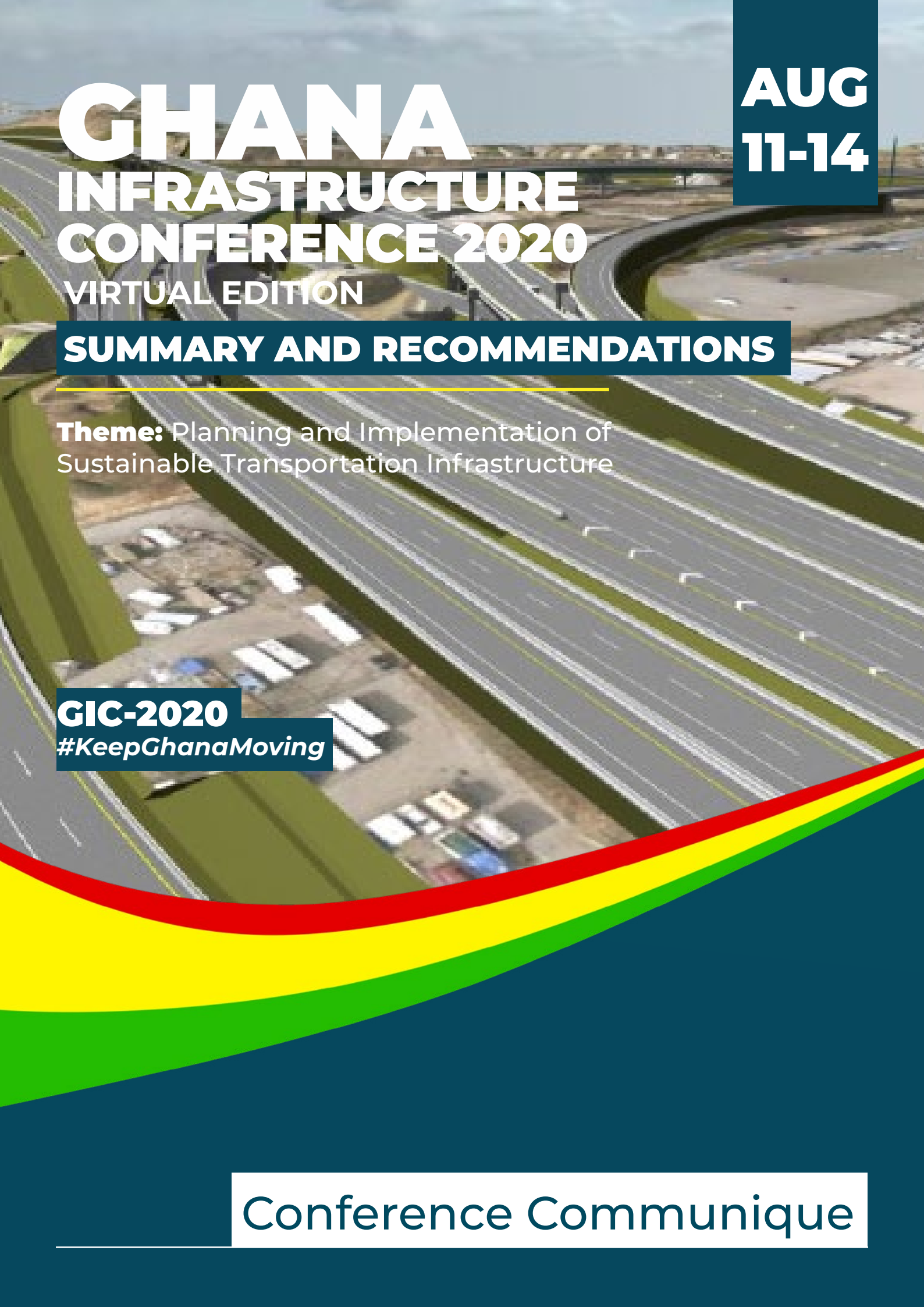

GHANA INFRASTRUCTURE CONFERENCE 2020

VIRTUAL EDITION

AUG 11-14

SUMMARY AND RECOMMENDATIONS

Theme: Planning and Implementation of Sustainable Transportation Infrastructure

GIC-2020

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Conference Communique

GIC-2020

Conference on

"Planning and Implementation of Sustainable Transportation Infrastructure"

Organizers

GTPF
Ghana Transportation Professionals Forum

GHANA INSTITUTION OF ENGINEERING

Regional Transport Research & Education Centre Kumasi-TRECK
KWAME NKRUMAH UNIVERSITY OF SCIENCE & TECHNOLOGY

Partnering with the following ministries

Ministry of Aviation
Ministry of Transport
Ministry of Roads and Highways
Ministry of Railways Development

EXECUTIVE SUMMARY

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The 2020 Ghana Infrastructure Conference (GIC-2020) was organized by Ghana Transportation Professionals Forum (GTPF) of North America in partnership with the Ghana Institution of Engineering (GhIE), and the Regional Transport Research and Education Center (TRECK) of the Kwame Nkrumah University of Science and Technology. Other collaborating partners included the major transportation Ministries in Ghana. GIC-2020 was planned as a follow-up to the 1st Ghana Infrastructure Conference (GIC-2018) held in Accra in August 2018. Due to the COVID-19 pandemic GIC-2020 was changed to a virtual conference.

The virtual conference, held online from August 11-14, 2020, was attended by more than 150 participants each day. The conference offered an opportunity for government officials, professional organizations, research agencies, and the public to engage in dialogue, deliberation, and learning on ways to address Ghana's infrastructure challenges with emphasis on the transportation sector. The theme of GIC-2020 was, **Planning and Implementation of Sustainable Transportation Infrastructure.**
Conference presentations covered four main thematic areas:

- **Emerging Technologies:** this focused on cutting edge ideas that could be of value in improving infrastructure maintenance and operations. Technologies included an Infrared Traffic Counter developed in Nigeria, and a novel approach to identifying Hot Zones at a macro-level.
- **Infrastructure: :** included on-going interchange construction projects, the newly deployed Traffic Management Center in Accra, and ongoing projects under development by the Ghana Ports Authority.
- **GTPF Initiatives:** included development of a unified road infrastructure guide for Ghana, and a program that brings together college students, engineering practitioners, and communities to address practical problems through science, technology, and engineering methods.
- **Policy:** included the need to account for earthquake impacts in infrastructure delivery, impacts on COVID-19 on the public, and a forum on challenges and impacts of corruption on infrastructure delivery.

These and several interesting presentations are provided in **Table 1** grouped by the thematic areas. Recorded versions of the presentations are also available at the post-conference section of the conference website at https://www.gtpfconference.com/2020-post-conference.

A set of key action items were selected to be pursued based on discussions from the conference. These are:

1. Post Conference Webinar Series: During the post-conference survey participants indicated there was not enough time to ask questions and interact with presenters. In response, the conference planning committee is partnering with GhIE to conduct a series of 1-hour webinars that will feature the conference presenters. Each webinar will feature one presenter so there can be an in-depth presentation and enough time for audience participation. Webinar schedules will be posted at the GhIE website (https://ghie.org.gh/webinars-presentation/) and also announced on the GTPF Whatsapp forum and TRECK website and platforms.
2. GTPF White Paper Series: GTPF began an effort to publish a series of position White Papers on infrastructure issues in Ghana after GIC-2018. As a result of the initial effort, and discussions from GIC-2020 we have launched the Ghana Roads Infrastructure Guide (GRIG) Initiative which will focus on developing a road infrastructure guide for Ghana. The White Paper series will remain open as an avenue to raise awareness and serve as a catalyst to develop parallel initiatives to GRIG.
3. Ghana Roads Infrastructure Guide (GRIG): the presentation on A framework for Standardization and Integration of Design Practices for road infrastructure during GIC-2020 highlighted the inconsistency in the way current roadway infrastructure is designed and constructed. A key contributing factor is the absence of a single authoritative Design Guide for design of roadway projects (similar to the Greenbook) and associated infrastructure. A situation has evolved where design specifications are sometimes based on design standards of the foreign project sponsor. This initiative will tap into the collective brain trust of all members of GIC, namely practicing professionals and academics both in Ghana and abroad to develop a Road Infrastructure Guide for the country. The following sub-committees have been created to develop different sections of the Guide.

   Traffic Operations and Safety: focus on engineering, enforcement, education, evaluation, pedestrian crossings, ITS
   Asset Management: focus on pavement monitoring, signs, markings, work zones, human resource management
   Emerging Technologies: focus on autonomous vehicles, vehicle-to-infrastructure communication, big data, smart work zones
   Trade and Economics: focus on freight and commodity flows, marine ports, freight rail, air cargo.

Public Transportation, Bike and Pedestrian Facilities: focus on alternative modes of transport, rideshare, BRT, passenger rail, passenger air
Roadway and Pavement Design: focus on highway standards, maintenance, materials, roadside safety, drainage design
Bridge and Structures: focus on structural design, geotechnical, bridge construction, inspection, toll booth design, tunnels, retaining walls, overhead signs
Planning, Policy, and Right-of-Way: focus on advanced planning, legislation, transport policy, right-of-way encroachment
Environment and Energy: energy use, emissions, persons-with-disability, work zones
Financing and Toll Operations: focus on funding sources, funding allocation, alternative financing methods, categories of road infrastructure, agency coordination.

Detailed information on GRIG and its activities are available online at https://grigproject.com/

4 **G**hana **H**igh-Impact **P**ractice **E**ngineers **(GHiPEN) Initiative:** is a student community engagement program that brings together college students, engineering practitioners, and local communities to address practical problems in communities. The initiative empowers students to be able to develop, design, and implement engineering solutions to identified needs of communities under the guidance of engineering professional mentors. The goal is for students to gain hands-on problem solving experience, network with practitioners, and better understand the needs of the diverse communities they will serve as engineers.

5 **Ethics Primer Series for Engineers:** Initiative focused on conversations to address ethical issues in engineering professional practice through four presentations. Included a survey of practitioners' perceptions about GhIE operations in relation to ethics, coupled with experiences and observations about workplace ethics, culminating in the revision of the GhIE Code of Ethics.

The goal of the conference organizing partners is to have a GIC conference every two years. By working on the five initiatives above we expect by GIC-2022 our group will have credible products and evidence of activities that would have helped improve the state-of-the-practice of Engineering in Ghana.

TABLE 1

HIGHLIGHT OF PRESENTATION AND KEY ISSUES

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Group/ Theme	Title	GIC 2020 Summary/Highlight
Emerging Ideas/ Technologies	The Design, Fabrication, and Testing of Infrared Traffic Counter on Selected Major Dual Carriageways in Akure-Nigeria.	The aim was to design and fabricate an infrared traffic counter to collect traffic parameters and carry out a statistical comparison with automatic counters. The study was able to come out with an effective infrared counter that was 99% efficient than the automatic counter wand and was able to overcome the use of manual count methods.
	Innovative Intermodal Transport Options to Reduce Congestion along Coastal Highway Corridors in Ghana.	The purpose of the research was to explain the concept of innovation and present an alternative way to reduce congestion along the coastal highways. From the findings, water transport can serve as another medium of reducing congestion on the coastal highways for peri-urban commuters.
	Macroscopic Safety Models for Hot Zones Identification.	Planning level factors affecting road safety such as network and transport, demographics, land use, and socio-economic data were used to run the analysis for a more proactive approach to road safety. The study concluded that macroscopic safety studies provide a safety planning decision-tool which facilitates a proactive approach to assessing safety implications of alternative network planning initiatives.
	Road Traffic Data: Overview and Recommendations for Collection Methods and Applications in Ghana.	A comparative study between manual and automatic traffic data collection methods was conducted and the results showed that manual data collection leads to significant errors and the Ministry of Roads and Highways should consider investing ITS technologies to improve the data collection frequency and efficiency.

Group/ Theme	Title	GIC 2020 Summary/Highlight
Emerging Ideas/ Technologies (Cont.)	Africa Catalyst Project- Overview and Updates.	They seek to provide a solid niche for Professional Engineering Institutions in sub-Saharan Africa in areas such as new ideas/emerging technologies, promoting diversity and engineering careers, etc. and how these can help better situations in Africa and the world as a whole.
Infrastructure	Railway Development: Status and updates of the railway masterplan.	Development of a modern, national railway network to support Ghana's economic development and the goal is to link main population centers. A 1394km priority rail network is to be built at a total cost of 7.8 billion dollars and a standard-gauge national network development of 3,781 route-km at a total cost of 23 billion dollars. The Government of Ghana is developing the first 97 km and the remaining 700km (to Paga) will be developed on a public-private partnership basis.
	The Landscape of Port Development in Ghana.	Upgrading and expanding infrastructure, services, and performance at the Port of Tema and the Port of Takoradi.
	Design and Construction of the Pokuase Interchange and local roads- Planning and Construction Updates.	The project is 76% completed. The project faces challenges such traffic management on Accra-Kumasi road, relocation of Utility services and Project-Affected Persons (PAP'S), Outfall Drains for local roads and Covid-19 Pandemic.
	Tema Interchange: Design and Construction.	The project was an agreement between GOG and the Government of Japan. The first phase of the project was completed 16th May, 2020.

Group/ Theme	Title	GIC 2020 Summary/Highlight
Infrastructure (cont.)	Accra Traffic Management Center (ATMC)- Status and Updates	Monitoring and management of Traffic signal system, signal timing and operations,road network surveillance, restoring defective traffic signal equipment and detecting traffic incidents and reporting to appropriate authorities in Accra.
	Kotoka International Airport Updates	A brief history was presented on the commencement of the Ghana Civil Aviation Authority. An update of the current project works on going and other development such as current earthworks and the extension of the Taxiway was explained. The presentation also highlighted reason for investing into the Aviation sector such as Air Transport Contribution to GDP and international tourist arrival by air transport mode.
GTPF Initiatives	GTPF White Paper Series Technical Committees.	The White Paper Series is an initiative by the Ghana Transportation Professionals Forum (GTPF) to bring together professionals and expertise in selected subject areas. The selected transportation related subject areas, consolidated into 10 overarching categories include: Traffic Operations and Safety, Asset Management, Emerging Technologies, Trade and Economics, Public Transportation, Bike and Pedestrian Facilities Roadway and Pavement Design, Bridge and Structures, Planning, Policy, and Right-of-Way, Environmental, and Financing and Toll Operations. The white paper series seeks to answer questions such as i) What is the current state of practice of the subject area in Ghana? ii) How do we compare to the rest of the world? iii) Who or which entities are responsible for overseeing the subject area? iv) What resources (manuals, guidelines, data) currently exists for the subject area? and v) What are the existing needs and how do we go about fulfilling those needs?

Group/ Theme	Title	GIC 2020 Summary/Highlight
GTPF Initiatives (cont.)	Advancing the Development of a Transportation Data Hub.	The presentation showed the framework and a demonstration of a Data-hub developed by Dr. Dan Seedah using publicly available data on infrastructure inGhana. To successfully implement and deploy the concept it will require institutional commitment, human resources, technological infrastructure, and funding. There is the need to address institutional barriers in the form of seeking partnership, defining institutional roles and responsibilities, and engaging potential users.
	Primer to a National Infrastructure Dialogue.	The Ghana National Infrastructure Dialogue is conceived to initiate a holistic reflection on the comprehensive groups of infrastructure that are essential for nation-building, socio-economic development, and improvement in the quality of life. The dialogue is intended to paint a picture of the state of Ghana's infrastructure, identify problems, issues, and shortcomings to address, and describe future infrastructure needs for transportation, energy, municipal public facilities like water, supply and sanitation, communication facilities, educational facilities, and housing.
	A Framework for Standardization and Integration of Design Practices for Road Infrastructure (GRIG)	Standardization and integration of design practices for roadway infrastructure boosts consistency in roadway infrastructure related policies, serves as regulatory guide to design, construction and maintenance, budget allocation and customer satisfaction. Developing an all-inclusive Ghana Road Infrastructure Guide (GRIG) will help promote consistency, efficiency, cost savings and practitioner knowledge in road infrastructure planning, design, implementation, and delivery.

Group/ Theme	Title	GIC 2020 Summary/Highlight
GTPF Initiatives (cont.)	Establishment of a Student Community Engagement Program Initiative (GHiPEN)	Enable students to assess and prioritize the needs of a community. Enable students to develop alternative solutions, design, and build the preferred solution to a need identified as a top priority by a community. To provide networking opportunities for students through their interaction with practitioners and communities of diverse backgrounds. The proposed initiative would be known as the Ghana High Impact Practice Engineers.
Policies	Earthquake Considerations for Infrastructure Delivery.	Ghana has experienced earthquakes in the past, up to a magnitude of 7.1. A National Building Code provides some guidance, but it is limited in scope. It needs to be expanded to account for other infrastructure such as Water, Power, etc.
	Impacts of Urban Transports on Poverty Economic and Environmental Outcomes within GAMA.	High traffic congestion has a myriad of effects on environment. More effort needs to be put into sensitizing the public about the attitude towards people from disadvantaged groups. People from disadvantaged groups, especially those with disabilities, have major accessibility issues with the urban transport infrastructure and operations in Accra.
	Digging our Way out of Corruption: Is it Feasible	Ghana loses $3 billion every year to corruption. Corruption leads to bad political governance, low human capital and uncompleted projects. Factors that lead to corruption includes low salaries, greed, supplier-induced, and party politics. Ways out include assets declaration, regulatory frameworks, political commitment ethical values, teaching and training. Increased deterrence and actively confronting the culture of silence on ethical issues are recommended as well to curb corruption.

Group/ Theme	Title	GIC 2020 Summary/Highlight
Policies (cont.)	The Impact of COVID-19 Lockdown on Mobility and Environment.	Mobility to retail & recreation was down by 54%, mobility to the grocery & pharmacy was down by 40%, mobility to parks were down by 34%, mobility to transit stations was down by 58%, mobility to workplace was down by 58%, and mobility to residential areas went up by 22%. Air quality improved after lockdown in the Greater Accra Region.
	The COVID-19 Pandemic Social Distancing and Health Protocols in Public Transport and Its Impact on Safety, Secret of Passengers and Operational Sustainability.	Ineffective social distancing and poor adherence to protocol could endanger passenger safety and security for COVID-19. With less than 50% of normal farebox and fleet availability, public transport (PT) operators made substantial losses. Post lockdown PT operations was characterized by shorter headways and less waiting times at stops. Taxis made more income due to ease of social distancing perceived safety.
	Seatbelt Use Among Vehicle Occupant in Accra Area Ghana.	Seatbelt use for drivers is low and front-right passengers however drivers are more likely to wear seatbelts than front-right passengers in the Accra area. Seatbelt use rates are significantly higher within Accra city and major highways than at the outskirts of Accra city. The public must be educated on the mandatory nature of seatbelt use for all vehicle occupants as provided in the L.I. 2180. The National Road Safety Authority and the Ghana Police Service should embark on continuous education and enforcement of seatbelt use for passengers and drivers especially in the outskirts of Accra.

ORGANIZERS

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Ghana Transportation Professionals Forum

www.ghanatransportationprofessionalsforum.org

GTPF
Ghana Transportation Professionals Forum

The Ghana Transportation Professionals Forum (GTPF) founded January 2009 in Washington DC, is a group of multi-disciplinary professionals with a mission to promote innovation and sustainable developments in transportation infrastructure and related systems. The GTPF believes that its mission is critical to the long-term economic expansion of Ghana and is expressed through the following ideals:

1. Provide research and professional advice in the areas of transportation infrastructure and related systems planning, design, construction, operations, maintenance, security, ethics, environmental protection, and excellence in professional practice.
2. Provide a global platform for public expression and information exchange.
3. Foster creative collaborations with public and private agencies, communities, and academia regarding transportation- related issues.

Ghana Institution of Engineering

https://ghie.org.gh/

The Ghana Institution of Engineering (GhIE) was officially founded in 1968 and is the professional body responsible for certifying engineering practitioners (Professional Engineers, Professional Engineering Technologists, Engineering Technicians and Engineering Craftsmen) in Ghana.

Mission statement

To develop, promote and sustain sound and competent engineering practice in Ghana comparable to global standards.

Vision

To build and develop a strong world class professional body by promoting integrity, accountability, and excellence in the practice of engineering in Ghana.

Core objectives

- To establish and maintain a register of Engineering practitioners certified to Practice in Ghana
- To ensure that members of the Ghana Institution of Engineering maintain Professional standards, adhere to regulations, guidelines, and codes of ethics of engineering practice.
- To ensure that engineering practice in the country conforms to established technical, environmental and safety Standards.

Regional Transportation Research and Education Center (TRECK)

http://treck.knust.edu.gh/

Regional Transport Research & Education Centre Kumasi-TRECK
KWAME NKRUMAH UNIVERSITY OF SCIENCE & TECHNOLOGY

- TRECK is a Government of Ghana supported, World Bank financed premier Africa Centre of Excellence (ACE) for transport and logistics hosted at the College of Engineering, Kwame Nkrumah University of Science and Technology Kumasi.
- It maintains collaboration with national, regional and global academic partners and transport sector stakeholders.
- TRECK seeks to address the developmental challenges facing the transport sector within the sub-region through applied research, relevant educational programmes, provision of professional short courses, leadership and development of strategic networks.

Vision

Our vision is to be the leading hub for advancing applied research knowledge, developing and adapting innovative technologies, providing high quality training, leadership, and technology transfer in transport, mobility and integrated logistics.

Mission

Our mission is to support the improvement in the transport system by:

- Providing the environment for the training of high calibre transport professionals and mentoring academics with world class expertise;
- Conducting inter-disciplinary research with academic and relevant national and regional industries to support strategic directions and development;
- Collaborating with other researchers for knowledge sharing and advancement;
- Being a key training centre for transport and road safety resource;
- Being a stakeholder in the coordination support for the integration and growth of all modes of transport and,
- Establishing a data hub to support research and industry.

TRECK Sponsors

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Sponsors

Intermodal Logistics (IML) Consulting was founded in 2013 as a transportation planning and consulting firm. Since then we have expanded our range of analytical services and now develop analytical, modeling, and custum software development tools for our clients. If it involves making sense out of data (Big or Small) we are here to support you.

Kyneesis Engineering (Kyneesis) is a transportation engineering consultancy firm with a focus on working to transform the movement of people and goods in Ghana, the West Africa region, and beyond. Our core mission is to leverage the varied international and local experience of our staff and strategic partnerships to influence the planning and subsequently the availability and provision of safe, affordable, efficient, and high-quality transport mode options for all users in an efficient, context sensitive, and sustainable manner.

Celsus Corporation is an international consulting firm that helps governments and other infrastructure agencies to address the various tasks faced by civil engineers and managers at each of the several phases of infrastructure development – needs assessment, planning, design, construction, operations (including monitoring and maintenance), and end-of-life.
Continuing and emerging trends have spawned the need to identify, adopt, or synthesize enhanced analytical tools, technology, and businesslike approaches for infrastructure decision making. We carry out advanced data analytics, sensing for smart and intelligent infrastructure, and automation of functions, and connectedness of infrastructure system components. This way, we assist governments and other infrastructure owners to ensure that their infrastructure investment decisions are more transparent and accountable.

PLANNING COMMITTEE

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Members of the Conference Planning Committee

Ing. Yolanda Oliver -Commey, P.E., P.T.O.E., Planning Co-Chair, Pennoni Associates Inc., USA
Prof. Samuel Owusu Ababio, P.E., Planning Co-Chair, University of Wisconsin-Platteville, USA
Prof. Samuel Labi, P.E., Planning Co-Chair, Purdue University, USA
Dr. Margaret-Avis Akofio -Sowah, WSP, USA, President – GTPF, USA
Ing. Prof. Rev . Charles Anum Adams, TRECK Centre Director, KNUST
Ing. Kwabena Agyei Agyepong, Executive Director-GhIE
Ing. Leslie Alex Ayeh, President – GhIE
Ing. Hector Boye, Acting Director of Operations – GhIE
Prof. Cornelius Nuworsoo , AICP, Cal Poly, USA
Dr. Alexander Appea, P.E., Virginia Department of Transportation , USA
Dr. Dan P. Seedah, P.E., Jacobs, USA
Dr. Felix Ammah-Tagoe, Eternational, USA
Dr. Jojo France-Mensah, Boston Consulting Group, USA
Dr. Julius Codjoe, P.E., Louisiana Transportation Research Center, USA
Dr. Kofi Adanu, Alabama Transportation Institute
Dr. Kwaku Frimpong Boakye, Arcadis US, Inc. Vice President – GTPF, USA
Dr. Samuel Essien, University of Maryland , USA
Dr. Senanu Ashiabor, President and CEO, Intermodal Logistics, Inc., USA
Dr. Stephanie Amoaning -Yankson,AECOM , USA
Ing. Dr. Abena Obiri-Yeboah, Kumasi Technical University, Ghana
Ing. Dr. Bismark Agbelie, Catholic University of America
Ing. Dr. Patrick Bekoe, P.E., GhIE, Department of Feeder Roads, Ghana
Ing. Dr. Williams Ackaah, Building & Road Research Institute, Ghana
Ing. Collins Boadu Donkor, Ghana Highway Authority
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Ing. Joseph K. Oddei, GhIE
Ing. Magnus Lincoln Quarshie, CEO, Delin Consult, Accra, Ghana
Ing. Mavis Allotey, Ghana Ports and Harbours Authority
Ing. Winfred Aniagyei, GhIE
Abdul Rashid Kanda Mussah, University of Missouri-Columbia
Afia Serwa Yeboah, Louisiana Transportation Research Center, USA
Ekow Yankson, Jan de Nul Group, Ghana
Eugene Antwi Bosiako, University of Kentucky, USA
Grace Ashley, University of Delaware, USA
Hilda Ofori Addo, Louisiana Transportation Research Center, USA
Joseph Worlanyo Segbefiah, TRECK, KNUST, Ghana
Mamaa Kuukua Grant Money, Associated Consultants Ltd., Ghana
Mary Kissi, Transportation Research Board, USA
Prince Frimpong Osei, Ghana Standards Authority, Ghana
Richard Dzinyela, University of South Alabama
Samuel Asare-Duah Jnr., TRECK, KNUST, Ghana
Stephanie Adams, KNUST, Ghana
Yaa Amanua Osafo, Kittelson & Associates , USA

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**Kwame Nkrumah University of Science and Technology (KNUST)*
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For more information and to enquire about the next Ghana Infrastructure Conference (GIC) Series contact:

Yolanda Oliver-Commey, PE, PTOE yolivercommey@pennoni.com |+1 4047234945)
Samuel Owusu-Ababio, PE, PhD owusu@uwplatt.edu | +1 (608) 642-0587)
Rev. Prof. Charles A. Adams carladams1702@yahoo.com | +233 24 378 8289)
Patrick A. Bekoe, PhD,PE pabekoe@gmail.com | +233 26 843 0889)

Designed by Erech Asante

Contact :
E-mail: erechasante@gmail.com
Whatsapp : +233248167944