Child Road Safety Assessment: JAMAICA
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The recognition of road crashes as the leading cause of death globally for children over 10 years old has led to the issue being placed as Target 3.6. of the Sustainable Development Goals – to halve the number of global deaths and injuries by road traffic crashes by 2020.
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Acronyms and Definitions of Terms

CCPA  Child Care and Protection Act, 2004
CFS  Child Friendly School
CGRS  Commission for Global Road Safety
CIP  Child Injury Prevention
CRS  Child Road Safety
CRSP  Child Road Safety Programme
CRTIF  Child Road Traffic Injuries and Fatalities
CRTIP  Child Road Traffic Injury Programme
CSF  Child Safe Schools
D&A  Data and Analytics
FIA  Foundation Fédération Internationale de l'Automobile (International Federation of Automobile)
IADB  Inter-American Development Bank
IRTAD  International Road Traffic and Crash Database
ITA  Island Traffic Authority
ITF  International Transport Forum
ITS  Intelligent Transportation Systems
JAA  Jamaica Automobile Association
JCF  Jamaica Constabulary Force
JN  Jamaica National
JNF  Jamaica National Foundation
JNGI  Jamaica National General Insurance
JRC  Jamaica Railway Corporation
JUCDA  Jamaica Used Car Dealers Association
JUTC  Jamaica Urban Transit Company Ltd.
KMTR  Kingston Metropolitan Transport Region
KPI  Key Performance Indicators
MBTR  Montego Bay Transport Region
MDA  Ministries, Departments and Agencies
MMR  Montego Bay Metropolitan Region
MMTH  Metropolitan Management Transport Holdings Limited
MNS  Ministry of National Security
MOF  Ministry of Finance
MOH  Ministry of Health
MTM  Ministry of Transport and Mining
MTWH  Ministry of Transport, Works and Housing
NMT  Non-motorised Transport
NMV  Non-motorised Vehicle
NRSC  National Road Safety Council
NTP  National Transport Policy
NUA  New Urban Agenda
NWA  National Works Agency
OECD  Organisation for Economic Cooperation and Development
PD  UNICEF Child Protection Section, Programme Division
PPT  Public Passenger Transport
RIPP  Road Injury Prevention Programmes
RMF  Road Maintenance Fund
RSE  Road Safety Education
RSF  Road Safety Fund
RSH  Road Safety Hub
RSS  Road Safety Standards
RSU  Road Safety Unit
RSKRS  Road Safety Knowledge Retention Survey
RTC  Road Traffic Crash
RTF  Road Traffic Fatality
RTID  Road Traffic Injury and Death
SDG  Sustainable Development Goals
STATIN  Statistical Institute of Jamaica
TA  Transport Authority
TAJ  Tax Administration Jamaica
UNICEF  United Nations Children's Fund
WHO  World Health Organization
The following terms and concepts are defined within the context of the main subject area of this report; Road Safety and in particular Child Road Safety. They are primarily reinterpreted from the UN International Strategy for Disaster Reduction’s (UNISDR) ‘Living with Risk’ (preliminary version) prepared by the ISDR Secretariat, Geneva, July 2002), the Government of Jamaica’s Motor Vehicle Import Policy of 2014 and the Road Traffic Act 2016. The definitions and explanations have been reinterpreted from their original legal tone.

<table>
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<tr>
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<tr>
<td>Authorised Motor Vehicle Broker</td>
<td>A business entity registered with the Companies Office of Jamaica and certified by the minister through the responsible agency/ministry to trade in locally pre-owned motor vehicles (vehicles that were previously licensed to operate on public roads).</td>
</tr>
<tr>
<td>Authorized Motor Vehicle Dealer</td>
<td>A business entity registered with the Companies Office of Jamaica and certified by the minister through the responsible agency/ministry, to import motor vehicles.</td>
</tr>
<tr>
<td>Behavioural Change</td>
<td>Proposed changes to people’s behaviour, in particular changes to children’s behaviour and adults who are directly responsible for child protection and care, especially when children are on the roads.</td>
</tr>
<tr>
<td>Care</td>
<td>Under the Child Care and Protection Act of 2004, care is defined as providing for all the basic things children need in order to enjoy a good standard of living. The law also outlines the responsibilities of parents to care for their children or child, by making sure they have adequate food, clothes, a home, healthcare and an education.</td>
</tr>
<tr>
<td>Child</td>
<td>Under the Child Care and Protection Act of 2004, a child is anyone under the age of 18.</td>
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<tr>
<td>Child Fatalities</td>
<td>Refer to children age 0 to 17 years old.</td>
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<tr>
<td>Child Protection</td>
<td>The CCPA outlines examples of the things that children need to be PROTECTED from, such as abuse and neglect, or drugs and alcohol. Parents, teachers and other adults must protect children.</td>
</tr>
<tr>
<td>Child Road Traffic Vulnerability</td>
<td>Conditions of: road and infrastructure, motor vehicle, driver competence and other road users behaviour, that contribute to children being at risk to road traffic crash injury and/or fatality while using the road at any given time and place.</td>
</tr>
<tr>
<td>Crash Report</td>
<td>A report that provides an analysis of traffic crashes for specific period. The data and information contained in the report must meet the guidelines for reporting and classifying traffic crashes as defined by the Road Safety Unit. The main criteria is that: the crash was reported to the police, the crash occurred on a road open to and used by the public; whether the road is public or private; and the crash involved a vehicle that was in motion at the time.</td>
</tr>
<tr>
<td>Driver’s Licence</td>
<td>A permit that allows someone to operate a motor vehicle legally. The vehicle brought to the driver’s test will determine the type of licence issued. There are three basic types: 1. General licence: Permitted to drive trucks, PPV, and commercial vehicles. Not permitted to drive PPV unless such information is stipulated on the licence. 2. Motorcycle licence: Allows the holder to only operate a motorcycle. 3. Private licence: Come in two classes; (1) automatic only and (2) automatic and standard. Permitted to drive a car, pickup truck, van, sport-utility vehicle or any other automobile.</td>
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# Definition of Terms

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<tr>
<td>Injury Crash</td>
<td>Crash resulting in at least one injured person or killed person</td>
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<tr>
<td>International Driver’s Permit</td>
<td>Allows the holder of a valid Jamaican driver’s licence to drive in a foreign country for one (1) year.</td>
</tr>
<tr>
<td>Motor Cars</td>
<td>Motor vehicles (not being classified under this section as motor trucks or motorcycles) which are: (i) constructed primarily for the carriage of passengers, exclusive of the driver; (ii) adapted to carry not more than seven passengers, exclusive of the driver.</td>
</tr>
<tr>
<td>Motorcycles</td>
<td>Motor vehicles with fewer than four wheels.</td>
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<tr>
<td>Motor Trucks</td>
<td>Motor vehicles which are constructed for the purpose of carrying a load or passengers, or both.</td>
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<tr>
<td>Motor Vehicle</td>
<td>Any self-propelled, wheeled vehicle that does not operate on rails and for which propulsion is provided by an internal combustion engine, an electric motor or a combination of the two. The Act defines categories of motor vehicles to include: motor cars, trucks, trailers, tractors, motorcycles.</td>
</tr>
<tr>
<td>Pedestrian</td>
<td>The pedestrian is an individual. The report assesses this individual based on: age, gender, socio-economic class, spatial location, employment status and educational status.</td>
</tr>
<tr>
<td>Private Motor Vehicles</td>
<td>Motor vehicles, whether ‘motor trucks’ or ‘motor cars’, not being commercial motor vehicles, constructed primarily for the carriage of passengers and their effects and used exclusively for personal purposes.</td>
</tr>
<tr>
<td>Provisional Driver’s License</td>
<td>Permits an unlicensed individual to operate a motor vehicle on the public roads while under the supervision of a licensed driver. However, motorcycles and tractors are exempted from supervision.</td>
</tr>
<tr>
<td>Road Fatality</td>
<td>Death that occur within 30 days of a road crash.</td>
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<tr>
<td>Road Safety Hazard</td>
<td>A potentially damaging physical event, phenomenon and/or human activity that may cause the loss of life or injury, property damage or social and economic disruption to road users at any given time.</td>
</tr>
<tr>
<td>Road Safety Hazard Assessment</td>
<td>An evaluation of the location, severity and probable occurrence of a road safety hazard event in a given period.</td>
</tr>
<tr>
<td>Road Safety Hazard Mitigation</td>
<td>Structural and non-structural measures undertaken to limit the adverse impact of road traffic crashes on humans and property.</td>
</tr>
<tr>
<td>Road Traffic Crash (RTC)</td>
<td>The collision of a motor vehicle or motorcycle that results from the abrupt meeting of unknown factors. Normally an RTC is caused by a moving motor vehicle or motorcycle with other moving or road user (human or another motor vehicle or motor bike). RTCs are normally caused by unknown factors to the perpetrator, but these factors could otherwise be easily known. The result is more shock and displacement of both victim and perpetrator.</td>
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### Definition of Terms

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<td>Road Users</td>
<td>Road users apply to all persons who use the road for a variety of reasons. However, within the extant report, road users do not refer to motor vehicle drivers or riders of motorcycles. The term generally refers to all categories of pedestrian traffic or non-motorised road users.</td>
</tr>
<tr>
<td>Roadworthiness</td>
<td>As defined by the Road Traffic Act and Regulations Section 10.</td>
</tr>
<tr>
<td>School Zone</td>
<td>This is a measure of the immediate threshold limit of a school, where the physical activities of the school and the movement of the students and staff are noticeable during the periods when the school is in operation. The school zone is ideally a measured areal distance surrounding the school and the immediate community in which the school is located.</td>
</tr>
<tr>
<td>Situation Analysis</td>
<td>An assessment and analysis of the country situation, with respect to children's and women's rights and critical issues affecting their realization. The process is used to fill key knowledge gaps within a country-specific research agenda and to understand the causes of, and linkages between deprivations experienced by children and women.</td>
</tr>
<tr>
<td>System Change</td>
<td>Proposed changes to legislation, policies and physical and spatial elements associated with road safety, in particular child road safety.</td>
</tr>
<tr>
<td>Vulnerability Assessment</td>
<td>An estimate of the degree of human injury or fatality that could result from a road traffic crash given combination of multiple features relating to motor vehicle condition, road condition and infrastructure, driver competence and interaction with other road users.</td>
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Motorists tend to neglect simple road safety practices, such as the use of seat belts, helmets and children-restraint systems.
This research on Child Road Safety (CRS) Assessment for Jamaica funded by UNICEF aims to identify specific vulnerable conditions affecting schoolchildren and schools, and to inform physical and social interventions to reduce child Road Traffic Crash (RTC) injuries and fatalities.

The research was conducted over a 10-week period, using multiple source data, including the weekly and monthly crash reports published by the Road Safety Unit of the Ministry of Transport and Mining, Crash Spot reports and maps published by the Mona GeoInformatics Institute, the 2016 National School geographic data by the Ministry of Education Statistical Department, Jamaica National Foundation’s (JNF) in-house data, and information from UNICEF and other multilateral support agencies.

There is an increasing concern globally for CRS. The number of child road traffic fatalities (CRTF) equals that of the general Road Traffic Fatalities (RTF) per parish for the years 2012 to 2017. The parishes where children and adults are most vulnerable and which record the highest number of fatalities and crashes are: Westmoreland, the Kingston Metropolitan Area (KMA), St. Catherine, Clarendon, St. Ann and Manchester. In all parishes, boys, and not girls, fall victim to the most road traffic fatalities and injuries.

The daily and quarterly differences between CRTF are minimal, ranging from 14 on Sundays to 2 on Tuesdays and Wednesdays. The average difference between all days for fatalities and injuries is 6.2 children. As expected, non-school days have the highest percentage of crashes. The first quarter is recorded as having the highest number of child road traffic fatalities for the years 2010 to 2017. This is followed by the third quarter and then by the last and second quarter, respectively. From 2010 to 2017, the cumulative quarterly average for child road traffic fatalities has been ~32 children.

Behavioural and system findings surrounding child gender vulnerability indicates that vulnerability of child road traffic fatality/injury (RTF/I) is significantly increased by the fact that males are the most vulnerable, as well as the highest percentage of road users involved in both traffic crash fatality and injury. Males of all age groups and categories of road users have the highest rate of injury and death from RTCs. From 2008 to 2017, male drivers accounted for ~80% of drivers involved in fatal RTCs. This pattern is projected to continue into 2018. Most operators of private and public motor vehicles that are used to transport children are males. This is the same with motorcycles. As such, male vulnerability is transferred to children. Additionally, parents who transport their children to school are more likely to allow boys to make the transition from private to public transport earlier than girls. As such, boys are more vulnerable as pedestrians while girls are more vulnerable as passengers.

The socio-economic conditions surrounding child road traffic vulnerability indicate that as young as four years old, children are sent into complex motor vehicle traffic environments for various activities, including: school, grocery, shopping, etc. This relationship between socio-economic situation and poverty should not be generalised. There is a negative correlation between poverty within specific communities and traffic crashes within 100m of schools. Increasing CRS in poor
In 2017 ~32,365 traffic tickets were issued for exceeding the speed limit.

Communities, in particular around school zones, must begin with improvements in basic socio-economic services, normally lacking in these communities. Some of this road safety infrastructure includes: sidewalks, proper road signage, and improvements in public transportation. Evidence shows that a lack of proper road safety physical infrastructure is more prevalent in depressed/poor communities. This absence of proper road safety infrastructure tends to rise with increasing distance from the immediate school zone. As such, children may be safe close to the school, but their vulnerability increases the further they commute away from school. Child vulnerability in this condition is higher for pedestrian schoolchildren.

Public schools within the KMA (Kingston & St. Andrew) and the parishes of Westmoreland, St. James, St. Catherine, St. Ann, Clarendon, St. Thomas, Manchester and St. Mary have been identified as those in dire need of physical intervention. These include: improved crosswalk design, upgrade in sidewalks with guard rails, the addition of bus stops and more visible road safety signage. Mixed Schools (e.g., co-ed primary and junior high or primary and high) will benefit the most from these interventions since they have a larger student population and serve a wider cross section of students.

The importance of urbanisation dynamics in contributing to child vulnerability to road traffic crashes is also evident. Schools and children located in non-traditional urban centres (Linstead, Santa Cruz, Spalding, Christiana, Old Harbour, etc.), which are showing signs of rapid urbanisation, and places along improved road corridors (Westmoreland, Clarendon, St. Mary and St. Ann, etc.) are showing increasing evidence of vulnerability to road traffic crashes. These areas lack proper urban infrastructure for a growing urban population, motor vehicle fleet and increasing traffic volumes.

In addition, motorists tend to neglect simple road safety practices, such as the use of seat belts, helmets and child-restraint systems. Speeding and riding without a motorcycle helmet, as well as transporting a child without proper child restraints, are among the most popular traffic violations involving children. In 2017, ~32,365 traffic tickets were issued for exceeding the speed limit. Of this amount, 3% were issued for exceeding the speed limit of 50 km/hr. Exceeding the speed limit by 16 to 32 km/hr above the 50 km/hr mark accounted
for 78% of all tickets issued, while exceeding it by 33-50 km/hr accounted for 19%. Tickets for driving without a seat belt amounted to 113,677. Transporting a child without a child restraint attracted 3,604.

Locational analysis reveals that many schools are not served by good-quality road infrastructure and services. Even in the KMA, along major road corridors, road safety infrastructure is way below standard and in need of maintenance.

Crash hotspots have maintained their traditional locations since 2010, with only an increase in frequency and intensity of crashes. However, the number of crashes has been slowly trending down or holding steady in some instances.

For the period 2015 to 2017, the parishes of Westmoreland, St. Catherine, St. Andrew, St. Ann and the KMA have consistently recorded the highest incidence of traffic crash fatalities. The per parish distribution of traffic fatalities shows that St. Catherine, followed by Westmoreland, then St. Andrew, recorded the first, second and third highest incidences of road fatalities for the period 2011 to 2017. The fourth and fifth were Clarendon and St. Ann, respectively.

The JCF’s Road Safety Hub (RSH) at the Traffic Headquarters is an important resource for improving the country’s CRS projects and programmes. The RSH is a venue to conduct regular and ongoing CRS seminars. Additionally, the RSH can facilitate school tours to sensitise and familiarise children with traffic police and road safety officers. The RSH and other road safety institutions that use data would benefit from an increase in more demographic and spatial data of RTC. In particular, the current road safety database does not include data from the Jamaica Urban Transit Company (JUTC). The JUTC is one of the largest public carriers of schoolchildren. The JUTC’s crash database involving children and other road users can be incorporated into that of the Ministry of Transport and the RSH. This is especially crucial in ‘school zones’ where the JUTC operates.

Increasing informality and the absence of a national public school bus transportation system are exposing schoolchildren to RTC. Neither the JUTC nor the Transport Authority (TA) has a formal school bus system or special licence available to operate. There are no formalised public passenger vehicles (PPV) for transporting school children. Within this scenario, schoolchildren are forced to travel with adults. The psychological implications of this are that children are forced to assume adultlike behaviour in the public transport system. This behaviour is then carried over into the school campuses and school zones, and can in turn, contribute significantly to CRTC vulnerability due to children taking more risks than they should.
While not dismissing or downplaying the seriousness of road safety for all road users, this research and subsequent report focus mostly on child road safety in Jamaica, but primarily on schoolchildren. The trend in road traffic injuries and fatalities globally and regionally are particularly worrying given the percentage of children and youth victims involved. The World Health Organization (WHO) in 2015 estimated that ~1.25 million people are killed, while ~50 million sustain non-fatal injuries annually. Of this number ~15% are child fatalities and another significant number suffer long term or permanent physical disabilities, dismemberment and scars. The Centers for Disease Control (CDC) claims that road traffic injuries are estimated to be the eighth leading cause of death globally and the leading cause of death among young people aged 15–29 years old.

The recognition of road crashes as the leading cause of death globally for children over 10 years old has led to the issue being placed as Target 3.6. of the Sustainable Development Goals – to halve the number of global deaths and injuries by road traffic crashes by 2020. The economic cost is ~$100 billion annually in developing countries. The WHO, et al (2013), estimates that every six seconds, a person is killed or seriously injured on the world’s roads. Nine in ten of these casualties (many of whom are children) occur on roads within developing countries such as Jamaica.

In addition, research indicates that RTC have accounted for close to 16% of child injuries and fatalities. This is slightly less than the global rate of 17.4%. The implications of high or low percentage for child motor vehicle mortality are both positive and negative. A high-percentage mortality indicates the urgent need to invest in appropriate social and physical (spatial) elements to reduce mortality. Conversely, a low mortality rate means that intervention systems are working and need to be duplicated in other locations. According to the IDB (2017) and UN (2012), the major elements contributing to the vulnerability of children to fatal road traffic crashes are associated with the region’s pattern of urbanisation. As the second fastest urbanising region in the world, Latin America and the Caribbean combined, now experience population and urban activities expanding on marginalised lands that lack basic infrastructure and services to accommodate human settlement concerns. The most vulnerable under these conditions are children, women and the elderly.

Trends in adult, youth and child fatalities and injuries resulting from road traffic crashes are both an enormous public health issue and a hindrance to achieving Sustainable Development Goals.

Jamaica’s road safety figures from the Ministry of Transport and Mining (2017), in particular with regards to children, closely mirror those at the global and regional levels. Between 2002 and October 2017, trends in road traffic deaths per 100,000 per population have lingered between 12% and 15%. Average fatalities from 2001 to 2016 were 345.1 persons. Since the start
of the year 2017, 19 children have died from traffic crashes islandwide. This is a 24% decrease when compared to a similar period in 2016 and 2015. In the first quarter of 2016, five children died from traffic crashes across the island. As of December 21, 2017 the total fatalities due to traffic crashes stood at 313 persons, with children accounting for 6%.

Trends in adult, youth and child fatalities and injuries resulting from road traffic crashes are both an enormous public health issue as well as a hindrance to achieving Sustainable Development Goals. The New Urban Agenda (NUA) has prioritised projects and programmes ensuring child safety and health on the road, especially to and from school. Honouring this commitment involves substantive and practical commitments to reducing and enforcing motor vehicle speeds to a safe level for children everywhere, especially prioritising low speed zones in residential areas and school districts. Additionally, the UN Decade of Action for Road Safety 2011-2020 and Foundation Fédération Internationale de l’Automobile (International Federation of Automobile) (FIA’s) Road Safety Fund (RSF) facilitate alliances between private-sector donors and NGOs to support Road Injury Prevention Programmes (RIPP) in countries and communities working to reduce child mortality associated with road traffic crashes.

2.1 CONCEPTUAL FRAMEWORK

The conceptual framework guiding the CRS Agenda rests within the United Nations Declaration of Human Rights for liberty and security. This is mirrored by the right to security and safety of movement in multiple forms and circumstances outlined under Chapter III and embedded in the Jamaican Constitution. Citizens are also legally expected, when moving about on the road (public access) as a driver, rider, passenger, pillion or pedestrian, to follow the rules of the road. The Commission for Global Road Safety believes that failure to provide for the safety of children on the roads is a breach of their human rights under the UN Convention on the Rights of the Child. Jamaica’s constitutional human rights and security concerns for all its citizens fall in line with those of international human and child rights enshrined in the UN Declarations on Human Rights and the CRC. As such, the CRC is a legally binding international agreement setting out the civil, political, economic, social and cultural rights of every child, regardless of their race, religion or abilities.

2.2 PURPOSE

The project seeks to formulate and implement structural and social measures to change behaviour and systems to protect Jamaica’s children while they are on the road, in particular while commuting to and from school.

The purpose of this report is to analyse road traffic data from multiple sources to sustainably inform social and physical interventions to support child road safety in Jamaica, in three core areas:

1. To guide the Jamaica National Foundation, UNICEF’s implementing partner in Jamaica for road safety, in choosing specific locations across the island, in particular school campuses and zones, for physical and social intervention of child road safety infrastructure and services.

2. To devise and implement systems and structures aimed at making school campuses more child friendly. Accordingly, UNICEF’s Child Friendly Schools initiative with child-friendly infrastructure on and off campus, is promoted.

3. Develop a monitoring and evaluation framework to manage intervention strategies for child road safety nationally.
This section of the extant report presents the major elements contributing to, or correlated with, CRS within Jamaica. The section begins with a summary presentation of the geographic and demographic dynamics of Jamaica, the country’s road networks, a snap examination of the motor vehicle fleet in various categories and an analysis of the country’s road safety risk and vulnerability factors. The understanding here is that all these elements are directly correlated with child vulnerability to road traffic crashes.

3.1 COUNTRY SYNOPSIS: JAMAICA

Jamaica is the third largest of the Greater Antilles and the largest English-speaking Caribbean island with the largest urban population and area. The land mass of 10,830km² supports a population of 2.8 million, of which 54 per cent is urban (STATIN, 2012). The age cohort 0 to 14 years old accounted for ~30.1% of the population, while 62.3% are between the ages of 15 and 64 years and 7.6% are over 65 years (Figure 1).

The country’s total population dependency ratio is 60.5%, showing that the portion of population consisting mainly of children and youths (figure 1) is more than half of the working population. Child dependency ratio (ratio of people below working age, under 15 years old, to workforce) stood at 48.3% in 2016. The age dependency ratio (ratio of people above working age (65+) to workforce is 12.2%. The figures expose an extremely vulnerable child and youth population.

3.1.1 POPULATION SPATIAL DISTRIBUTION

Jamaica’s population density is 255.6 people per square kilometre (662.1/mi²) as of November 2017. The trend over the past four decades is for Jamaicans to migrate to urban areas, to the extent that in 2011, over 54% lived in urban areas. At the end of 2016, this urban migration trend stood at 55.03%

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**Figure 1:**
Jamaica population pyramid (CIA World Fact Book as of July 2017)
Jamaica's largest urban area, Kingston Metropolitan Area, has a total population of 937,700 according to STATIN's 2011 estimates (figure 2). The Kingston Metropolitan Area (KMA) and all parish capitals have a combined population of 1.041 million according to the 2011 population census (STATIN, 2011). Outside the KMA, the largest capital towns are Spanish Town in St. Catherine (147,000) and Montego Bay in St. James (110,000).

Jamaica's population distribution is synonymous with the island’s major road network distribution, showing more people living in Regional and Sub-Regional Centres and along other Class A roads (Figures 2 and 3). National surveys indicate a steady increase in urban area population density over the past three decades. However, this increasing population density has not been matched by the concurrent increase in urban infrastructure and services and the parallel transformation of the socio-cultural demographic dynamics to adapt to such spatial (urbanising) energies. This has resulted in urban areas being void of proper supporting infrastructure and services and the socio-cultural lifestyles not befitting urban living. This mixture of social, cultural, economic and spatial malaise exposes the majority of Jamaica’s 54% urban dwellers to a range of multiple hazards, including road traffic crashes.

3.1.2 ROAD NETWORK/DISTRIBUTION

According to the National Works Agency (NWA), the country’s main roads (Figure 3) and parochial road networks total ~5,286km and 9,962km, respectively. This is a total of 15,248km traversing an area of only 10,991km². There are also parochial roads (14,895km), farm roads (1,500km) and community roads (4,200km). The inland and cross-country roads are less developed than coastal roads. This puts Jamaica among the countries having one of the highest road densities (201km²) in the world, with an estimated value of over US$70 billion. The NWA also has 736 bridges on its main road network. The responsibility for maintaining road networks is shared with the various municipal authorities as well as some private developers, among others. The farm roads are the purview of the Ministry of Agriculture, through its agency, the Rural Agricultural Development Authority (RADA). Parochial, community and farm roads represent 81% of Jamaica’s road network.
The road networks traversing the country are classified as:

- **Primary (Class A Roads)**: Otherwise referred to as arterial roads; roads of national importance, which carry daily traffic volumes in excess of 1,000 vehicles linking one or more major areas/towns of the island with other major areas/towns. A minimum of 23m (75ft) reservation is required.

- **Secondary (Class B Roads)**: Roads of regional importance that connect with arterial roads and normally carry, average daily traffic volumes of 1,000 to 8,000 vehicles. These are main roads, which include main residential roads, and would normally be used as bus routes or as heavily used traffic routes through residential areas. A minimum of 15.24m (50ft) reservation is required.

- **Tertiary (Class C Road)**: Roads that are normally of local importance and have a function of allowing communications and contact within districts. Class C roads normally serve traffic volumes of fewer than 1,500 vehicles per day and are used for direct access to individual lots within a residential area or for access to commercial premises. They should comply with local bylaws, unless otherwise specified in special area developments. A minimum 9m (29.5ft) reservation is required.

- **Urban A (UA)**: Roads that move large volumes of traffic between one or more centres of significant commercial activity (districts) and/or across urban areas.

- **Urban B (UB)**: Roads in urban centres that provide direct links between two centres of commercial activity and feed traffic to UA roads.

- **Urban C (UC)**: Roads in urban centres that provide access to UA and UB roads.

The majority of the country’s schools have direct access to Primary Roads (Class A Roads) and Secondary Roads (Class B Roads). At some point and in most instances, entire student populations must use these roads on a daily basis. As the average speed limit on these roads 50 to 80km/h, children are at considerable risk to speeding motorised traffic. Schools directly abutting Class A to Class C Roads should be a primary concern for road safety infrastructure intervention, in the form of crosswalks, lighting and other road safety devices.

### 3.1.3 VEHICLE FLEET

The health and distribution of the island’s motor vehicle fleet contribute to the vulnerability of all road users. Private Motor Vehicle (PMV) and Public Passenger Vehicle (PPV) are the two largest categories of transportation moving the country’s population.

#### 3.1.3.1 PRIVATE MOTOR VEHICLE FLEET

According to Tax Administration Jamaica (TAJ), the total vehicles registered in 2016 stood at ~395,769. Discussion with senior management and data personnel from TAJ and the Ministry of Transport revealed that the volume of TVR is approximately 60% of the total vehicle fleet in the country. There is increasing con-
cern for the growing numbers of unregistered vehicles operating on the island’s roads.

Since the beginning of 2017, motor cars (65%) continue to be the largest category of registered motor vehicles, followed by motorcycles (21%) and motor trucks (11%). TAJ confirms that as of October 2017, the country’s registered motor vehicle fleet by category was approximately 791,538. The National Road Safety Council (NRSC) expressed that there is a need to reduce the number of motorcycles and increase the tax levy on their importation in an effort to reduce crashes and fatalities associated with motorcycles.

### 3.1.3.2 PUBLIC PASSENGER VEHICLE (PPV)

The most frequent and popular PPV routes, especially those within school zones, are of principal focus as it pertains to identifying and assessing their contribution to child vulnerability to RTC. Both the Transport Authority (TA) and JUTC’s route data are important inputs in identifying troublesome routes (along school zones) and those most vulnerable to traffic crashes and those where the most traffic crashes occur.

The various categories of public passenger vehicle licences (Table 1) to operate within the country are: Hackney Carriage, Route Taxi, Rural Stage Carriage, Contract Carriage, Express Carriage and JUTC Stage Carriage (Sub-Franchise). The Jamaica Urban Transit Company (JUTC) and JUTC Sub-Franchise buses provide transportation within the Kingston Metropolitan Transport Region (KMTR), the Montego Bay Metropolitan Transport Region (MMTR) and in the eastern section of the island. Within the MMTR, the service is limited to two routes: Montego Bay in St. James to Falmouth in Trelawny (MBTR) and Montego Bay to Sandy Bay, in Hanover.

#### Table 1: KMTR number of PPVs licensed for 2012 to 2015

<table>
<thead>
<tr>
<th>Licence Category</th>
<th>No. of Licences in 2012</th>
<th>No. of Licences in 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hackney Carriage</td>
<td>1,188</td>
<td>896</td>
</tr>
<tr>
<td>Route Taxi</td>
<td>127</td>
<td>167</td>
</tr>
<tr>
<td>Rural Stage Carriage</td>
<td>24</td>
<td>36</td>
</tr>
<tr>
<td>Contract Carriage</td>
<td>617</td>
<td>515</td>
</tr>
<tr>
<td>JUTC Stage Carriage</td>
<td>300</td>
<td>270</td>
</tr>
<tr>
<td>TOTAL number of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Legal operators</td>
<td>2,256</td>
<td>1,884</td>
</tr>
<tr>
<td>- Number of illegal operators</td>
<td>934</td>
<td>1157</td>
</tr>
<tr>
<td>- Ratio of legal to illegal</td>
<td>2.4:1</td>
<td>1.6:1</td>
</tr>
</tbody>
</table>

The TA considered all categories of licences except JUTC buses when calculating the ratio. In 2015, approximately 1,884 legal vehicles were licensed to operate as PPV. Using the ratio of 2:1, to determine the ratio of illegal to legal operators for both 2012 and 2015 the number of illegal operators were calculated. A total of 201 licensed operators are exclusively licensed to operate within the KMTR (as Route Taxis and Rural Stage Carriages) and does not include Hackney Carriages, Contract Carriages. This does not include Hackney Carriages, Contract Carriages, JUTC Stage Carriage or Rural Stage Carriages originating in rural areas and terminating in the KMTR and terminating in the KMTR, which also provide public transportation.

The TA estimates that in 2016, a total of 19,265 PPV were issued licences (Table 2) outside of the KMTR. At the end of 2016, just over 19,000 such licences were granted to operate throughout the KMTR. Route taxis accounted for the highest (61%), followed by contract carriages at 23%, hackney carriages at 8% and rural stage, JUTC stage carriage and express stage carriage taking 4%, 3% and 0.1%, respectively. The TA estimates that there is a ratio of 1:2 legal (registered) to illegal taxis (robot taxis): approximately 23,578 robot taxis. This number is frightening when the consequences are weighed against road safety and revenue, but it also speaks to tremendous opportunities for intervention and positive change to address road safety concerns.

#### Table 2: PPV licences issued

<table>
<thead>
<tr>
<th>Licence Type</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract Carriage</td>
<td>4,354</td>
</tr>
<tr>
<td>Hackney Carriage</td>
<td>1,502</td>
</tr>
<tr>
<td>Rural Stage Carriage</td>
<td>875</td>
</tr>
<tr>
<td>Route Taxi</td>
<td>11,789</td>
</tr>
<tr>
<td>JUTC Stage Carriage</td>
<td>724**</td>
</tr>
<tr>
<td>Express Stage Carriage</td>
<td>21</td>
</tr>
<tr>
<td>TOTAL</td>
<td>19,265</td>
</tr>
</tbody>
</table>

#### 3.1.3.3 JUTC FLEET

The JUTC operates ~629 buses within the KMTR and MBTR. With the largest size buses, JUTC moves the most passengers. The buses have been involved in 3,352 crashes from 2014 to 2017 (Table 3). Currently, the JUTC does not keep a crash database, much less data on CRFI. The cumulative average crash rate for all three financial years is 1:28,063km. When compared with average actual vehicle
kilometres travelled for all three years (31,273,331.67km), over past three years there have been ~1,114 crashes involving JUTC buses. The details of JUTC crashes are not known. These details may include: driver’s demography, crash location, victim’s demography, fatalities to injuries ratio, and mechanical status of buses involved in crashes.

3.2 ROAD SAFETY (USAGE, TRAFFIC CRASH, INJURIES AND DEATH) ANALYSIS

Analysis of motor vehicle crashes involving children (and other road users) includes multiple elements. However, the three most important elements relate to:

1. Demography of the road users involved in crashes (pedestrians, passengers, drivers and riders);
2. Conditions and specifications of the motor vehicle involved in the crash; and
3. The spatial and physical features of the crash site.

These three crash analysis criteria are important in defining and assisting interventions to increase CRS.

The cumulative number of traffic crash fatalities between 2001 and December 21, 2017 is represented in Figure 4. Here the fluctuations in the pattern can be observed. During this period, the average annual rate of fatalities has lingered around 343.7, with a high of 408 in 2002 and a low of 256 in 2013, increasing in 2015 to 379, with a decrease 2017. The figures have fluctuated between 256 and 408 fatalities from 2001 to 2017. Figure 4 shows a general decline in road traffic crash fatalities from the period 2001 to 2017 for all categories under consideration.

Provisional data from the Ministry of Transport, Works and Housing (MTWH), now MTM, indicate a 15% increase in road traffic deaths, from 2014 to 2015, with 382 fatalities. In 2015, there were 296 traffic deaths from 292 days in the calendar, while the national average was ~1:1 death per day, with males accounting for 84%. Motorcycle deaths equate to 30%, with pedestrian deaths a close second with 24%, and PMC drivers and passengers both third with 15% each of fatalities.

The general decrease in fatalities trend can be partially attributed to the investment in aggressive road safety campaigns of the National Road Safety Council and part-

Table 3: JUTC Annual KPI

<table>
<thead>
<tr>
<th>Financial Year March to April</th>
<th>Actual Vehicle km (Annual)</th>
<th>Crashes (Annual)</th>
<th>Avg. buses dispatched</th>
<th>Crash rate (Crashes/km)</th>
<th>Ridership Trips (Annual)</th>
<th>Average Daily Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014 - 2015</td>
<td>31,662,393km</td>
<td>1,124</td>
<td>411</td>
<td>1:28,169km</td>
<td>58,258,990</td>
<td>370,526</td>
</tr>
<tr>
<td>2015 - 2016</td>
<td>32,988,073km</td>
<td>1,070</td>
<td>423</td>
<td>1:30,830km</td>
<td>59,522,785</td>
<td>319,835</td>
</tr>
<tr>
<td>2016 - 2017</td>
<td>29,169,529km</td>
<td>1,158</td>
<td>383</td>
<td>1:25,190km</td>
<td>58,033,945</td>
<td>278,354</td>
</tr>
</tbody>
</table>

Figure 4: Number of traffic crash fatalities

Cumulative number of traffic crash fatalities 2001 to December 21, 2017, for all category (source: extracted from RSU Crash Report: December 2017)
ners such as the JN Group. There have also been significant increases in road traffic breaches, in some cases fines increasing by over 100% for serious breaches such as speeding and driving without seat belt. The decreasing trend from 2016 to 2017 is testimony to aggressive public education campaigns as well as proactive traffic policing, *inter alia*.

The trend lines in Figure 5 indicate that there has been a steady decline for each category of road traffic fatality from 2012 to 2017. However, motorcyclists and pedestrians continue to be the dominant victims of road traffic fatality for all years.

The trend in decline in road traffic fatalities for 2012 to 2017 is also evident specifically in 2017 (Figure 6). The trend in motorcyclists overtaking pedestrians as the most frequent victims of road traffic crashes is shown for the year 2017. Even though the trend is decreasing in all categories (Figure 6), the figures are still too high, on a per-capita basis, for Jamaica. The fatalities recorded in all categories for 2017 could easily be prevented if simple road safety behaviour is displayed and if road safety rules are adhered to.

Of the fatal crashes reported by the Road Safety Unit of the MTM in 2017, a total of 313 persons lost their lives up to December 31. A breakdown of the figures reveals that: 83 pedestrians, 93 motorcyclists, 53 drivers of private motor vehicles, 35 private motor vehicle passengers, 11 pedal cyclists, 14 pillion riders and pedal cyclists, 10 passengers of commercial motor vehicles, 6 passengers of public passenger vehicles, 3 drivers of commercial vehicles and 2 fell under the category of ‘others’ (not shown on graph).

In 2016, motorcyclists accounted for 31% of road user fatalities. The parishes of Westmoreland and St. Elizabeth recorded the highest numbers of motorcyclist fatalities accounting for 27 and 11 deaths, respectively. An unusually large proportion of the public and private transportation in these two parishes are comprised of motorcycles which may be attributed to their socio-economic and geo-spatial characteristics.

According to the PIOJ (2016), Westmoreland and St. Elizabeth recorded high poverty rates of 51.7% and 47.2% respectively in 1992 and 18.9% and 23.8% in 2012, respectively. This ranked both parishes among the poorest in the country. As well as being among the parishes with the least access to basic urban infrastructure and services, (PIOJ 2007 and 2016), these parishes also have large family sizes of 3.3 and 3.6 persons per household, respectively. This is moderately higher than the national average of 3.2 persons per household.

Spatially, both parishes are covered by a significant proportion of flat lands. The Georges plains in Westmoreland and the Pedro Plains in St. Elizabeth contribute to the large extent of flat lands in both parishes. St. Elizabeth and Westmoreland occupy 7.38% and 11.0%, respectively of entire land area of the island of Jamaica. The large amounts of land in both parishes and the sparse distribution of their population coupled with the poverty levels make the motorcycle the preferred mode of transportation.

The data also reveal that the per parish distribution of traffic fatalities (figure 6) shows that St. Catherine (combined), followed by Westmoreland, then St. Andrew (combined) have the first, second and third highest incidence of road fatalities for the recorded period 2011 to 2017. The fourth and fifth are Clarendon and St. Ann, respectively.
There is an obvious relationship between improved road conditions (Figure 3) and the incidence of fatalities (Figure 7). Both major toll roads and highway circumvent St. Ann, St. Catherine and Clarendon (Figure 3). Westmoreland has seen a significant improvement in its road network and alignment over the past decades. The low incidence for parishes like St. Thomas, St. Mary and Portland can be attributed to their low population density coupled with the poor state of the internal roads. These are parishes where most people live in the hinterland. Trelawny, in particular, is an internally settled parish where the internal road network is generally poor.

Additionally, the parishes with the lowest rates of total crashes and fatalities for 2011 to 2017, represented in Figure 7, are showing the lowest and slowest trends in urbanisation. This is also true for areas such as Kingston (Central, Eastern and Western) and St. Andrew (Central, Western and Southern). This follows the conclusion of STATIN (2001) and Bailey (2014 and 2015) that urbanisation growth patterns have been increasing in areas outside of the traditional and formal urban centres.

Urbanisation prospects in all traditional and non-traditional centres in Jamaica are accompanied with increased pedestrianisation and a commensurate absence of pedestrian infrastructure. This situation increases the vulnerability of a Bourgeoning urban population to traffic crashes and fatalities. The use of motorcycles in parishes such as Westmoreland and increasingly within the KMA, have become the most affordable mode of transport for a majority of the lower socio-economic class of the population. The motorcycle is not only more affordable, but it offers a more attractive alternative to counteract the increasing traffic gridlocks in the KMA inter alia. These and other factors, contribute to pedestrians and motorcyclist’s fatality.

The number of child fatalities (Figure 8) run parallel with the parish numbers represented in Figure 8 showing the cumulative number of child fatality per parish 2012 to 2017. Again, the same parishes represented in Figure 8 are recording the highest number of child road traffic fatalities. With an average of 5 children over the period shown in Figure 8 are recording the highest number of child traffic fatalities. With an average of 5 children over the period shown in Figure 9, the parish of Westmoreland recorded the highest number of child fatalities at 16, while no fatality was recorded for Kingston Central and St. Mary.

The child road traffic fatalities by gender (male and female) for 2012 to October 2017 indicate that males are more vul-
Figure 8: Child Fatalities per Parish 2012 to 2017
Cumulative number of child fatalities per parish 2012 to 2017 (extracted from RSU Crash Report: 1st Quarter 2016 and October 2017 and Crash Map provided by JN and Mona Geoinformatics)

Figure 9: Road Traffic Fatalities by Gender
Child road traffic fatalities by gender for 2012 to October 2017 (extracted from RSU Crash Report: As of end October 2017 and Crash Map provided by JN and Mona Geoinformatics)

Figure 10: Child & Youth Fatalities by Gender
Child and youth fatalities by gender for 2011 to 2017 (extracted from RSU Crash Report: 1st Quarter 2016 and October 2017 and Crash Map provided by JN and Mona Geoinformatics)
nerable than females to traffic crashes and deaths. From the year 2012 to 2017, on average at least 4 male children died from traffic crashes than female children. With the exception of 2013 (Figure 8), all other years recorded more male fatalities than female fatalities.

Available data indicate broad spatial and socio-economic conditions, surrounding the child RTC victims. The parish data (Figure 7) point to the socio-spatial conditions of traffic crash fatalities and injuries. The parishes of Westmoreland, St. Catherine and St. Ann record the highest number of RTCF/I.

When this category is widened to include children (0 to 17 years) and youths (18 to ~25 years old) the numbers dramatically increase (comparing Figures 9 and 10).

The daily differences between fatalities and injuries (Figure 11) are minimal, ranging from a maximum of 14 on Sundays to a minimum of 2 on Tuesdays and Wednesdays. The average difference between all days for fatalities and injuries is 6 children. As expected, non-school days (Saturday and Sunday) have the highest percentage (Figure 11) of crashes. This occurs when children are out of school and out of uniform, so they are less visible as children and the little school mechanisms (e.g., crossing wardens and limitation to school zones) are absent.

Research (Agarwal, 2015; Han, 2014; Dobozy, 2014 and Perry, 2006) has highlighted the impacts and correlations between student’s behaviour and the wearing of school uniform. While the research does not specifically mention child road safety, the behavioural conditions identified and analysed can be implied. Children tend to display more careful behaviour in school uniform than out of it. This can perhaps help to explain the significant difference in child fatalities on the weekends as opposed to on school days.

The first quarter of the years (January to March) recorded the highest number of CRTF (35 children) for the years 2010 to 2017 (Figure 12). This is followed by the third quarter (July to September), with 34 children, and then by the last and second quarter, with 33 and 27 children, respectively (Figure 12). From 2010 to 2017 the cumulative quarterly average for CRTF was 32 children.

### 3.2.1 SCHOOLS AND CHILD ROAD TRAFFIC CRASH VULNERABILITY

Educational institutions throughout Jamaica range from the early childhood level, which includes basic schools, infant schools as well as kindergarten departments, through to the primary, secondary and tertiary levels. At the early childhood level, there are a total of 2,203 institutions offering services, including basic schools, infant schools, kindergarten departments and the infant departments of primary and all-age schools (STATIN, 2011). Approximately 673,000 students – just over a quarter of the Jamaican population – were enrolled in formal public education during the 2009-2010 academic year, according to the Ministry of Education. More than 514,000 of these were in the infant, primary and secondary levels, comprising nearly 90% of the 3-5 year age group; nearly 81% of the 6-11 age group; some 88% of the 12-14 group and 86.7% of the 15-16-year group. By age 17-19, fewer than 20% were in the public secondary schools (STATIN, 2011).
Jamaica is divided into six education regions (Table 4) by the Ministry of Education, Youth and Information. The total number of public and independent institutions in each region is represented in Table 4. Overlaying the road traffic data from figures 8, 9, 14, 15 and 16 shows that the ranking (1st, 2nd, 3rd, 4th, 5th and 6th) of regions, with the most children involved in road traffic crashes are regions 4, 1, 6, 3, 5 and 2, respectively. However, the ranking of regions with the most schools are: 1st – Region I, 2nd – Region III, 3rd – Region VI, 4th – Region IV, 5th – Region V and 6th – Region II.

For the public educational institutional listing, Primary schools include (Infant, Primary, All Age, Primary and Junior High and Special) and Secondary include; Agricultural High, Technical and Secondary with Preparatory and Vocational High Schools. Excluded from public educational institutions are; Community and Teacher’s Colleges, Universities and Multidisciplinary Schools. Excluded from independent educational institutions are; Commercial and Business Colleges and Special Educational Institutions.

One of the most important objectives of this research and subsequent report is to assist UNICEF and the JNF in formulating and implementing an action agenda for increasing child road safety in school zones across Jamaica. This begins by identifying the schools and zones where they are located to decide on specific social and physical safety interventions, both at the physical and social level. This is achieved by assessing the correlation between school location and the number of child road crash fatalities/injuries within the associated parish.

There is no formal spatial legislation on school zoning. This radius is assumed to be at least a 500m polygon of varying shape around the specific school area (inclusive of playing field area). This area is defined as the most significant area where the activities of the school are carried out and where the students are most frequently exposed to school activities and activities immediately outside of the specific school area. Some of these specific activities that may be not accessible within the specific school area are buying food and school supplies, accessing transportation services (bus and taxi) to and from school, and financial services. These services are more often accessed by older students (e.g., sixth-formers ages 17 to 18 years old).

Students’ activities within the 500m school zone are more noticeable for public schools of all levels than from private/independent schools. This is especially important in the students needing to access public transportation and food.

The KMA and St. Andrew combined have the largest number of secondary and primary, private and public schools (Table 4 and Figures 13 and 14) and also the highest number of traffic crashes and fatalities for the years 2000 to 2010 cumulatively (Figures 15 and 17), respectively. The trend of road traffic crashes within 100m of a school is somewhat similar to the per parish distribution of number of schools (Figures 13 and 14), assessed earlier. Again, the KMA and St. Andrew combined accounted for the highest number of traffic crash, followed by St. Catherine, St. James, Manchester and St.

### Table 4: Distribution of Public and Independent Schools

Regional distribution of public and independent schools 2015 to 2016 (Source: extracted from MEYI)

<table>
<thead>
<tr>
<th>School/Education Region</th>
<th>Public Institution</th>
<th>Independent Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sec. School</td>
<td>Primary etc.</td>
</tr>
<tr>
<td>I – Kingston: Kingston and St. Andrew</td>
<td>40</td>
<td>112</td>
</tr>
<tr>
<td>II - Port Antonio: St. Thomas, Portland and St. Mary</td>
<td>21</td>
<td>140</td>
</tr>
<tr>
<td>III - Brown’s Town: St. Ann and Trelawny</td>
<td>15</td>
<td>100</td>
</tr>
<tr>
<td>IV - Montego Bay: St. James, Hanover and Westmoreland</td>
<td>26</td>
<td>139</td>
</tr>
<tr>
<td>V – Mandeville: St. Elizabeth and Manchester</td>
<td>24</td>
<td>135</td>
</tr>
<tr>
<td>VI - Old Harbour: Clarendon and St. Catherine</td>
<td>40</td>
<td>189</td>
</tr>
</tbody>
</table>

Primary = Infant, Primary, Primary and Junior High, All Age and Special
Secondary = Agricultural High, Technical and Secondary with Preparatory and Vocational High Schools
Mary. The other five ranking parishes for numbers of crashes are St. James, Westmoreland, Portland, St. Elizabeth and Hanover.

The distribution of child road traffic fatalities within 100m of school is somewhat different from the actual crash numbers. Road traffic fatalities have a somewhat different distribution than road traffic crashes. According to Figure 17, St. Andrew and KMA combined accounted for the highest fatalities, followed by St. Catherine and Westmoreland. St. Elizabeth, St. James, St. Ann, Manchester, Hanover, Clarendon and St. Mary.

Of the total number of traffic crashes within school zones between 2000 and 2010, approximately 0.43% involved fatalities. This is not a high figure, considering the large number of schools and student population involved. However, when assessing the causes and situations surrounding these fatalities and crashes, the reasons are easily preventable through structural and behaviour modification interventions.

Many school zones lack road safety infrastructure. Furthermore, where structures such as crosswalks and stop signs are present they are not visible. Additionally, students are oftentimes considered and treated as nuisances by motorists and are thus treated with scant regard.

### 3.2.2 Poverty and vulnerability of children in traffic crashes

The trend in Figure 18 shows that poverty levels within communities where schools are located do not correlate positively with crashes within 100m of the school. While the trend line for poverty levels within school communities is constant and more horizontal than diagonal, the trend line for crashes within 100m of selected schools is downward sloping, indicating a low or no causal relationship between poverty and traffic crashes occurring within 100m of selected school. This represents a somewhat constant in the poverty levels while crash numbers within 100m of schools are decreasing. Even though communities may record low levels of poverty, this does not necessarily spill over into the incidence of poverty and its effects of child road safety within school areas.
Impact of road crashes

Research in Korea conducted by the Korea Transport Institute in 2013 shows the impact of road crashes on household income, unemployment, home ownership, divorce rate, and income gaps for surviving victims of road crashes. Here are some of the highlights:

A large number of people lose their jobs after traffic crashes:

- 70.7% of disabled victims experienced job losses
- 27.6% of non-disabled victims experienced job losses

- 67.9% of disabled victims who lost their jobs remain unemployed for long periods
- 24% of non-disabled victims who lost their jobs remain unemployed for long periods

It takes longer for victims of road crashes to find jobs.

After they finally leave a hospital, the length of time for job searching for disabled and non-disabled people is 38 months and 19.8 months, respectively, compared to the average of 2.8 months for people not involved in road crashes.

It is very hard for victims of road crashes to get well-paying jobs.

For example, monthly average income of the disabled in their 50s is only US$820, while that of non-victims is US$4,090. This means that economic losses tend to have a lasting impact for survivors of road crashes, and we know the effects can be even more dramatic for the poor in developing countries.
There is no research in Jamaica that relates traffic crashes or transportation to poverty. RTC victims tend to be children or young adults in their 30s with young families, so the loss of the head of the household and oftentimes the breadwinner can be particularly devastating for the families. Improvement in the traffic environment for the protection of vulnerable road users with emphasis on pedestrians (particularly children, the elderly and the disabled) and the establishment of adequate pedestrian facilities can significantly increase safety for pedestrians, drivers, as well as other road users. The JN Foundation, through its association with Mona Geoinformatics mapped 30 schools that have the highest number of crash injuries and fatalities, the number of crashes occurring within 100m of the school, and poverty levels within the community where they are located.

### 3.2.3 DEMOGRAPHIC OF VULNERABLE ROAD USERS

Males are the most dominant drivers and operators of motorised vehicles islandwide for all categories of motor vehicles, especially within the public transport system. The TA reported that over 80% of licenses issued for PPVs were to male drivers. Similarly, the JUTC reports that similar percentage of its drivers are males. Males are then the main ones entrusted with transporting children and other road users using the public transport system. The TAJ also reports similar percentages of driver's licences issued over the past decade. From 2008 to 2010, male drivers were the highest risk category of road fatalities, accounting for over 80% of drivers involved in fatal collisions. This pattern continued into 2015 until the end of September 2017, compared to female drivers. Males have accounted for all of the private motor vehicle driver fatalities in the 2nd Quarter of 2017 (Figure 19). For 2015, St. Ann, Hanover, Westmoreland and St. Andrew each registered one female driver each. For 2016, Hanover, St. Elizabeth, Manchester, St. Catherine and St. Andrew each also recorded one female driver. In 2017, only St. James and Clarendon recorded one death each. Only St. Andrew and Hanover are repeat parishes with female driver crashes. The trend in female driver crashes is consistent with global and regional figures, where the incidence is low.

**Figure 19: Male drivers in crashes**

*Male driver per parish involved in road traffic crash 2015 to November 2017*

Pedestrians of different ages are at risk in different situations and for different reasons (Table 5). The most important risk factors affecting pedestrians are listed in Table 5. All risk categories are linked to behaviour and education. Intervention to reduce and eliminate these risk factors should be centred around behavioural changes.
When Table 5 is assessed along with Table 6, the results show the correlation among age group, risk factors, and fatalities within each age cohort. As the age cohort increases, the risk factors are taken away from the victim and becomes more a result of behavioural choices.

**Table 5: Pedestrian age and risk factors**

<table>
<thead>
<tr>
<th>Age of Pedestrian</th>
<th>Risk Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 2 years</td>
<td>Reversing or backing up</td>
</tr>
<tr>
<td>3 to 9 years</td>
<td>Dart out – Don’t know the rules</td>
</tr>
<tr>
<td>10 to 14 years</td>
<td>Dart out – Know the rules but don’t always follow them</td>
</tr>
<tr>
<td>Adults</td>
<td>Alcohol/drugs/inattention/distraction</td>
</tr>
</tbody>
</table>

Children aged 1 to 6 years are normally victims of adult behaviour (e.g. male drivers), which becomes visible after 18 years old (Tables 6 and 7). The vulnerability of children is then dependent on behavioural habits and choices of the adult and youth population with whom they interact.

Motorists tend to neglect certain simple practices to remain safe, such as the use of seat belts, helmets and car seats for children. From 2001 to 2014, pedestrians accounted for the highest category of fatalities in road crashes (Figure 20 and Table 7). These were followed by private motor vehicle drivers (most of whom were males). The third highest category were motorcyclists, with over ~85 of them not wearing any form of protective headgear or were wearing substandard helmets (poorly designed or made from substandard material).

For the period 2015 to November 2017 the parishes of Westmoreland, St. Catherine, St. Andrew, St. Ann, and the KMA have consistently recorded the highest incidences of road traffic crash fatalities (Figure 19). KMA combined with St Andrew, St. Ann and St. Catherine are three of the areas in Jamaica experiencing complex urbanisation dynamics. Within the parish of Westmoreland, where the motorbike is the most popular mode of transportation, children of both genders are frequently pillion riders. These children are among the most vulnerable group of road users. Westmoreland parish has the largest motorbike fleet, and as such, motorbike

### Table 6: Road Crash Fatalities by Age Group

<table>
<thead>
<tr>
<th>Age</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2015 % change over 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-14</td>
<td>13</td>
<td>16</td>
<td>14</td>
<td>6</td>
<td>-57</td>
</tr>
<tr>
<td>15-24</td>
<td>56</td>
<td>51</td>
<td>67</td>
<td>79</td>
<td>18</td>
</tr>
<tr>
<td>25-39</td>
<td>58</td>
<td>90</td>
<td>85</td>
<td>134</td>
<td>58</td>
</tr>
<tr>
<td>40-59</td>
<td>59</td>
<td>68</td>
<td>89</td>
<td>78</td>
<td>-12</td>
</tr>
<tr>
<td>60 and above</td>
<td>57</td>
<td>59</td>
<td>49</td>
<td>51</td>
<td>4</td>
</tr>
<tr>
<td>unknown</td>
<td>17</td>
<td>23</td>
<td>27</td>
<td>34</td>
<td>26</td>
</tr>
<tr>
<td>Total</td>
<td>260</td>
<td>307</td>
<td>331</td>
<td>382</td>
<td>15</td>
</tr>
</tbody>
</table>

### Table 7: Road Crash Fatalities per Road User Group 2010 to 2015

<table>
<thead>
<tr>
<th>Road users</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2015 % change over 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyclists</td>
<td>26</td>
<td>33</td>
<td>17</td>
<td>26</td>
<td>29</td>
<td>26</td>
<td>-10.3</td>
</tr>
<tr>
<td>Motorcyclists</td>
<td>44</td>
<td>49</td>
<td>45</td>
<td>64</td>
<td>73</td>
<td>119</td>
<td>63.0</td>
</tr>
<tr>
<td>Passenger car occupants</td>
<td>107</td>
<td>93</td>
<td>91</td>
<td>98</td>
<td>86</td>
<td>119</td>
<td>38.4</td>
</tr>
<tr>
<td>Pedestrians</td>
<td>115</td>
<td>107</td>
<td>85</td>
<td>89</td>
<td>99</td>
<td>91</td>
<td>-8.1</td>
</tr>
<tr>
<td>Others incl. public transport</td>
<td>27</td>
<td>26</td>
<td>22</td>
<td>30</td>
<td>44</td>
<td>27</td>
<td>-38.6</td>
</tr>
<tr>
<td>Total</td>
<td>319</td>
<td>308</td>
<td>260</td>
<td>307</td>
<td>331</td>
<td>382</td>
<td>15.4</td>
</tr>
</tbody>
</table>
SECTION 3: SITUATION ANALYSIS

has traditionally been a feature of public and private transport in the parish. There are many rural communities in Westmoreland that have traditionally benefitted from motorcycle transportation. This is in part due to substandard road conditions and the absence of hackney carriage licence (PPV) taxis serving these communities. Moreover, the poor road conditions make motor vehicle commute undesirable.

Motor vehicle traffic has increased throughout the parish over the last two decades. This is in part due to improvements in the major road network linking Westmoreland with the north coast tourism and commercial areas and with the eastern sections of the island. Increasing motor vehicle traffic has created a scenario where the traditional mode of transport is not increasingly mixing with motor vehicle traffic. Improvements in road networks mean that traditional riders have yet to adjust their riding skills to better road conditions. This points to the need for a step up in road use education when traditionally narrow and poor roads are undergoing major improvements to their surface, signage and markings.

Males are the group in all age cohorts (including boys) that suffer the most fatalities and injuries in all traffic crash cases in all locations. Apart from the fact that they are the most prevalent road users in all categories, they are also the ones prone to taking more risks in all categories. The parishes accounting for double-digit male fatalities for at least one year between 2015 to 2017 are KMA, St. Andrew, St. Ann, St. James, Westmoreland, Clarendon and St. Catherine. These are among the parishes with the highest population figures for 2016.

While males are the most transient of the population, they are also the ones who are more unemployed. Jamaican unemployment rate has averaged ~13.36% since 2015. The said parishes recorded the highest levels of unemployment (among males) and the highest level of murder by police division for 2016 to 2017. These parishes are also the ones recording the highest levels of construction activities (hotel and housing construction). Males travel to search for work in the construction industry all over the island. The association among unemployment, population migration (transient), crime (murders) is evident in this case, and is supported by research.

Males generally (youths and adults) are vulnerable to various conditions that increase their exposure to traffic crashes and fatalities. Both their psychological behaviour and the practical habits they are involved in render them vulnerable to traffic crashes. Within middle-to-low income communities, young boys and youths are socialised to be on the streets. This street culture creates an intimate bond between the male child and youth and the streets. This trend is one of the bases for the formation of criminal gangs in many low-income neighbourhoods.

The fact remains that children as young as four years old, are sent into the complex traffic environment for various activities including: school, grocery shopping, selling on the sidewalk, begging on the streets, wiping windshields and to get out of the house to make temporary space for someone else. The lack of green areas and sidewalks in areas where some children live results in their playing too close to traffic or playing in traffic. The inadequacy of the public transportation system, the high level of motorisation and the reduced tendency of adults on the road to show care for the safety of children also add to the problem. This is the socio-economic reality of Jamaica, which results in children assuming adult-like responsibilities prematurely and being forced into complex traffic conditions from an early age.

The increase in traffic creates a carbon monoxide build-up when vehicle engines are idling in long lines of traffic. There are also other dangerous gases that are emitted from vehicles. All road users are affected by these emissions. However, young children, due to their shorter stature, are at a lower height from the ground level than adults and so are more affected.

On a parish-by-parish comparison, females are less involved in traffic crashes as victims than males (Figure 22). All seven parishes shown on Figure 21 record an average 60% decline in comparison with female (Figure 22). Not only are females less transient and migratory, they are also less averse to taking risks, on the roads and less involved in crime (at least directly). The parishes which recorded more than five female victims of RTCs are KMA, St. Ann, St. Elizabeth, St. Catherine and St. Andrew. Only the parish of St. Elizabeth is new to the list for female vs male victims.

The statistics for passenger Figure 23 (see appendix), and pedestrian Figure 24 (see appendix), victims are similar to those of female and male victims per parish. The same parishes feature prominently in the lists with the most pedestrian and passenger victims. Once again, the KMA leads the figures with the most pedestrian and passenger victims. The KMA is Jamaica’s most urbanised area and it stands to reason that with increasing urbanisation (as discussed earlier), the risks of injury and fatality will increase.
The focus of this report is the effect of traffic crashes on children rather than on the gender and state of persons (pedestrian or pillion, etc). The demographic data and information collected by the JCF and other agencies who are responsible for collating traffic crash data do not include the extended dependency data of the individuals involved in the crash. Such data would include if the person (male or female) dies leaving any children. This is important information to formulate and plan post-care and post-traffic crash intervention and assistance to families (including children) of deceased victims. Similarly, when children are involved in crashes as fatality of injured, they may have other siblings who may be affected by their condition.

Another area of paucity of research is the effect of crashes fatalities and injuries at the household level. Economic and financial decisions at the household level are driven by consumption decisions. Anything that effects the ability to make healthy consumption decisions can severely affect the health and well-being of the household. Death and disability from a traffic crash can significantly erode household savings and compromise further earnings. Since most households at the mid-middle-income level and below do not have access to strong social safety net, the household becomes vulnerable in the event of traffic crash affecting the breadwinner. There are scarcely plausible surveys that show the effects of road crashes on households because it is presumably difficult to trace victims of road crashes. The household level impact of road crashes is less scientifically understood, and lack of strong data or evidence on these is a challenge in Jamaica.

### 3.2.4 SITE INVESTIGATION: THE SPATIAL AND PHYSICAL FEATURES OF THE CRASH SITE

The data provided by the Interactive Crash Map can be supplemented from other data to undertake more substantial site analysis of road traffic crashes. Figure 25 (see appendix), shows the fatal site for a 19-year-old youth male motorcyclist and Figure 25, right shows the site where a 7-year-old male child pedestrian lost his life to a motor car while trying to navigate the road. The resolution provided does not provide sufficient on-site data and information. The site visit, however, has confirmed road conditions, speed limit, surrounding land use and other conditions that may have been contributory to the fatality.

In both cases (Figure 25 left and right), there have been significant improvements in the road conditions (resurfacing, widening and improved turning radius ‘cornering’), which has resulted in increased speeding along these major thoroughfares. In all cases and locations where traffic fatalities and injuries are recorded, there is evidence of urbanisation patterns Figure 26 (see appendix) that are conducive to crashes and increasing the vulnerability of children and other urban inhabitants.

**Figure 25:**

*Left - Crash site along Big Bridge Main Road, Westmoreland, for a 19-year-old motorcyclist fatality.*

*Right - Crash site along Sheffield main road, Westmoreland, for 7-year-old male pedestrian. Note the absence of a pedestrian crossing.*
The Statistical Institute of Jamaica (2001/11) claims that the most significant aspect of urbanisation in Jamaica (Figure 26, see appendix), evident since the 70s, is the increase in population and importance of urban centres outside of the traditional parish (13) capitals. All parishes are entering a phase of multi-nodal urbanisation, where urban growth is more noticeable in non-traditional (informal) centres. From 1991 to 2011, increased urban population was recorded not in Kingston but in other regional urban centres and some second tier urban centres. These areas comprise a mixture of planned, unplanned, informal and squatter, with a dense concentration of squalor settlements. The rise in informal economic activities, coupled with the limited spatial and legislative reach of urban management and development control mechanisms, can partially be blamed for their uninhibited mushrooming.

Some second tier urban centres (Linstead, Santa Cruz, Christiana, Spaldings and Old Harbour, etc.) are potential and actual rivals to their respective traditional regional centres. They siphon off and divert investment gains and divert investment away from traditional centres. They have become important transport, commercial and entertainment hubs for their regions (leaving the regional centre as the core of political, financial services and administration). They lack formal legislative structure and physical and social support systems outside of the formal state structure and formal planning machinery. They are physically and legislatively informal, but socially and economically functional.

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**Figure 26: Urbanisation trends in Jamaica as of 2011 (source STATIN, 2011)**
3.3 KEY RISK FACTORS, VULNERABILITIES AND GEOGRAPHIC SPECIFICITIES

One major source of child vulnerability and risk has been the inability to upgrade the physical and social infrastructure of schools to buttress the effects of improvements in the major road conditions in proximity to said schools. There has also been progressive increase in ownership of faster, more agile motor vehicles, coupled with a breakdown in road management systems and few improvements to cross-country roads of all classes. It is not surprising, therefore, that crash hotspots have maintained their traditional locations.

The WHO summary from the Global Status Report on Road Safety 2015, that there are ten facts surrounding road safety promulgated by the WHO. When these global facts on road safety are compared to those of Jamaica (Table 8), there are similarities. It is these similarities that will make global interventions and strategies, when translated locally, work in reducing RTFs in Jamaica.

Table 8: Comparing WHO global facts on road safety to Jamaica’s

<table>
<thead>
<tr>
<th>WHO Global Facts</th>
<th>Relevance and evidence in Jamaica</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road traffic injuries are a global public health problem</td>
<td>RTCs ranked the 11th leading cause of RTF, more than 10,000 people injured annually. Cost over J$2.6 billion/year. Total direct in-hospital and indirect costs are ~J$9,272,500.00/per 19% of MOH goods and services and 1.2% of GDP in 2014 13,000 injuries in 2014 costing J$3.2 billion</td>
</tr>
<tr>
<td>Vulnerable road users account for half of all road traffic deaths annually</td>
<td>Motorcyclists, pedestrians, drivers of PMV, passengers of PPV, pedal cyclists and pillion riders account for 90% of road deaths</td>
</tr>
<tr>
<td>Controlling speed reduces road traffic injuries</td>
<td>In 2015 resulted in 60% of crashes on rural roadways 11th and 1st cause of RCI (6%) and RCF (23%), respectively</td>
</tr>
<tr>
<td>Drinking alcohol and driving increases the risk of a crash</td>
<td>Drinking is the 7th cause of RCI with 30%. Legal alcohol limit for drivers is 35 microgrms in 100 millilitres of breath, or a blood alcohol content (BAC) of 0.8g/l Speeding accounted 7.3% of traffic tickets Jan. to Nov, 2017</td>
</tr>
<tr>
<td>Wearing good-quality helmet can reduce the risk of death from a road traffic crash</td>
<td>Motorcyclists are unwilling to wear helmets Most helmets imported are cheap and of inferior quality 100% motor cycle RCI/D were wearing inferior or no helmets. No mandatory safety helmet law for pedal cyclists</td>
</tr>
<tr>
<td>Wearing seat belt reduces the risk of death among front-seat and rear-seat passengers</td>
<td>Mandatory since 1984 for passengers and driver 10% of RTC cases seen at hospital used safety gear, i.e., a seat belt or a helmet the other 90% had no form of safety gear</td>
</tr>
<tr>
<td>The use of appropriate child restraint considerably reduces the risk of serious injury to children</td>
<td>Children seen at BHC cars (6%), bicycle (25%) and pedestrian (5%) were the most frequent mode of transport causing RTI Road Traffic Act Section 99, (1) mandates use of child restraint</td>
</tr>
<tr>
<td>Access to timely and effective emergency care after road traffic crash, saves lives and reduces disability among the injured</td>
<td>All hospitals report a shortage of resources Lack of access to post-crash care for majority of victims.</td>
</tr>
<tr>
<td>Vehicles sold in 80% of all countries worldwide fail to meet basic safety standards</td>
<td>Address in the Road Traffic Act Cause of RTI moved from 2.14 in 2000 to 1.1% in 2016 Motor vehicle imported must be equal to or more than 5 years old average Age is different for trucks and trailers, etc.</td>
</tr>
<tr>
<td>Unsafe road infrastructure increases the risk of crash</td>
<td>Old and invisible road signs, narrow turning radius, absence of sufficient pedestrian facilities in many important locations, potholes following rainy seasons and open drains, etc. pose a danger to all road users</td>
</tr>
</tbody>
</table>
3.3.1 ASSESSMENT OF ROAD AND TRAFFIC PHYSICAL INFRASTRUCTURE AND SERVICES

A rapid assessment of selected road conditions for child safety reveals that many road surfaces are in need of proper care. The turning radius of many urban roads cannot easily accommodate the JUTC buses or Coasters without compromising the right of way of other road users.

Many kerb walls are too low and cannot protect child pedestrians if the motor vehicle runs off the road. Kerb walls along major roadways within urban areas and the KMA are not properly painted and are not visible during the night. The potential of this hazard to translate into road traffic crashes is high. Additionally, speed limit signs in many areas are obscure by overgrown vegetation and, in some cases, the paint has faded.

The inefficiency of many storm water drains is evident in rainy seasons, when roadways are quickly flooded, leaving many motorists stranded and pedestrians forced to walk in the roadway to evade pools of water. Pedestrian crosswalks are not visible during the day or night. Motorists only come to complete stop when they are literally on the crosswalk. The poor reflective paint used to highlight crosswalks make them virtually invisible during the night and in dense fog.

Many verges, edges and sidewalks are overrun with vegetation and not conducive for pedestrian use. Moreover, overgrown vegetation creates security concerns for motorists and pedestrians alike. Many criminal elements hide in these overgrown bushes to prey upon unsuspecting pedestrians and motorists. Four-way signs and intersections have no visible markings and motorists are given over to their conscience to navigate through them.

Street furniture such as bus stops, waste/garbage bins and direction and street signage are lacking or decrepit, where provided. Street signage is, in many cases, wrong or absent, forcing motorists and pedestrians to ask other road users for directions. Street signs are not visible during the night, since they are not painted with reflective paint.

3.3.2 TRAFFIC VIOLATION FINES AND PENALTIES

Speeding and driving without child restraints are the most common causes of child injury and fatality due to road traffic crashes. As of November 20, 2017, a total of 32,365 traffic tickets were issued for exceeding the speed limit (Figure 26, see appendix). Of this amount 3% were issued for exceeding the speed limit over 51 or more km/hr, exceeding the speed limit 16-32km/hr and 33-50km/hr accounted for 78% and 19%, respectively. Driving without seat belt attracted a total of 113,677 tickets. Transporting a child without proper child restraint attracted 3,604 tickets. Failure to observe ‘Stop School Patrol’ and failure to stop at a pedestrian crossing attracted tickets totalling 3 and 826, respectively. Motorcyclists riding without a protective helmet received 2,728 tickets for the said period. These and other major traffic offences are shown on Figure 27 (see appendix) showing a selected listing of traffic breach fines.

Figure 27 (see appendix) accounts for 266,304 tickets or 64.3% of tickets issued and J$564,051,300 or 68.4% of the total cost for the period under consideration. Only one ticket category directly involving children (Child without seatbelt in motor vehicle) was recorded in the list of offences for January to November 21, 2017. This category recorded 3,604 tickets totalling J$3,603,000.

When the number of tickets for specific traffic offences is matched against vulnerability and actual crash (injury and fatality) results, the comparison is revealing. These statistics are supporting the priority victims list discussed in earlier sections. Speeding still remains the number one reason for child deaths and injuries. Figure 30 and the balance of the data confirm that the most vulnerable and the category of road users registering the highest percentage of victims to traffic crashes continue to receive the bulk of traffic tickets. This trend has been consistent since 2015, despite increases in fines.
### Figure 27: Selected fines for road traffic breaches

Selected fines for road traffic breaches, January to November 20, 2017 (Source: JCF Traffic HQ. Traffic Ticket Management System)

#### 3.3.3 Geographic Specificities

The crash hotspot data provided by the Mona Geoinformatics Laboratory, Figures 28, 29 and 30 (see next page), contain some demographic, as well as limited spatial data on crash sites across the island. First glance at the maps reveals that motor vehicle crashes are synchronous to the major arterial roads circumventing the island. However, closer analysis shows that the crash sites form a nucleus around main towns and urban centres and simultaneously follow the linear pattern of the road network. Whereas the number and conditions of crashes have changed over the recorded periods 2015 to 2017, the patterns of crashes are constant. When the spatial patterns shown in figures 28, 29 and 30 (see appendix) are compared with the country’s urbanisation pattern, shown in Figures 2 and 26 (see appendix), then it is safe to conclude that urbanisation is a major factor in the spatial distribution of road traffic crashes.

The spatial distribution of traffic crashes and the distribution of schools (figures 15 and 18) throughout the country are similar to those of other crashes shown in Figure 28 to 30. As expected, their distribution follows the major arterial roads, with a few minor exceptions, which are nonetheless in proximity to a major arterial road. Those schools that are not directly accessible from a major arterial road still require students to use said road to access the school. In all cases, access to major arterial roads is locational feature of primary and secondary schools.
The dots for both crashes and fatal crashes follow the linear pattern set by the road network. However, a nodal pattern can be seen emerging when the distribution comes within the respective regional centres and towns. These schools represent a significant proportion of the country’s population with over 860,000 aged between 3 and 24 years old enrolled.

According to the RSU of the MTM (December 21, 2017), 15% of the overall fatalities occurred in the parish of Westmoreland. Additionally, Westmoreland, St. Catherine, St. Andrew, and St. Ann accounted for 50% of the overall fatalities in all gender and age groups.

There are more parishes showing high figures for school distribution and, consequently, RTF. Public schools generally have larger student populations. The ratio of public schools to RTF will then be higher than schools with smaller population and in parishes where fewer schools are located. In all cases where the number of schools are low (e.g., St. Mary), the incidence of RTF is less or zero. This is also the case with Hanover, Trelawny and St. Thomas.

The parish distribution of independent preparatory school to child road traffic fatality Figure 33 (see appendix) indicates that, the parishes with the highest number of child road traffic fatalities and the corresponding highest number
of independent preparatory school are: St. Andrew 75/9, St. James 34/6, St. Catherine 30/17, St. Ann 18/10 and Westmoreland 14/16.

The relationship between the parish distribution of public primary schools and child road traffic fatalities (figure 34) shows that parishes with the highest number of public primary schools, Westmoreland 60/16, St. Catherine 98/17, Manchester 61/10 and St. Ann 68/10 also have high numbers of child road traffic fatalities, with 16, 17, and 10 child road traffic fatalities, respectively. Clarendon and St. Elizabeth are exceptions to this trend.
SECTION 4

Road Safety Policy and Legislative Review

Road safety in Jamaica is administered through the Road Safety Unit (RSU), which is a department of the MTM. This is not an exhaustive and in-depth legal interpretation of the various legislation and policies pertinent to the transport and road safety sector in particular. For the purposes of the extant report, only sections of the legislation, policy or law, relating to transportation or which impinge on road safety in a direct manner are mentioned and assessed.
Among the pertinent laws, policies and transport legislation are:

1. Revised Comprehensive Motor-vehicle policy for the Public Sector
2. The Road Traffic (Amendments) Act 2016
3. The Public Passenger Transport (KMTR) Act 1947
4. The Public Passenger Transport (Rural Area) Act 1970
6. The Transport Authority Act, 1987
7. There is hereby established a body to be called the Transport Authority which shall be a body
8. Transport (Rural Area) Act
9. The Jamaica Railway Corporation Act
10. The Main Roads Act
11. The Road Protection Act
12. The Toll Roads Act
13. The Road Maintenance Fund Act
14. The Local Improvements Act
15. The Professional Engineers Registration Act
17. The Advertisements Regulations Act (to avoid distraction)
18. The Hoarding and Advertisement Regulation 1954
19. The Fire Brigade Act
20. The Parish Councils Building Act
21. The Quarries Control Act
4.1 ROAD TRAFFIC ACT 1938 AND REGULATION 2008

Sections 43B, 43C and 43D of the act/regulation speak directly to child safety, in particular;

- 43B – use of seat belt by driver, passenger, passenger in front of truck and passengers and driver of PPV
- 43C – use of child-restraint systems for transporting children
- 43D – use of protective helmet

This is evidence that there exists sufficient regulation to address child road safety in general. However, what is missing are specific legislation that speak to child road safety in ‘school zones’. This is especially challenging since there is no formal legislation governing the creation or management of ‘school zones’ in Jamaica.

The Road Traffic Act and the Transport Authority Act, inter alia, have no accommodation for addressing the transport of schoolchildren via a formal school bus service. The need for a national school bus/transportation service, coupled with ‘school zone’ legislation, would be major contributors to improving child road safety and making schools more child friendly.

4.2 THE NATIONAL ROAD SAFETY POLICY 2007

A National Road Safety Policy is a critical initiative to elevate road safety issues to a position of high priority on the national agenda. It provides the basis for working towards attaining the vision of a safe traffic environment. It also assists in guiding and coordinating the actions of the relevant ministries and organisations towards the rational use of scarce resources and reducing duplication of effort. The policy provides the basis for the process of accountability, evaluation and research, which can dictate the need for resetting objectives for the enhancement of programme impact. Additionally, it creates the framework for undertaking corrective intervention programmes and facilitates steps to access funding. In pursuit of a safe, sustainable and efficient traffic environment, the policy dictates a continual reduction in the occurrence and severity of road crashes. The main policy objective is to reduce the occurrences of crashes, as well as the rate of mortality and morbidity by at least 25% over the next five years.

4.3 THE ROAD TRAFFIC (AMENDMENTS) ACT 2016

This act establishes the Island Traffic Authority, which regulates and controls traffic on the island’s roads. Specifically, the act stipulates that the authority should seek to:

- Improve road safety and transport efficiency.
- Reduce the cost of administering road transport.
- And create new categories of driver’s licences.

In accordance with this act all vehicles (whatever the use) should not be used on the roads without proper certification (certificate of fitness). Accordingly, all persons who operate a vehicle with or without occupants should be properly granted a driver’s licence by the Authority. Any person driving or using a motor vehicle in contravention of these provisions shall be guilty of an offence. Children under the age of consent are not allowed to operate vehicles without a learner’s licence and an adult (authorised to drive the vehicle) in the car to supervise.

The relevant Traffic Area Authority may revoke the license of any person who, in their estimation, can be a source of danger to the public, including children. Concurrently, it is not lawful for any person to drive a motor vehicle of any class or description greater than the speed prescribed as the maximum speed. Failure to stop at pedestrian crossings which are manned by Traffic Wardens and are specifically located to assist children to navigate busy thoroughfares (e.g. those in school zones), will result in conviction and/or revocation of driver’s license.

Additionally, “every driver of a motor vehicle which conveys a child shall cause such child to wear or be conveyed in an appropriate child-restraint system”. Any driver of a private or public vehicle who is found in contravention of this subsection commits an offence, and is liable on summary conviction before a Parish Judge to a fine not exceeding J$5,000.

4.4 THE PUBLIC PASSENGER TRANSPORT (KMTR) ACT 1947

Under the Public Passenger Transportation (KMTR) Act, the minister has the authority to grant an exclusive licence to any individual to provide public transportation services within the Kingston Metropolitan Transport Region (KMTR). This licence will dictate whether the person operates their vehicle as a
stage or express carriage. The license does not state whether they will carry children separate from adults; it just states that passengers will be carried (children are considered in the broad term ‘passengers’). Passengers who choose to use this means of transportation are taken up at a point within the KMTR and/or not more than 440 yards outside the boundary, unless the operator has consented to doing so. The actions of the licensed operators are regulated by the Public Passenger Transport Kingston Metropolitan Board Transport Region Board of Control.

4.5 THE PUBLIC PASSENGER TRANSPORT (RURAL AREA) ACT 1970

This act governs the operations of public transportation operations in areas outside the Kingston Metropolitan Transport Region (KMTR). The term ‘rural’ for the purposes of this act means “that part of Jamaica which is not within the Kingston Metropolitan Transport Region”. Similar to the KMTR Act, the minister grants licences to persons to provide transportation services to passengers outside of the defined boundaries of the KMTR. This service is also provided either by stage carriage, express carriage, or both, throughout the prescribed area, as stated in the issued licence.

- Nothing in this act authorises the use of any vehicle otherwise than in accordance with the provisions of the Road Traffic Act.
- Any person who carries any other person as a passenger in contravention of the provisions or permits any person to be so carried shall be guilty of an offence under this act.
- The act does not state specifically that transportation should be provided for children nor does it make reference to licences that would or could be issued to transport children only.

The minister may make regulations prescribing the terms and conditions under which the carriage of luggage and parcels on a stage or express carriage should be done and the terms and conditions for the carriage of blind passengers with guide dogs on a stage or express carriage. The use of ‘may’ highlights the issue of this being left to the discretion of the minister and the possibility of it never being done.

4.6 THE MOTOR VEHICLE INSURANCE (THIRD PARTY RISKS) ACT 1941 (LAST AMENDED 2005)

This act gives the minister (who has portfolio responsibility for communications) the authority to declare any roadway a road by order. It stipulates that individuals should not operate motor vehicles on a declared roadway without a policy of insurance. To be compliant, the policy of insurance must be issued by an authorised insurer. This insures that the individual operating the vehicle and all passengers, against any resulting liability, resulting in death or bodily injury. These and other conditions are covered by the insurance policy.

This act sets out the requirements for all vehicles that transport children to be duly insured by a registered insurance company. It also states that children travelling in both publicly and privately operated insured vehicles may be specified in the policy, against any liability incurred by him or them in respect of :- (i) the death of, or bodily injury, and (ii) any damage to property, caused by or arising out of the use of the motor vehicle on the road. This provision will also protect them against any injury that they may occur while being a pedestrian on the roadways.

The act also dictates the number of persons that the insured vehicle should carry under the policy (whether public or private) and the act did not differentiate between adults and children, which would mean that a child is considered as “a passenger” and should not be seen otherwise.

4.7 THE TRANSPORT AUTHORITY ACT, 1987

This act establishes the Transport Authority. The functions of the authority shall be to regulate and monitor public passenger transport throughout the Island and to perform such duties as immediately prior to the 8th day of July, 1987. Specifically, it will be required to address the following.

- Licensing authorities or specially constituted licensing authorities under the Road Traffic Act.
- The Public Passenger Transport (Kingston Metropolitan Transport Region) Board of Control constituted under the Public Passenger Transport (Kingston Metropolitan Transport Region) Act.
- The Public Passenger Transport (Rural Area) Board of Control constituted under the Public Passenger.
4.8 THE MAIN ROADS ACT 1932

This act gives the minister authority to declare in the Gazette that he has charged the responsible entity with the laying out, making, repairing, widening, altering, deviating, maintaining or managing of any parochial road. He may also declare any new line of road which it is desired to lay out and make with a view to the same becoming a parochial road. There shall also be kept at such place and in such form and manner as the minister may, from time to time, direct a Schedule of Main Roads in which shall be entered all the lines of roads which are or have been declared to be main roads.

The act also speaks about encroachment on roadways and the placement of street trees and other apparatus that is necessary for the public’s safety. This act also mentions the placement of stop signs and other signage that are critical to the safety of children and how they use the roadway. The act does make provisions for the removal of debris, any earth, stone, timber or other substance, left upon or deposited upon the road without permission and for extended periods. This is especially important for children using the roadways, as they can become impassable, rendering them vulnerable to crashes as they veer into the path of vehicles.

4.9 THE ROAD PROTECTION ACT 1937

Under this act the responsible authority is the chief technical director or superintendent of parochial roads and works in the Kingston and St Andrew Corporation (KSAC). It prohibits persons from removing sand, gravel or other material from any gully, watercourse or beach within a distance of 132 feet from any road or any other bridge, culvert, wall, drain or other structure pertaining to the road, without the consent of the road authority as is contained in the act.

The act does not speak specifically to children. However, it speaks about the protection of the road for the public, which would include all persons who use the road. As with other acts that give authority to the minister, this gives authority to persons employed to the KSAC, which would be construed to mean that the act is only applicable along roadways that fall with the jurisdiction of the KSAC and not all roadways island wide.

4.10 THE TOLL ROADS ACT 2001

The Toll Road Act states that ‘toll’ includes any fee, charge, levy, due or compensation payable in relation to the use of a toll road, or any portion thereof, by vehicular or other traffic, and ‘toll road’ means a road designated as a toll road under this Act. There should also be established a body to be called the Toll Authority. All issues related to the toll road and its operations should be handled by the ‘Toll Regulator’, which refers to the person, group of persons or body designated by the minister.

Vehicles transporting children along a toll road would be subject to the conditions as other vehicles and will be required to pay the prescribed fee to use the road, unless other arrangements have been made. If any person fails or refuses to pay toll in accordance with this act or any regulations made hereunder, the amount of the toll, administrative fee relating thereto and any interest thereon shall be recoverable by the concessionaire as a civil debt in a Parish Court notwithstanding any limitation as to the amount recoverable under the Judicature (Resident Magistrates) Act.

4.11 THE ROAD MAINTENANCE FUND ACT 2002

The Road Maintenance Fund was established to hold an amount equivalent to thirty-three and one-third per cent (33 1/3%) of the amount paid pursuant to the Road Traffic Act or Regulations made thereunder as licence duties on motor vehicles, such amount as may, from time to time, be loaned to the Fund from lending agencies; such amount as may, from time to time, be donated to the Fund from donor agencies; such other amount as the minister responsible for finance may, from time to time, specify by order subject to affirmative resolution of the House of Representatives; and investment or other income derived from the assets of the Fund.

4.12 THE LOCAL IMPROVEMENTS ACT

This act requires anyone wishing to lay out land or building or other purposes for lease or sale to submit a plan to the local authority for approval. The Government town planner and the chief technical director of the Ministry of Works must be consulted in regards to all subdivision matters. However, the Government town planner has no say in the final decision. Some areas that come under the Local Improvements Act are...
not covered by the Town and Country Planning Act unless they fall in a ‘called-in’ area. Through the Local Improvements Act, therefore, physical development of land can be controlled.

4.13 THE PARISH COUNCILS BUILDING ACT

Construction of buildings in towns and any areas which may be delimited by the Municipal Corporations (Local Authority) is controlled under this legislation. The Municipal Corporations is allowed to impose suitable conditions with regards to size, elevation, and structural integrity of buildings. The corporations has the following powers:

1. Compulsory acquisition of land for public purpose, e.g., cemetery and road expansion and improvement
2. Preparation of local area schemes
3. Power to define limits of towns or villages

Under the Parish Councils Act, Municipal Corporations have the following function which may directly impact child road safety:

1. Make regulations as the need arises
2. Determine the opening of portions of any thoroughfare or public place, not including the main road
3. Stop the replacement or removal of barriers in any thoroughfare or public placement
4. Stop loitering in public places
5. Regulate the opening of new or any thoroughfare or public places
6. Determine the number of taxis within a parish
7. Determine the number of passengers in a taxi and the fare to be charged

These functions are supposed to be efficiently undertaken by each Municipal Corporation in the island. Their activities in the transport sector have been limited as most of the authority has now been given to the Transport Authority to regulate public transportation in towns. In most instances, Municipal Corporations have relinquished their responsibilities for providing transportation centres that are managed and maintained for the use of the public.

4.14 ANALYSIS AND DISCUSSIONS

There does not seem to be any paucity of legislation and or policies that relate to road safety and protection of children and children’s rights in Jamaica. The Government of Jamaica embarked on a comprehensive review of legislation relating to children as one of its first responses to the World Summit Goals. The Child Care and Protection Act (CCPA), passed in 2004 with the support of UNICEF, marked years of collaborative planning to create one piece of legislation that sets universal standards for the care and treatment of children. The Early Childhood Commission Act, 2003, was enacted to govern the administration of early childhood care, education and development in Jamaica. Its companion, the Early Childhood Act of 2005, prescribes the regulatory powers of the Commission and sets standards for all early childhood institutions. The Trafficking in Persons (Prevention, Suppression and Punishment) Act, 2007 was enacted to prohibit all forms of trafficking in persons, including women and children, and related offences.

The Road Traffic Act, with all its amendments does have a comprehensive representation of child-friendly standards and regulations, in its various sections;

1. Arrangements for patrolling school crossings
2. Power of school crossing patrols to stop traffic
3. Penalties for not causing child to wear or be conveyed in child-restraint system or seat belt in moving motor vehicle
4. Defining a child
5. Child in motor vehicle to wear child-appropriate restraint system
6. Not wearing protective helmet

The Road Traffic Act however does not mention directions and penalties relating to cell phone use and drinking and driving. Similarly, the issue of wearing a protective helmet is scarcely mentioned and needs to be more comprehensively covered, with clearly outlined sanctions. Given the powers of the Road Traffic Act, as the major legislation of road safety and road use, all other policies, plans and legislation surrounding road safety and road use pertaining to children should make reference to the act or most the act should be amended to recognise that give these policies, plan and other legislations some legislative powers.
Based on the foregoing sections, there are a number of pieces of legislation that govern the use of the roadways, the way pedestrians operate on them, and the use of public and private vehicles, as well as the persons who operate the vehicles in the island. Although existing, some of the legislation are outdated and the even the body that has authority and oversight to enforce these legislation is operating with outdated and inefficient resources. The relaxation of some legislation to introduce new ones has not taken place seamlessly and has resulted in some becoming redundant over the years. There is need for a review of some of the legislation to introduce new terms and provisions that are in keeping with the island’s current physical landscape and realities. Special attention should be given to providing provisions that will ensure the safety of the nation’s children who are frequent users of the roadway and who are also vulnerable and often exposed to crashes.

Special attention should also be given to children who, between the ages of 0 and 14, make up one-third of pedestrian fatalities. Pedestrians account for 30% of all road fatalities. The lack of green areas and sidewalks in areas where some children live, the inadequacy of the public transportation system, the high level of motorisation, and the reduced tendency of the motoring public to show care for the safety of children have been identified as some of the critical problems. This situation is compounded by the reduction of parental/guardian responsibility in respect of children.

The high incidence of male fatalities, particularly those in their productive years, and the incidence of child, aged and disabled fatalities, must all receive special consideration in any programme of activities which evolves from a national road safety policy.

To effectively outline appropriate counter measures, it is important to study which groups in society are most vulnerable on the road. The statistics show that pedestrians account for 18 to 30% of fatalities and, of that number, a third are children in the 0-14 age group. Pedestrians at the other end of the age spectrum, being vulnerable due to diminishing physical and mental capabilities, also form a significant percentage of the pedestrians killed.

Special attention should also be made of the crash situation involving children because of the following reasons:

- They are very vulnerable, having physical, mental and social limitations due to their age and size.
- The National Policy on Children requires all national policies to seek to protect the rights of children, as they are “an investment in future societal development and economic efficiency”.
- In cases where children are road crash victims – travelling as pedestrians or in vehicles – there is need to pay stricter attention to the United Nations Convention on the Rights of the Child and Traffic to which Jamaica is signatory. Specifically, in respect to the following articles:
  - Article 6: the child’s right to survival and development
  - Article 18: the responsibility of parents to ensure the best possible development for the child
  - Article 24: the child’s right to the best possible health
SECTION 5

Stakeholders’ Mapping and Analysis

Mapping details of the key stakeholders and partners to facilitate intersectoral collaboration is an important component in devising social and spatial interventions to reduce vulnerability and improve road safety among all road users. This section will not only map the key stakeholders and partners, but will also present a critical analysis of their various programmes and projects in an effort to identify the most appropriate strategies for collaboration and dovetail. The overall aim is to present a cumulative analysis of stakeholders’ efforts. In this regard, interstakeholder’s sensitivities are respected and designed in the intervention programmes and projects.

The broad spectrum of stakeholders includes those under the Government’s ministries departments and agencies (MDAs), para/quasi-state agencies, private initiatives, NGOs, international aid agencies and other not easily defined partners. Care will also be taken to identify the key legislative frameworks under which each agency operates and align this to the section dealing with Policy Review. Assessment and analysis of stakeholders will hinge on comparatively assessing their stated responsibilities and mandate with achieved objectives.
5.1 MINISTRY OF TRANSPORT AND MINING

This is the highest/main governmental body with responsibility for the road and transport sector. The ministry’s regulatory and implementation portfolio for the transport sector makes it the most important ‘go-to’ point for any intervention by other stakeholders, within the transport sector. The transport portfolio of the ministry operates under the mission to “provide safe and sustainable transport systems for the movement of people and goods”. This mission covers the three major modes of transport: land, sea and air. The ministry’s overall vision is “An integrated transport system and a vibrant and diversified minerals industry which compare with the best in the world”.

The ministry’s emphasis on equal access to transport for all is in line with the safe cities programme and the New Urban Agenda (NUA) in making cities exclusive to all. Additionally, securing equal access includes fair competition among the various transport modes; compliance of the transport sector with international security and safety standards; and the provision of a framework within which transportation can be developed and operated in a safe and environmentally friendly manner.

The ministry’s initiatives, projects and programmes are guided by various policy documents and legislation. Among them are the National Industrial Policy of 1996 and the Road Traffic Act, 2014, which provide the broad framework within which these initiatives will be addressed. The various agencies and departments that fall under the ministry are also guided by these and other localised policies and legislations.

5.2 ROAD SAFETY UNIT (RSU)

The Road Safety Unit falls under the Ministry of Transport and Mining, charged primarily to undertake road safety needs study in Jamaica. The RSU works with other stakeholders within the ministry and wider society to promote and foster an orderly and disciplined traffic culture that is conducive to the development of a safe traffic environment, through the conceptualisation, design and dissemination of a sustained programme of public information, education in schools, legislation, crash information and research. This mission is achieved through six strategic goals;

1. To promote and advance road safety education in schools through presentations, literature and integrated programmes with the Ministry of Education.
2. To positively influence road user behaviour through well-designed public information campaigns.
3. To develop, organise and implement research programmes for the determination of social, physical, behavioural, environmental and demographic factors influencing traffic crashes.
4. To identify crash-prone areas/locations and provide timely reports to inform remedial measures.
5. To develop and maintain an automated traffic crash database system for input, processing and retrieval of crash data and the provision of routine and ad hoc reports.
6. To foster the maintenance of and support for the physical and legislative instruments that enforce traffic safety and accountability.

One of the most important roles and responsibilities of the RSU to informing this project is that it collects and publishes road user statistics. The RSU collects road user and traffic data from primary surveys as well as from secondary sources. The data and information collected are used to produce weekly, monthly and quarterly reports. The RSU database is updated daily by data entry clerks with the use of data obtained from the Jamaica Constabulary Force (JCF), whether it is via a crash analysis booklet or the daily fatality database. The reports are formulated from road traffic crashes (injuries and fatalities) within the respective period. The reports aim to highlight all the direct conditions and players involved in road traffic crashes. Within the reports, there are high-risk groups that are highlighted such as the pedestrians, motorcyclists, private motor vehicle drivers and passengers. These categories of road users are highlighted because they account for a high percentage of fatalities on an annual basis.

The Crash Information and Research Unit within the RSU is responsible for analysing and disseminating data collected. The analysis pulls on how, when and where traffic crashes occur, as well as who is involved. Research programmes are advanced to determine demographics and psycho-social behaviour of road users, as well as to inform campaigns, policy, law enforcement, engineering and other corrective measures. Research programmes are also executed to determine the effectiveness of measures implemented. The JNF RSP details will draw heavily from this expected widening of the RSU research reporting portfolio, and will contribute significantly to...
this effort of expanding the parameters of analysing crash data and subsequent report writing.

The Road Safety Unit influences the amendments and revision of the Road Traffic Act and Regulations through its membership on the Road Traffic Legislation Revision Committee within the ministry. As a prominent advocate of and stakeholder in road safety, the unit chairs special subcommittees established to consider specific legislation or regulatory frameworks dedicated to evaluation and revision, and makes necessary recommendations to the committee.

The education-in-schools programme is one of the most important behavioural modification programmes undertaken by the RSU. The programme targets children grades 1-6 and 6 to 12 years old. The programme involves presentations covering pedestrian safety and safe motorist and passenger education. In 2002, the Swedish government again partnered with the RSU to develop road safety school textbooks. These books were published and distributed to children in grades 2-3 in primary schools islandwide. The texts are to be reviewed by the Ministry of Education which has incorporated road safety education in primary schools’ syllabus.

5.3 NATIONAL ROAD SAFETY COUNCIL (NRSC)

The NRSC was constituted by public and private sector interests in their recognition of the high economic cost of traffic crashes. These costs include loss of trained and valuable employees, loss of infrastructure and other assets, cost of healthcare and general loss of productive time from the disruption caused by a traffic crash fatality of injury. The council is funded primarily by the private sector.

The mandate of the NRSC is twofold: (1) to develop and implement road safety promotional activities and conduct public education programmes, and (2) to act as a lobby group for the promotion of road safety. Activities are undertaken with the overall aim of reducing the level of crashes and lowering the cost to society both in terms of human suffering and financial cost.

5.4 THE ISLAND TRAFFIC AUTHORITY

The Island Traffic Authority (ITA) administers the provisions of the Road Traffic Act, which speaks to the testing of vehicles to ensure fitness, roadworthiness and general compliance with standards of safety. As such, the ITA plays a pivotal role in ensuring the road worthiness of motor vehicles, monitoring motor vehicle safety standards, thereby, the safety of all road users. The ITA is also an important partner in granting motor vehicle driver’s licences. As a part of the Public-Sector Modernisation Project within the Ministry of Transport and Mining, the ITA is being transformed into an independent statutory organisation. This will see the vehicle inspection services of the ITA being privatised while the remaining activities within the Authority will be modernised.

The Transport Authority (TA) is a statutory entity that was established by the Transport Authority Act of 1987 to regulate, license and monitor public land transportation within Jamaica. It is also governed by the Licensing Authority under the Road Traffic Act, Public Passenger Transport (Corporate Area) Board of Control constituted under the Public Passenger Transport (Corporate Area) Act, Public Passenger Transport (Rural Area) Board of Control constituted under the Public Passenger Transport (Rural Area) Act, and the Transport Authority Regulations (1998).

5.5 NATIONAL WORKS AGENCY (NWA)

The National Works Agency is a department of the Ministry of Transport and Mining and is directly responsible for maintenance of the country’s main road network. In addition to its management of roads and bridges, the NWA is responsible for all traffic signals across the island. The agency does maintenance and emergency installations. Installation of traffic signals is generally done by signal contractors under the agency’s supervision. As of January 2018, the island had about 120 traffic signals. The agency intends to signalise several other intersections across the island, including some along the Northern Coastal Highway. The installation of a traffic signals at any intersection can be determined by increased traffic flow and safety concerns.

5.6 THE INTERNATIONAL DATABASE

The International Road Traffic and Crash Database (IRTAD) is a data collection maintained by the Organisation for Economic Co-operation and Development (OECD) and the International Transport Forum (ITF) in Paris, covering safety data in countries within and outside of Europe. Its aim is to advance international knowledge about road safety and contribute to reducing the number of traffic casualties. With around 70 members and observers from 40 countries, IRTAD has become
a central force in the promotion of international cooperation on road crash data and analysis.

Jamaica joined the IRTAD group in 2012 as an observer country. It benefits from a twinning programme organised by IRTAD with the Transport Research Laboratory and the UK’s Department for Transport (DfT). The aim of the twinning is to review the current crash data collection and analysis system and to provide advice in areas of road safety which are data related. It was envisaged to provide data to IRTAD in 2016. Stakeholders in Jamaica have been provided with technical devices and assistance for crash data collection. Once the exercise is complete, Jamaica plans to share best practices and knowledge with other countries in the Caribbean.

5.7 JAMAICA NATIONAL FOUNDATION

The JN Foundation was established in 1990 as the charitable arm of the Jamaica National Group (JN Group). The mandate of the JNF centres on managing and executing the philanthropic efforts of the Group, and contribute to the developmental needs of Jamaica. The Foundation works with internal and external partners to identify, develop and provide technical and financial support to projects and programmes that focus on issues relating to rural development, health, housing, education, youth, community, crime and safety. The foundation’s long-term objectives are:

1. Increase employment readiness and self-sufficiency through skills & personal development;
2. Improve the educational achievement of students;
3. Enhance the health and safety of all Jamaicans; and
4. Strengthen social connectedness in order to support social empowerment.

The JNF is instrumental in hosting the undertaking of this research and subsequent report along with UNICEF, FIA and other local partners such as the Mona Geoinformatics Institute.

5.8 UNICEF

UNICEF is one of hundreds of organizations working with the World Health Organization (WHO) to raise global public awareness about vehicle traffic issues – especially the fatal crashes that claim the lives of 1.2 million children, women and men around the world every year, according to the WHO.

A large majority of these crashes occur in developing countries, among pedestrians, cyclists, motorcyclists and users of public transport. However, WHO reports that the knowledge currently exists to take action on a number of fronts to prevent these deaths and disabilities, and that many programmes and policies exist to prevent road traffic crashes. The UNICEF’s Child Road Traffic Injury Prevention Programmes (CRTIP) broad objectives are two-fold:

1) Change in systems – Children, including the most vulnerable & disadvantaged, benefit from improved road safety policies providing a ‘safe system’ for children.

2) Change in behaviour – Public shift to safer road user behaviour reducing risk factors on the road, conducive to increased protection for children.

Tables 9 and 10 present a summary of some major stakeholders, their respective areas of specific responsibility, the legislative framework that guides them, and their contribution to road safety in general and child road safety more specifically.
### Table 9: Summary details of major stakeholders

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Specific area of responsibility</th>
<th>Legislative framework</th>
<th>% Child road safety focus</th>
</tr>
</thead>
</table>
| CGRS         | Global road safety advocacy and policymaking | Initially: FIA Foundation, the WHO, the World Bank, and the UN Road Safety Collaboration  
Current: UN General Assembly Resolution on ‘Improving Global Road Safety’ | 100%                     |
| IRTAD        | A database and working group. The database collates crash and traffic data and additional safety pointers for 29 countries, continuously including Jamaica (through the Ministry responsible for Transport). | OECD (Organization of Economic Cooperation and Development) Road Transport Research Programme 1988 | 90%                     |
| ITA          | Improve road safety and transport efficiency. Reduce the cost of administering road transport. And create new categories of driver's licences. | The Road Traffic (Amendments) Act 2016  
The FIA’s Decade of Action 2011 | 90%                     |
| JNF          | Road safety programmes           | The Road Traffic (Amendments) Act 2016  
The FIA’s Decade of Action 2011 | 40%                     |
The company’s mandate and corporate responsibility | 100%                    |
| JAA          | Promote motorist awareness of automotive and road conditions  
Promote road safety among students  
Disaster preparedness and recovery (clear roads after hurricanes, flood events, etc.) | Jamaica Automobile Association (JAA)  
started in December, 1924.  
The Road Traffic (Amendments) Act 2016  
The Road Protection Act 1937 | 90%  
30%  
80%         |
| JUCDA        | Represents dealers of used cars  | The Road Traffic (Amendments) Act 2016  
The Public Passenger Transport (KMTR) Act 1947  
The Public Passenger Transport (Rural Area) Act 1970  
The Transport Authority Act, 1987  
The Road Traffic (Amendments) Act 2016 |                         |

4. This is an estimated percentage amount based off analysing the operations, programmes and projects of the entity, dedicated towards road safety.
### Table 10: Summary details of major stakeholders

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Specific area of responsibility</th>
<th>Legislative framework</th>
<th>% Child road safety focus</th>
</tr>
</thead>
</table>
| MoF&PS       | Develop fiscal and economic policies for implementation | Public Bodies Regulation 2012  
Policy Framework and Procedural Manual | 10% |
| MTM          | Provides policy oversight to the Road Safety Unit and the Island Traffic Authority | The Road Traffic (Amendments) Act 2016  
The Local Improvement Act 1914  
The Toll Roads Act  
The Main Roads Act 1932 | 30% |
| NROCC        | Implementation of Highway 2000 | The Main Roads Act 1932  
The Road Traffic (Amendments) Act 2016  
The Road Protection Act 1937 | 80% |
| NRSC         | Advocacy for road safety locally, conduct educational programmes | The Road Traffic (Amendments) Act 2016 | 100% |
| NWA          | Build and maintain the country’s road network | The Local Improvement Act 1914  
The Main Roads Act 1932  
The Road Traffic (Amendments) Act 2016  
The Roads Protection Act 1937  
The Advertisement Regulation 1954 | 90% |
| RSU          | Conduct road safety research to disseminate information, educate and advocate for adequate legislative preparation and implementation | The Road Traffic (Amendments) Act 2016 | 100% |
| TA           | Regulation and monitoring of public transportation in Jamaica | The Transport Authority Act, 1987  
The Public Passenger Transport (KMTR) Act 1947  
The Public Passenger Transport (Rural Area) Act 1970  
The Road Traffic (Amendments) Act 2016 | 80% |
| UNICEF       | Global and country-level advocacy on rights of children regarding traffic injuries and safe mobility | Child Road Traffic Injury Prevention Programme  
Sustainable Development Goals 3.6 & 11.2  
Habitat III | 100% |

5. This is an estimated percentage amount based off analysing the operations, programmes and projects of the entity dedicated to road safety.
SECTION 6

Recommendations

The country’s rate and nature of urbanisation is outpacing the provision and upgrade of social and physical road safety infrastructure to protect urban youth and child population. Recommendations are therefore to design and plan physical and social behavioural change interventions so that windfall effects of rapid urban increasing density are managed in a sustainable manner. Road safety intervention is one of many elements that are needed to make Jamaica’s urbanisation prospects sustainable, safe and inclusive. The WHO (2013) supports the large body of scientific evidence that reinforces the positive spinoffs of road safety interventions.

The recommendations forthwith are specifically geared towards improving the road safety environment immediately in school zones. This is defined as the 500m polygon surrounding selected schools in various high-risk areas in Jamaica. The interventions will stimulate both behavioural and system changes. There are many other recommendations that are possible, given the content and analytical posture of this report. UNICEF Jamaica and its implementing partner, the JNF, will make resources available to ensure that these recommendations are voiced and presented to the relevant authorities as appropriate.
6.1 RECOMMENDATIONS FOR CHANGE IN BEHAVIOUR

1. To significantly improve and expand data collection and scientific analysis pre- and post- traffic crashes for children and youths.

2. To formalise school zones and that road safety infrastructure be a special feature of such zones.


4. To formulate policies for the TA and/or JUTC to grant grant Public School Transport (PST) to qualified individuals or companies. This must be accompanied by rigorous investigation before such licences are granted. Other child protection and advocacy groups must be involved in the process of approving and granting licences. The PST should be developed differently for urban and rural schools.

5. The NWA and local authorities revise the standards and specifications for crosswalk design and material to make these more visible and durable.

6. To advocate for national child and youth education campaign on the new road signs and markings on new roads and improved roadways.

7. To fast-track the replacement of old road signs to digital signage and improvements to worn-out signage, in particular, in urban areas and school zones.

8. To expand route taxi service to include specially designated child-safe taxis, with special licences to transport children and students.

9. That in areas that are not served by TA’s hackney carriage licencees, options should be on the table to allow informal ‘robot’ taxis to operate in such areas under some provisional license.

10. To improve the JUTC’s KPI to include tracking number of crashes involving injuries and fatalities by their buses, in particular children and students. This should also include the location of all crashes and the condition of the bus involved, as well as the driver’s demographic information, inter alia.

11. That the local authority under whose portfolio spatial and physical interventions will be affected be a major stakeholder in the planning, implementation, monitoring and evaluation process. Moreover, approval may be necessary from the LA for the plans and programmes to be implemented.

12. To highlight the importance of the NWA as an important partner in effecting changes to crosswalks and any other traffic management system. The report does not assume automatic participation of the NWA or other relevant public or statutory agencies.

13. To assess the knowledge of school children on road and vehicle safety.

14. To install rumble lines approaching all pedestrian crosswalks islandwide. For ‘straight’ roads and highways, all pedestrian crosswalks should be fitted with rumble lines beginning at a distance of 20m from either side (direction) of the crosswalk. Spaces at 1m and spacing getting progressively closer together nearing the crosswalk.

15. Within urban areas where traffic is slow, all crosswalks should also be fitted with rumble lines and the inclusion of raised crosswalks to approximately 1ft or 31cm in the centre above the road surface.

16. To maintain all crosswalks or any traffic management systems nearing JN or JNGI buildings and facilities should be properly maintained and marked with bright colours. JN and its affiliates should be associated with crosswalks and such infrastructure. This should be the cultural shift for JN. This is seen with crash hotspot place signs similar to those installed by the SDA Church.

17. Rumble lines at all T and Y junctions (not so critical at four-way intersections).

18. To use bright reflective painting on all signposts (electronic and manual).

19. To regularly de-bush streets/road signs obscured by overgrown vegetation!

20. To introduce a compulsory driving exam in secondary schools.

21. To include road sign recognition in driver examinations, as well as use of technology for simulated driving course before doing the road test.
22. To install signs and visible demarcations of school zones.

23. To formulate a policy on public school bus transportation that explicitly justifies the need to separate children (going to and from school) from adults and adult situations and environments. This will improve performance in school and reduce the transfer of negative morals and values from adults to children that currently takes place on public transports.

24. Gender- and age-sensitive road safety advertisements.

6.2 RECOMMENDATIONS FOR SPATIAL AND STRUCTURAL CHANGE

These sets of recommendations point to changes to physical and structural systems that are dedicated to road and traffic management. These include changes to road designs and alignments and changes to traffic management systems and street signage, making them more child sensitive.

The tripartite association among the demographic and other social characteristics of the vulnerable population of children and youth (victim), the perpetrators (adult and youth drivers and motorcyclists), as well as the physical and spatial characteristics of the space where crash fatalities occur is known. This important tripartite correlation significantly assists in defining the components of physical and social intervention.

1. To fast-track plans and policies on school zoning, with special emphasis on spatial and physical standards for school design and construction and location. The aim of creating safe schools should be extended to the area immediately surrounding the school.

2. Strategic and comprehensive investment in road infrastructure: Road investment will continue to increase exposure to the risk of road traffic deaths and injuries, unless a coherent action plan for road safety is simultaneously put in place. The World Bank has internal guidelines on the road safety component that should be included in road infrastructure investments. The Commission for Global Road Safety (CGRS) recommends that at a minimum, 10% of all road infrastructure projects should be committed to road safety and that this principle should be rigorously and consistently applied by all bilateral and multilateral donors. Jamaica can adopt this guideline in its road investment portfolio.

3. To install real-time sensitive traffic management systems (e.g., digital speed meters with sensors in the road, that adjust the speed limits based off real-time sensed traffic volume, etc.)

4. To install road signs and pedestrian crossings that can be utilised by persons with disabilities (brailed signs and rumble-lined crosswalks and walkways/sidewalks for visually challenged).

5. To increase the turning radius for major intersections.

6. To include social estimation of age, if real age cannot be determined at crash scene. For example, a child, a teenager, an elderly person, a middle age woman/man or a middle age man! – this is better than saying age of deceased unknown.

7. To improve the lighting, street signage and road markings to the East to West, North Coast Highway from Ocho Rios to Montego Bay. Material for marking should be reflective and raised (as in rumble lines).

8. To equip the police with handheld digital devices to record real-time traffic and traffic crash data to the RSH. Conversely, these hand held devices can also give the traffic police round the clock access to data from the RSH.

9. To expand the physical structure of the RSH to accommodate a resource centre and library, where all literature and material on road safety can be housed and accessed by the public. The RSH should be appointed a manager, who has day to day management of the facility regarding booking and scheduling.

10. To utilise computerised driving simulations and modelling – regular simulations in schools, similar to earthquake and fire drills. Coordinated by JNF, NRSC and other partners.

11. To invest in speed reduction traffic management infrastructure - a child hit by a car going at 20 miles an hour (30 km/h) can survive. When this speed increases to 50mph (80km/h), most children will die. Over 3,000 children are killed or seriously injured on the world’s roads daily. Failing to address vehicle speed amounts to failure in protecting children from speeding motor
vehicles, causing them death and/or serious injury.

12. To improve the collection, management and analysis of road safety breaches.

14. That intervention for educational programmes be gender sensitive given literacy rates and primary school advancement rates.

15. To fast-track the preparation of the National Spatial Plan and National Urbanisation and Plan and Policy 2070.

16. To formulate and implement a national urban and rural school zoning policy that has strong standards and expected behaviour for traffic movement and stringent sanctions for breaches of such standards and behaviours.
7.1 INTERVENTION PRIORITISATION

The process of determining and prioritising the schools for intervention of child road safety investment at both physical and social levels involves the assessment of at least four factors:

1. Identifying the location of specific schools

2. Assessing schools’ location for the presence or absence of child road safety infrastructure and services

3. Assessing the traffic patterns (e.g., speed limit, major road users and traffic composition) within the school zones

4. Determining the history and pattern of road traffic crashes causing both injury and fatality within school zones

While the first to third factors are direct contributors to vulnerability, factor four is a measure of actual or realised event risk. All factors are important in determining vulnerability. However, not all vulnerable schools will have experienced a motor vehicle crash or fatality. Vulnerability is a measure of potential for a crash event given the presence of specific conditions.
at a given time and place. Greater impact will be made by targeting those schools with multiple age cohorts (e.g. primary and junior high or primary and high), as against those schools that represent a narrower age cohort (e.g., primary schools or high schools) alone.

Based on analysis of school locations and the distribution within each parish, and overlaying this with the details of crash injury and fatality for each respective parish, the top 10 parishes for intervention are presented in Table 11.

After consultation with a group of key stakeholders and considering the resource needs of the project, a second attempt was made to shortlist the most critical areas and schools. This listing is shown in Table 12. Here also a more detailed allocation of physical interventions associated with each school is made along with the type of assessment method and resource needs to successfully execute the project.

7.1.1 PROJECT STARTING POINT

Children going to and from school are extremely vulnerable to road traffic crashes and crashes resulting in injuries and fatality.

Children also suffer long-term loss of a parent or both.

Because of their fragile biological make-up, the injury that children suffer during a crash may be life-changing, causing serious disabilities and dismemberment.

7.1.2 PRIORITY AREAS FOR PLANNING

Making schools and other spaces frequented by children, safer and more child sensitive by investing in both social and physical infrastructure.

Increasing the awareness of children of vulnerable places and situations that may expose them to road crash injury and fatality.

Continuing to expose adult and youth road users who are potential hazards to convert road-using situations into actual disastrous outcome to children and youths.

7.1.3 PROJECT IMPACT

Reduction in child injuries and fatalities on Jamaican roads, in particular making school zones safer.

Improvements in child safety street and road infrastructure

Increase in child road safety and educational programmes in schools and in homes.

7.1.4 MONITORING AND EVALUATION RESPONSIBILITY

Assessment of before and after intervention through:

Interviews with parents, school principals, students, frequent motorists in school zones, traffic wardens and teachers on behavioural change and awareness levels.

Pedestrian counts, vehicle speed measurement, level of conformity to road safety signs and instructions.

Public (students, parents, teachers and drivers etc.) attendance to road safety use seminars and workshops.

7.1.5 PROJECT TIME-FRAME

Six to eight months, with multiple target group interventions.
## Table 1: Prioritised top 10 parishes and selected schools for intervention and programme assessment

<table>
<thead>
<tr>
<th>Parish</th>
<th>Name/Type of school</th>
<th>Type of intervention</th>
<th>Type of assessment and KPI</th>
<th>Evaluation instrument and resource need</th>
</tr>
</thead>
<tbody>
<tr>
<td>KMA (Kingston &amp; St. Andrew)</td>
<td>Excelsior High School The Queen’s School Red Hills All Age</td>
<td>√ √ √ √ √</td>
<td>√ √ √ √ √</td>
<td>Develop and approve crosswalk design specifications</td>
</tr>
<tr>
<td>Westmoreland</td>
<td>Little London High Salem Primary and Junior High Ferris Primary Coke’s View Primary</td>
<td>√ √ √ √</td>
<td>√ √ √ √ √</td>
<td>Develop and design sidewalk design and finishing</td>
</tr>
<tr>
<td>St. James</td>
<td>Catherine Hall Primary and Infant Flankers Primary and Junior High</td>
<td>√ √ √</td>
<td>√</td>
<td>Develop instrument for pedestrian count</td>
</tr>
<tr>
<td>St. Catherine</td>
<td>Crescent Primary White Marl Primary and Junior High</td>
<td>√ √</td>
<td></td>
<td>Road Safety Knowledge Retention Survey (RSKRS) instrument</td>
</tr>
<tr>
<td>St. Ann</td>
<td>Chalky Hill All Age Ocho Rios High</td>
<td>√ √</td>
<td></td>
<td>Develop road safety education curriculum</td>
</tr>
<tr>
<td>Clarendon</td>
<td>Porus High Osbone Store Primary</td>
<td>√ √</td>
<td></td>
<td>Develop instrument for pedestrian count</td>
</tr>
<tr>
<td>St. Thomas</td>
<td>Yallahs Primary Port Morant Primary &amp; Junior High</td>
<td>√ √</td>
<td></td>
<td>Develop instrument for pedestrian count</td>
</tr>
<tr>
<td>Manchester</td>
<td>May Day Primary &amp; High Porus Primary</td>
<td>√ √</td>
<td></td>
<td>Develop instrument for monitoring behavioural change</td>
</tr>
<tr>
<td>St. Mary</td>
<td>Castleton Primary &amp; Junior High Highgate Primary &amp; Junior High</td>
<td>√ √</td>
<td></td>
<td>RSU of MTM weekly crash report</td>
</tr>
<tr>
<td>St. Elizabeth</td>
<td>Holland Primary Santa Cruz Primary &amp; Junior High</td>
<td>√ √</td>
<td></td>
<td>Engineering standards for material performance test</td>
</tr>
</tbody>
</table>

## Table 2: Prioritised listing of local schools for intervention and programme assessment
### Table 1: Prioritised listing of local schools for intervention and programme assessment

<table>
<thead>
<tr>
<th>Parish</th>
<th>Name and Type of School</th>
<th>Type of intervention</th>
<th>Type of assessment/KPI</th>
<th>Evaluation instrument and resource need</th>
</tr>
</thead>
<tbody>
<tr>
<td>(KMA) - Spanish Town Rd.</td>
<td>Denham Town Primary</td>
<td>☑️</td>
<td>☑️</td>
<td>☑️</td>
</tr>
<tr>
<td></td>
<td>Denham Town High</td>
<td>☑️</td>
<td>☑️</td>
<td>☑️</td>
</tr>
<tr>
<td></td>
<td>Tivoli Gardens High</td>
<td>☑️</td>
<td>☑️</td>
<td>☑️</td>
</tr>
<tr>
<td></td>
<td>St. Andrew Technical High</td>
<td>☑️</td>
<td>☑️</td>
<td>☑️</td>
</tr>
<tr>
<td></td>
<td>Charles Chin Loy Basic</td>
<td>☑️</td>
<td>☑️</td>
<td>☑️</td>
</tr>
<tr>
<td></td>
<td>St. Catherine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Crescent Primary</td>
<td>☑️</td>
<td>☑️</td>
<td>☑️</td>
</tr>
<tr>
<td></td>
<td>White Marl Primary and Junior High</td>
<td>☑️</td>
<td>☑️</td>
<td>☑️</td>
</tr>
<tr>
<td>Clarendon</td>
<td>Hazard Primary</td>
<td>☑️</td>
<td>☑️</td>
<td>☑️</td>
</tr>
<tr>
<td>Manchester</td>
<td>Porus High</td>
<td>☑️</td>
<td>☑️</td>
<td>☑️</td>
</tr>
<tr>
<td></td>
<td>May Day Primary &amp; High</td>
<td>☑️</td>
<td>☑️</td>
<td>☑️</td>
</tr>
</tbody>
</table>


6. Centre for Disease Control. (2016), Road Traffic Injuries and Deaths—A Global Problem


9. FIA Foundation (2016), Make Roads Safe: Action on global road traffic injuries


27. Retrieved from https://www.openstreetmap.org/#map=9/18.0936/-77.3328,


32. Tortello, R., (2006), Pieces of the Past: A Stroll Down Jamaica's Memory Lane


39. Water resources Assessment of Jamaica, US Army Corps of Engineers Mobile District & Topographic Engineering Centre


42. WHO (2015), Global Status Report on Road Safety 2015


FIGURE 6

Breakdown of Road Accident Deaths for January to December 2017

FIGURE 14

Per parish distribution of Independent Schools
FIGURE 15

Per parish distribution of all schools and Child road Traffic Fatality for 2012 to 2017

FIGURE 16

Per parish distribution of road traffic fatality within 100m of schools for 2000 to 2010
**FIGURE 31**

Per parish distribution of private high school and Child RTF

- Number of schools and number of CRTF
- Parish:
  - St. Elizabeth
  - Kingston
  - St. James
  - St. Andrew
  - Manchester
  - St. Catherine
  - Hanover
  - Trelawny
  - Clarendon
  - St. Ann
  - Portland
  - St. Thomas

**FIGURE 32**

Per parish distribution of Public High School and CRTF

- Number of Public High School and CRTF
- Parish:
  - St. Elizabeth
  - Kingston
  - St. James
  - St. Andrew
  - Manchester
  - St. Catherine
  - Hanover
  - Trelawny
  - Clarendon
  - St. Ann
  - Portland
  - St. Thomas
FIGURE 33

Per parish distribution of Private Preparatory School and CRTF 2017

- # of School
- RTF

Number of Prep. School and CRTF

FIGURE 34

Per parish distribution of Public Primary School and CRTF 2017

- # of School
- RTF

Number of Primary School and CRTF