrete must also be disposed. If these wastes are discharged to city drains, they can cause clogging. In addition, the concrete wash water is alkaline and can affect aquatic and marine life if discharged into rivers or the sea.

Mitigation

The most effective mitigation measure to control this impact is to prohibit discharge of surplus concrete and washings to city drains, streams or rivers, or the sea. This prohibition will effectively eliminate this impact

7.3.1.5.3 Discharge of Improperly Treated Sewage

On other construction sites, there has been a concern related to improper storage and disposal of faecal matter. However, there are toilet facilities at Eastside Plaza which can be used by construction workers, and/or the contractor can provide portable toilets. This concern is therefore not considered relevant to this project, as long as any portable toilets are regularly emptied and the contents disposed at an approved site.

7.3.2 Operation Phase Impacts

Concerns on the natural environment during the operation phase of the upgraded Eastside Plaza relate to fats, oils and grease. Given the nature of the upgrade, significant increases in demand for electricity, water supply and sewage treatment are not expected. Similarly, significant increases in air emissions, noise and traffic congestion are not expected from the upgraded facility.

Nature of Concern

During the operation of the upgraded Eastside Plaza, concerns may arise from the generation of Fats, Oils and Greases (FOGs) as a result of the new or expanded kitchen facilities. The accumulation of these FOGs can cause the build-up of scum along the lining of pipes, drains and within the sewer systems. As a result, this may cause the clogging of drain pipes, drains and sewers.

Mitigation Measures

Measures to reduce the concerns relating to the build-up of fats, oils and greases are as follows:

- Install grease traps and grease interceptors in the kitchen facilities at the Eastside Plaza.
- Routinely clean undersink grease traps and grease interceptors to ensure that accumulated grease does not allow for improper functioning.
- Use absorbent pads or other material to clean up spilled material around equipment, containers or dumpsters.
- Ensure that the effluents discharged from the kitchen facilities into the POS City sewer system complies with the Oil and Grease maximum permissible limit of 20mg/L, in addition to other maximum permissible limits for the relevant parameters stipulated in the TTBS Standard TTS 639:2015 Trade Effluent Discharges into Public Sewerage Systems: Requirements (see Section 3.1.4.6)

In addition, it is recommended that a Waste Management Plan be developed for the operation / occupancy phase of this project, which would include proper waste disposal (including recycling and composting). This plan should optimize cost and carbon footprint considerations.

Rating

These mitigation measures are expected to effectively control the impact associated with fats, oils and greases. Therefore, the impact is classified as:

EXTENT	INTENSITY	DURATION	CLASSIFICATION
Localized	Minor	Long Term	**MODERATE**

7.4 Impacts on the Socio-Economic Environment

7.4.1 Construction Phase Impacts

The development of the Eastside Plaza can contribute, immensely, to the development of the urban centre (Port of Spain and East Port of Spain). The possibility of additional space and booths would allow for an infusion of young entrepreneurs and stimulate activity in the Plaza, with competitive goods and services. Further, the improvement of the plaza can contribute to the development of the existing entrepreneurial class as well as and the existing tenants would be encouraged to improve the décor of their establishments. The novelty feature might improve business operations, and lead to increases in income of tenants. However, a project of this scale is not without negative impacts. The following are some potential social impacts/ contributions to the immediate urban space and the wider economy.

7.4.1.1 Economic Displacement of Tenants

Displacement or disruption of tenant services is inevitable to facilitate construction work, and this can result in direct income loss during the period of the renovation. This is the most challenging impact to be addressed on this project. Two options to the renovation of the Plaza are being considered:

- Full Closure of the Plaza; and
- Phased Execution of the Construction Work.

There are two sub-options within the Phased Execution option.

As will be seen below, the phased execution option is recommended as the preferred approach, and to this end, a resettlement plan has been developed based on this option (see Appendix B).

With full closure, tenants will be asked to vacate the Plaza for the period of the construction work, estimated at this early stage of the project as approximately 18 months. With phased construction, the directly affected tenants may be asked to vacate their booths for approximately

four months each, and return after their area of the Plaza has been renovated. Alternatively, the directly affected tenants during each phase of renovation may be relocated to presently vacant locations within the Plaza while the area of their permanent booths is being worked on.

a) Full Closure

Nature of Concern

With full closure, tenants will be displaced from the Plaza during the construction period. Tenants are concerned about loss of earnings during this period, as well as loss of regular customers who will develop other sources of goods and services during the hiatus. This option is not favoured by the Tenants, and complies least with IDB's Involuntary Resettlement Policy (see Section 3.2.4). However, it does allow a level of control which may be beneficial to the management of the Plaza.

Mitigation Measures

Two mitigation measures may be considered to alleviate the financial losses due to temporary removal of all tenants from the Plaza during full Closure:

- Provision of Alternative Accommodation, and
- Compensation for Loss of Earnings.

Both these approaches will address the concern related to direct loss of earnings, but neither will properly address the concern related to loss of regular customers.

Discussions with stakeholders failed to identify any suitable and available alternative locations in Port of Spain to which the Tenants can be temporarily relocated. Both the burnt-out facility at 43 Independence Square ("Drag Brothers Mall") and New City Mall were discussed by the Tenants, but the Ministry of Housing and Urban Development has indicated that neither is available. Because of the lack of clarity on what is available, the cost of providing such alternative location(s) could not be estimated.

Information obtained during the census of tenants was too limited to base a compensation recommendation on that data. Instead, the financial package can be set at what an employee with some training and experience at the supervisory level in Commerce and Distribution might earn, which reflects the opportunity cost of owning and running a business at the Plaza. It should be equitable to provide support for one person only since many tenants operated without full-time employees. Based on salary ranges in the public sector, an equitable level of compensation would be of the order of $TT 7,100 per month. Based on this level of compensation and removal of all 153 tenants for an 18 month period, the cost of compensation on this project would be approximately Twenty Million Trinidad and Tobago Dollars ($TT 20 million).

Rating

Full closure of the Plaza for construction, even with the payment of compensation as described above, will result in a medium intensity of impact on the Tenants. This will be regional in extent, since it will affect the tenants as well as their families / dependants. The duration of the impact will likely extend more than one year beyond the completion of the construction period, due to the loss of many regular customers while the Plaza is closed. Based on these considerations, the classification of this impact is:

EXTENT	INTENSITY	DURATION	CLASSIFICATION
Regional	Medium	Long Term	**HIGH**

b) Phased Approach with Tenants Vacating the Plaza

Nature of Concern

In this option, tenants will be asked to vacate the part of the Plaza where construction work is actually in progress, but will be allowed to return to their booths while work is in progress in other parts of the Plaza. Similar to full closure, tenants are concerned about loss of earnings during the shorter period that each tenant will be displaced, as well as loss of regular customers who will develop other sources of goods and services during the hiatus. However, this latter concern is less significant since each tenant will be asked to vacate the Plaza for a shorter period (an estimated four months per tenant rather than 18 months for all tenants with full closure).

Mitigation Measures

The same two mitigation measures in Section a), above, are available for this option. As before, no specific alternative locations in Port of Spain were identified for the temporary relocation of tenants, so it was not possible to estimate the cost of this mitigation measure. Using the same monthly level of compensation discussed above ($TT 7,100.00 per month) and a four-month period for each tenant to vacate the Plaza (albeit at different times), the cost of compensation under this alternative would be approximately Four Million, Five Hundred Thousand Trinidad and Tobago Dollars ($TT 4.5 million).

Rating

Phased removal of tenants from the plaza, even with the payment of compensation as described above, will result in a medium intensity of impact on the Tenants. Again, this will be regional in extent, since it will affect the tenants as well as their families / dependants. The duration of the impact will likely extend less than one year beyond the completion of the construction period, due to the loss of some customers while sections of the Plaza are closed. Based on these considerations, the classification of this impact is:

EXTENT	INTENSITY	DURATION	CLASSIFICATION
Regional	Medium	Medium Term	**HIGH**

c) Phased Approach with Tenants Relocating within the Plaza

Nature of Concern

In this option, tenants will be asked to relocate to temporary booths within the Plaza while construction work is in progress in the area of their present booths, and will be allowed to return to their original booths while work is in progress in other parts of the Plaza. This is the preferred option among tenants (see Section 4.3.4), and URBASYS (the design team) considers it to be a technically feasible approach. In this case, tenants are concerned about inconvenience costs, but the concern about loss of regular customers is significantly reduced (almost eliminated). The estimated period of temporary relocation within the Plaza is the same as for the option above; that is an average of four months per tenant.

Mitigation Measures

Even though tenants will remain within the Plaza throughout the construction period, the move to temporary booths will involve some inconvenience cost. The direct cost to the project of providing temporary booths cannot be estimated at this time, since the size and type of the temporary booths has not yet been decided. Considering a monthly level of compensation of $TT 7,100.00 per month for vacating the Plaza, a fair rate of compensation for inconvenience due to temporary relocation within the Plaza is likely to be of the order of $TT 1,800.00. Using this rate and a four-month period for each tenant to relocate within the Plaza, the cost of compensation under this alternative would be approximately One Million, One Hundred Thousand Trinidad and Tobago Dollars ($TT 1.1 million).

Rating

Phased relocation of tenants within the plaza, coupled with the payment of an allowance for inconvenience as described above, will result in a minor intensity of impact on the Tenants. Again, though, this will be regional in extent (see above). The duration of the impact will likely be limited to the construction phase, since the loss of customers is expected to be very low since the tenants will continue to operate out of the Plaza during construction. Based on these considerations, the classification of this impact is:

EXTENT	INTENSITY	DURATION	CLASSIFICATION
Regional	Minor	Short Term	**MODERATE**

7.4.1.2 Impact on Neighbours

Nature of Concern

The magnitude of the Eastside Plaza is anticipated to cause some disruption to the localised population:

- Impaired Air Quality (dust and emissions) (see Section 7.3.1.1);
- Noise (see Section 7.3.1.2);
- Vibration (see Section 7.3.1.3);
- Improper Disposal of Solid Waste (see Section 7.3.1.4);
- Impaired Water Quality (see Section 7.3.1.5);
- Traffic Congestion (see Section 7.4.1.4).

Mitigation measures for each of these impacts and a rating of the residual impact are provided in the respective sections. Therefore, there would be no need for compensation payments to neighbours.

7.4.1.3 Cultural Heritage

Nature of Concern

Preservation of the site's historical significance is of utmost importance, as several features on this building cannot be found on any other building in Port of Spain.

Mitigation Measures

The nature of upgrades should not erode the historical aesthetics of the building.

Rating

Based on the above measures, the classification of this impact is as follows:

EXTENT	INTENSITY	DURATION	CLASSIFICATION
On-site	Very Small	Long Term	**LOW**

7.4.1.4 Traffic Congestion

Nature of Concern

This concern relates to the temporary disruption in traffic by construction traffic, especially since there is no on-site parking for such vehicles. As a result, vehicles will have to park along the roadway during off-loading.

Mitigation Measures

To mitigate against traffic congestion, the Contract should require that the Contractor liaise with the Trinidad & Tobago Police Service and develop a Traffic Management Plan for the duration of the construction period. This plan would include measures such as the scheduling of the movement of significant loads for off-peak hours, etc.

Rating

Based on the development and effective implementation of a Traffic Management Plan, the classification of this impact is:

EXTENT	INTENSITY	DURATION	CLASSIFICATION
Localised	Very Small	Short Term	**LOW**

7.4.2 Operation Phase Impact

As stated in Section 7.2, there are only beneficial impacts for the renovated Eastside Plaza. These include an increase in business opportunities, increase in opportunities for entrepreneurship and employment, as well as a demand for specialists for maintenance services.

7.5 Summary of Impacts

Table 7-4 below summarises the adverse impacts that may arise as a result of this proposed development and provides the respective classification for each of these (where applicable).

TABLE 7-4: SUMMARY OF IMPACT CLASSIFICATION

CLASSIFICATION OF ADVERSE IMPACTS	
ADVERSE IMPACTS	**CLASSIFICATION**
NATURAL ENVIRONMENT	
Construction Phase	
Impaired Air Quality	LOW
Noise	LOW
Vibration	LOW
Improper Disposal of Solid Waste	MODERATE
Impaired Water Quality – Hydrocarbon Leaks	LOW
Impaired Water Quality – Discharge of Improperly Treated Sewage	ELIMINATED
Operation Phase	
Fats, Oils and Greases	MODERATE
SOCIO-ECONOMIC ENVIRONMENT	
Construction Phase	
Economic Displacement of Tenants (Full Closure)	HIGH
Economic Displacement of Tenants (Phased Approach with Tenants Vacating the Plaza)	HIGH
Economic Displacement of Tenants (Phased Approach and Temporary Displacement within the Plaza)	MODERATE
Impacts on Neighbours	ELIMINATED
Cultural Heritage	LOW
Traffic Congestion	LOW

8 MANAGEMENT PLANS

This chapter describes the Environmental and Social Management Plan (ESMP) for the proposed renovation of the Eastside Plaza. It also addresses several recommended supplementary plans.

8.1 Environmental and Social Management Plan

The detailed Environmental and Social Management Plan (ESMP) is found in Appendix A to this ESA Report. The first two sections describe the approach to the Plan, as well as the format of procedures to be implemented. The third section describes the proposed management structure of the ESMP, including the roles and responsibilities, competence and training, record keeping, reporting and the necessary corrective and preventative actions to be taken. The fourth section describes the review of the ESMP, while the fifth section identifies actions to be undertaken before the start of any construction works. Section six presents in tabular format, the procedures necessary to mitigate and monitor the potential impacts of the project as identified and discussed in Chapter 6 of this ESA Report. The ESMP ends with a summary of the monitoring and verification to be carried out.

The preparation of this ESMP involved the following steps:

- The relevant laws, regulations and guidelines that will apply to the renovation of the Eastside Plaza were determined (see Chapter 3 of this ESA).
- Adverse impacts of the project on the natural and socio-economic environment were identified and assessed (see Chapter 7 this ESA);
- Appropriate mitigation measures were prescribed for each adverse environmental impact, inclusive of supplementary plans (see Chapter 7 of this ESA);
- The party responsible for carrying out the mitigation actions was identified in the context of the institutional arrangements for the project (see Section A.2 of Appendix A).
- The timing for each action was defined, along with specialized equipment or material required and competence and specialized environmental training needed (see Sections A.4.2.1 and A.4.2.2 of Appendix A).
- Monitoring requirements or need for verification was also recommended for each adverse environmental impact (see Sections A.4.2.1 and A.4.2.2 of Appendix A).
- The party responsible for monitoring was identified in the context of the institutional arrangements for the project (see Sections A.4.2.1 and B.4.2.2 of Appendix A).

- The timing or frequency of monitoring events were described, along with specialized equipment or material required and competence and specialized environmental training needed (see Sections A.4.2.1 and B.4.2.2 of Appendix A).
- The necessary corrective and preventative actions to be taken if any of the monitoring events show exceedences over the required limits (see Section A.3.5 of Appendix A)
- The necessary Reporting requirements were also recommended.

8.2 Actions to be Taken Prior to the Start of Construction

The following are actions to be taken prior to the start of the renovation works:

- Ensure that Design Engineers maintain the historical components of the building in their design.
- Baseline noise monitoring be conducted to determine the background noise levels within the study area.
- In the event that tenants are to be relocated to another suitable building, ensure that building is safe and there are adequate amenities and security.
- If compensation is to be paid, levels and recipients must be determined.

8.3 Summary of Monitoring

Monitoring and verification was included in the ESMP. Table 8-1 below provides a summary of the monitoring / verification required during construction and operation, and frequency at which they are recommended to occur

TABLE 8-1: SUMMARY OF MONITORING

POTENTIAL IMPACT	PARAMETER TO BE MONITORED OR VERIFICATION	FREQUENCY OF MONITORING
CONSTRUCTION PHASE		
Impaired Air Quality	Visually inspect site to ensure that dust control measures are implemented	Daily throughout the construction phase
	Maintain log book of records of vehicles and equipment maintenance	
	Maintain complaints register relating to exhaust emissions from the passage of vehicles and equipment	As they occur

POTENTIAL IMPACT	PARAMETER TO BE MONITORED OR VERIFICATION	FREQUENCY OF MONITORING
	Maintain construction vehicles and equipment to ensure their proper functioning	Daily throughout the construction phase
Noise	Maintain log book of vehicles and equipment maintenance records	Daily throughout construction phase
	Daily inspections of vehicles and equipment for evidence of excessive noise	
	Maintain complaints register relating to noise	
	Monitor sound pressure levels arising during the construction phase	Weekly
Vibration	Maintain complaints register relating to noise	As they occur
	See items under Noise	Daily throughout construction phase
Improper Disposal of Solid Waste	Visual inspections of the site for signs of accumulated waste	Daily throughout construction
	Record any complaints received.	As they arise
	Maintain a log (including certificates) of disposal of wastes from the site	As they occur
Impaired Water Quality (Hydrocarbon Spills and Leaks)	Visual inspections on vehicles and equipment for evidence of spills and leaks	Daily, throughout the construction phase
	Maintain a log of the disposal of contaminated material of the site	As they occur
Traffic Congestion	Continuous monitoring of traffic congestion around roadways leading to and from the site, as well as at site	Daily, throughout operation
	Recording of accidents and incidents involving construction equipment and vehicles	As they arise
OPERATION PHASE		
Water Contamination	Conduct effluent monitoring from kitchen facilities prior to it entering the POS sewerage system	Quarterly
Economic Displacement of Tenants	Define indicators to ensure reestablishment of economic conditions	Semestral

8.4 Other Plans

Other plans recommended in this ESA are:

- Temporary Relocation and Livelihood Restoration Plan,
- Traffic Management Plan,
- Waste Management Plan, and
- Emergency Response Plan.

8.4.1 Temporary Relocation and Livelihood Restoration Plan

As identified during the ESA preparation, the works proposed for improving Eastside Plaza will require temporary relocation of tenants, with a resulting potential loss of income. Mitigation and/or compensation for this temporary relocation and potential loss of income must follow the guidelines of the IDB's OP-710, Involuntary Resettlement. As established in this policy, a conceptual Temporary Relocation and Livelihood Restoration (TRLR) Plan has been prepared (see Appendix B) considering information from this ESA and consultation conducted with affected population (see Chapter 4). The design and implementation will also satisfy the requirements of national regulatory agencies (see Section 3.1

8.4.2 Traffic Management Plan

Traffic concerns on this project pertain more to the construction phase than the post-construction phase, so this Traffic Management Plan (TMP) must be prepared by the Prime Contractor in consultation with the Trinidad and Tobago Police Service and the Management of Eastside Plaza. This TMP is intended to minimize inconvenience due to traffic congestion and to ensure that project personnel and other road users are not put at undue risk as a result of the project. The TMP will require information on the existing traffic in the project vicinity (volumes, peak hours, existing pinch points, etc.); as well as an understanding of additional traffic that would be generated by the project during the construction and operation phases (types and sizes of vehicles, numbers of vehicles and trips, loading and off-loading requirements, etc.).

Key items to be addressed in the TMP are listed and described in Table 8-2.

TABLE 8-2: KEY TOPICS IN A TRAFFIC MANAGEMENT PLAN

TOPIC	DESCRIPTION
Scope of the Plan	< Project to which it applies, < Geographical Extent, < When Applicable (construction phase, operation phase or both).
Responsibility for Implementation	Based on an Organization Chart, identify responsibilities to be assumed by persons in different posts.
Qualifications / Training	If persons require special qualifications or training to operate under the plan, this must be stated. For example, it is common practice to stipulate that all drivers of project vehicles must have received training in Defensive Driving.
Traffic Control Devices	These will include signs, barricades, delineators, flashing arrow boards, changeable message signs, cones, etc. The TMP must indicate where they are to be placed, and over what period.
Traffic Control Personnel	These will include Police Officers, Police Outriders, Flagmen (contractor's workmen), etc. The TMP must indicate where they are to be deployed, what vehicles they are to accompany, and over what period.
Speed Controls	< Indicate roadways where temporary speed limits will be established and over what period. < Establish a speed limit within the site.
Verification	Name the person or post responsible for verifying that measures set out in the TMP are being effectively implemented.
Response to Incidents	Should a road or traffic incident occur, the TMP must indicate: < Incident Commander, < Response Personnel, < External Resources to be called, < Available Equipment, etc.
Reporting of Incidents	After a road or traffic incident has been brought under control, the TMP must indicate: < Person responsible for preparing Incident Report, < Time Frame for Report Preparation, < To whom should copies of this Report be circulated, < Person responsible for correcting any deficiencies in the TMP that were revealed during the Incident.
Periodic Review and Updating the TMP	The TMP intended to remain effective for more than 2 years must be periodically reviewed and updated even if no deficiencies have been identified in the interim. The TMP must indicate: < Time period after which the TMP must be reviewed and updated, < Committee or person responsible for reviewing and updating the TMP,

TOPIC	DESCRIPTION
	< Time Frame for Review and Updating, < Committee or person who will approve the updated TMP, < Method of withdrawing the current version of the TMP and replacing it with the new TMP.

8.4.3 Waste Management Plan

The proposed renovation to the Eastside Plaza will produce solid waste during the construction phase which must be safely managed and disposed of. In addition to domestic-type waste, construction works will produce packaging waste, off-cuts of reinforcing steel and timber, surplus construction materials and rubble. Demolition of some existing parts of structures may produce significant volumes of rubble, and there may also be hazardous waste such as PCB-containing transformers and Mercury-containing electricity fixtures in the present electricity system. All of these materials must be collected and removed from the site so as to protect human health and the environment from the effects of inappropriate releases.

In managing waste, efforts should be made to reduce the volume which is produced. An example of this is planning of judicious cutting of reinforcing steel bars to minimize the offcuts which go to waste.

After reduction efforts, a hierarchy of methods for treating with the waste is usually adopted:

Reuse (First Priority): Material is collected for beneficial reuse on the same site or elsewhere, with no significant treatment. For example, galvanized roofing material removed from the site may be taken to another site where it can be reused. Similarly, crates and bags in which material was brought to site may be used elsewhere.

Recycle (Second Priority): This involves the collection and offsite reprocessing of materials such as metals (steel, copper, aluminium, etc), paper and cardboard, glass and some plastics. There are operations in Trinidad and Tobago which will receive each of these types of material for recycling (usually shipped abroad).

Treat and Dispose (Third Priority): Waste which cannot be reused or recycled is either taken directly to a landfill for disposal (domestic type waste), or taken for treatment prior to disposal (hazardous waste). Methods of treatment and disposal of hazardous waste include bioremediation of hydrocarbons, “fixing” of metals and incineration of flammable wastes; all of which are available at facilities in Trinidad and Tobago which are approved by the EMA. Where facilities for other types of treatment are not available locally, wastes can be shipped abroad for treatment but this process requires approval under the Basel Convention on the Transboundary Movement of Hazardous Waste.

On this project, a Waste Management Plan (WMP) must be prepared by the Main Contractor in consultation with the Management of the Eastside Plaza. Key topics to be addressed in the WMP are listed and discussed in Table 8-3.

TABLE 8-3: KEY TOPICS IN A WASTE MANAGEMENT PLAN

TOPIC	DESCRIPTION
Scope of the Plan	< Project to which it applies, < Categories of Waste covered (hazardous, non-hazardous or both), < When Applicable (construction phase, operation phase or both).
Waste Inventory	A general listing of Hazardous (flammable, corrosive / corrodible, reactive / explosive and toxic) and Non-hazardous Wastes by type and volume.
Responsibility for Implementation	Based on an Organization Chart, identify responsibilities to be assumed by persons in different posts.
Qualifications / Training	If persons require special qualifications or training to operate parts of the WMP, thus must be stated. For example, training is generally required prior to the handling of hazardous wastes.
Waste Reduction	Listing of methods which can be used to reduce the generation of specific types of waste.
Waste Reuse	Identification of the types of waste which are amenable to reuse, and guidance on: < Ways each material can be reused (onsite or offsite), < Handling (including specialized equipment and personal protective equipment), < Storage (types of bins or stockpiles to be used), and < Transport (types of vehicles to be used to transport this material off-site).
Waste Recycling	Identification of the types of waste which are amenable to recycling, and guidance on: < Selection of approved firms which will accept each type of recyclable waste, < Handling (including specialized equipment and personal protective equipment), < Storage (types of bins or stockpiles to be used), and < Transport (types of vehicles to be used to transport this material off-site).

TOPIC	DESCRIPTION
Hazardous Waste Treatment and Disposal	Identification of the types of hazardous waste which require treatment prior to disposal, and guidance on: < Selection of approved firms which will accept each type of hazardous waste for treatment and disposal, < Handling (including specialized equipment and personal protective equipment), < Storage (types of secure storage to be used), and < Transport (types of secure vehicles to be used to transport this material off-site, and spill response procedures).
Non-Hazardous Waste Disposal	< Estimated volume of non-hazardous waste generation, and maximum volume to be stored on site at any time. < Handling (including equipment and personal protective equipment), < Storage (types of bins to be used), < Transport (types of vehicles to be used to transport this material off-site, and frequency of transport), and < Landfill to which this waste will be taken.
Manifest System	This is a system for documenting the volume of waste of each type which is taken from the site, and verification that each load has been received by the approved party and reused, recycled, treated and disposed accordingly.
Verification	Name the person or post responsible for verifying that measures set out in the WMP are being effectively implemented.
Periodic Review and Updating the WMP	WMP which is intended to remain effective for more than 2 years must be periodically reviewed and updated even if no deficiencies have been identified in the interim. The WMP must indicate: < Time period after which the WMP must be reviewed and updated, < Committee or person responsible for reviewing and updating the WMP, < Time Frame for Review and Updating, < Committee or person who will approve the updated WMP, < Method of withdrawing the current version of the TMP and replacing it with the new WMP.

8.4.4 Emergency Response Plan

An Emergency Response Plan (ERP) describes the approach and procedures to be followed by the project proponent and the contractor(s) when responding to emergencies that may arise from the project. The objectives of the ERP are:

- to Safeguard Life and Property,

- to Maximize the Use of Available Resources,
- to Minimize the Effects of Emergencies, and
- to Promote Self-efficiency and Encourage Personal Preparedness for emergency response.

The ERP on this project will be prepared jointly by the management of Eastside Plaza and the prime contractor in consultation with the Police Service and the Fire Service.

8.4.4.1 Emergency Levels

The ERP will divide emergencies into three levels:

Level 1: Small incidents which can be brought under control using on-site resources;

Level 2: Larger incidents which have the potential to spread to neighbouring properties or public areas, and which require the resources of those neighbours to be brought under control; and

Level 3: Even larger incidents which require the intervention of national emergency response services (Police Service, Fire Service, Ambulance Service, etc) to be brought under control.

8.4.4.2 Contents of the Plan

The ERP will provide the following information:

i. A Listing of the types of Emergencies, including Natural Disasters, covered by the Plan.

ii. Personnel to assume the roles of Incident Commander and Emergency Responder, and the training that such personnel must receive in advance.

iii. Emergency Response Equipment to be kept on site, and responsibility for verifying that this equipment is functional at all times.

iv. Communication Requirements and Channels in the event of an Emergency.

v. Response Procedures in the event of an Emergency.

8.4.4.3 Natural Disasters

Three types of natural disasters may affect the Plaza:

- Tropical Cyclones,
- Earthquakes, and
- Flooding.

Tropical Cyclones which have affected Trinidad and Tobago are listed in Table 5-3. During the course of this study, the country experienced the effects of Tropical Storm Karen on Sunday September 22, 2019. Damage from tropical cyclones is primarily from high winds and from heavy rainfall. Wind damage can be minimized by designing the upgraded Plaza structure to satisfy the requirements of the Caribbean Unified Building Code (CUBIC). Water damage will be discussed below under flooding.

Earthquakes experienced in Port of Spain were described in Section 5.4. Earthquake damage can range from items falling off shelves with consequent breakage, to structural damage. Structural damage can be minimized by designing the renovated Plaza to conform with the requirements in CUBIC.

Flooding can occur when there is intense rainfall, including but not limited to the passage of tropical cyclones. The flood history in the vicinity of Eastside Plaza was described in Section 5.6. That history shows evidence of flooding on the adjacent streets, but not within the Plaza itself. Protective measures include installing flood protective systems (e.g.: water activated dams) at the doorways at closing time when heavy rainfall is predicted.

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