



Joint Commission on Technology and Science

2021 Final Report

<http://dls.virginia.gov/commission/jcots.htm>

The Joint Commission on Technology and Science (the Commission) met four times in 2021 with Delegate C.E. Cliff Hayes, Jr., chair, presiding. The Commission discussed consumer drone delivery, cybersecurity, carbon capture, robotics, and the impact of climate change on Virginia's coastal areas. Materials presented at the meeting are accessible through the [*Commission's meetings webpage*](#). Full videos of each meeting are archived on the [*House video streaming webpage*](#).

Information presented at the meetings is summarized here.

Membership

Delegate C.E. Cliff Hayes, Jr. (chair)	Senator Ghazala F. Hashmi	Delegate Kathy J. Byron
Senator Adam P. Ebbin (vice-chair)	Senator David W. Marsden	Delegate Glenn R. Davis
Senator John A. Cosgrove	Delegate Terry L. Austin	Delegate Kenneth R. Plum
Senator Barbara A. Favola	Delegate Hala S. Ayala	Delegate Danica A. Roem

The Work Group met virtually on May 4, 2021, to discuss the following topics:

Workgroup Updates

Delegate C.E. Cliff Hayes, Jr.

The Data Privacy & Protection advisory committee concluded its work in November of 2019. Delegate Hayes and Senator Marsden introduced HB 2307 and SB 1392 (2021, Special Session I). The Chairman dissolved this advisory committee, and a new work group will be formed pursuant to the second enactment of HB 2307 and SB 1392 (2021, Special Session I) to study findings, best practices, and recommendations prior to the January 2023 implementation of the Act. The remaining advisory committees will be meeting during the 2021 interim session.

Presentation: Wing

Nick Devereux, Policy and Government Affairs, Wing (an Alphabet Company)

Mr. Devereux presented on the work Wing, a subsidiary of Alphabet, is doing in drone delivery. Currently, Wing is operating a pilot program, the only one of its kind in the country, delivering consumer goods directly to homes in Christiansburg, Virginia. Members asked about measures to insure package delivery and protect consumer privacy. Mr. Devereux explained that several measures are built into the app to protect customer credit card information. Additionally, the drone pilot system is run autonomously and monitored by a pilot communicating with the drone to find the most efficient route. Finally, he highlighted Wing's commitment to locally train and hire drone operators and customer service representatives through a partnership with Virginia Tech. Mr. Devereux concluded the presentation by reiterating the company's desire to train and hire Virginians in the area by emphasizing current negotiations with New River Community College to structure a curriculum designed to train students for new opportunities at Wing.

Sea Lev Level Rise and Coastal Flooding Study Update

Dr. Jon Goodall, University of Virginia, co-chair, Virginia Academy of Science, Engineering and Medicine (VASEM) Coastal Flooding Study Committee

Dr. Goodall reported on the Sea Level Rise and Coastal Flooding study commissioned by JCOTS in December of 2019. He stated that five meetings were held in 2020 to outline a draft report. The final report will highlight recommendations and specific policy decisions to consider implementing within the Commonwealth. Members inquired whether public hearings would be incorporated in preparing the report. Dr. Goodall noted the Committee's approach is modeled after studies by the National Academies of Science which, by design, do not include a public comment process. He specified that the report would be designed to succinctly report the science of sea level rise and coastal flooding. Dr. Goodall anticipates the final draft of the report to be complete by January 31, 2021.

The following is a summary of the information presented at the Work Group's meeting on August 17, 2021, in Richmond:

Presentation: Ethical Hacker

Chris Roberts, vCISO, Hillbilly Hit Squad

Mr. Roberts provided the Commission with an overview on cybersecurity, vulnerability detection, and counter threat intelligence. He recounted experiences of taking over an airline flight path mid-flight and relocating millions of cattle by exploiting GPS vulnerabilities in real



time to demonstrate the wide scope of the failure to maintain adequate cybersecurity protocols. Members asked what individuals could do to secure their data and online presence as well as strengthen state infrastructures against potential bad actors. Mr. Roberts emphasized educating humans to "think before they click." He stressed the biggest vulnerability as well as the biggest area for growth is educating humans on proper cybersecurity practices. Mr. Roberts concluded his presentation by suggesting strengthening accountability for poor cybersecurity practices throughout the entire chain of data processes.

Presentation: Impact of Climate Change on Virginia's Coastal Areas Final Report

Dr. Jon Goodall, University of Virginia, co-chair, Virginia Academy of Science, Engineering and Medicine (VASEM) Coastal Flooding Study Committee

Dr. Goodall presented the final report created pursuant to House Joint Resolution No. 47 (Sickles) and Senate Joint Resolution No. 38 (Cosgrove) from the 2020 Session for which the Commission created the VASEM Coastal Flooding Study Committee (the Study Committee). Multiple meetings were held throughout 2020 to research, outline, and draft a report. The final report sets forth recommendations and specific policy decisions for the General Assembly to consider implementing within the Commonwealth. The Study Committee recommended several legislative initiatives to address the impact of climate change such as:

- Establish a structure for more effective collaboration and coordination across government, business, and academia on intersecting challenges of climate change modeled on a statutorily created council such as the Council on Virginia's Future;
- Address gaps in policy and procedure by creating substantive budgetary policy and procedure for climate impact review as part of relevant state agency planning that:
 - Provides equitable opportunity for all stakeholders, including members of underserved or disadvantaged communities; and
 - Incorporates and facilitates feasible resilience strategies; and
- Create, fund, and staff a Climate Change and Resilience Resource Center for Virginia to coordinate and support critical data collection and technology transfer across the Commonwealth.

Dr. Goodall reported that the Study Committee was of one mind that the impact of climate change will not be restricted to coastal areas but will be Commonwealth-wide. The impact will first be felt on the coast because of sea level rise; however, weather patterns will affect the entire Commonwealth. He stressed that the effects of climate change are already occurring and will continue to affect the environment and economy for at least the next 30 years. Dr. Goodall concluded the presentation by emphasizing the importance of acting on the Study Committee's recommendations to coordinate a coherent response to the impending impact of climate change within the Commonwealth.

The Final Report can be found [*here*](#).

At the conclusion of the presentations, members of the Commission thanked the Study Committee for their thoroughly researched study and discussed next steps. Several members requested links to disseminate the final report to their constituents. Additionally, members recommended that the Commission send a letter sharing the report with the Governor's Administration. The Commission generally seemed favorable to the recommendation, with many



members expressing the importance of acting on the Study Committee's recommendations during the next session of the General Assembly.

The following is a summary of the information presented at the Work Group's meeting on September 13, 2021, in Richmond:

Presentation: Wing

Nick Devereux, Policy and Government Affairs, Wing (an Alphabet Company)

Mr. Devereux presented on Wing, a company that offers lightweight on-demand package delivery via drone directly to customers' homes. He explained that the company operates in Christiansburg, which is its only location in the United States, Finland, and Australia and stated that the goal of the company is to improve access to medicine and food while lowering emissions. Commission members asked about issues with regard to multiple public and private drone operators flying drones below 400 feet. Mr. Devereux emphasized that a collaborative approach and app-based traffic management tools ensure that drones can operate safely in the same air space. He highlighted Wing's commitment to partner with community colleges in an effort to strengthen Virginia's workforce to support Wing's latest ventures. Mr. Devereux concluded his presentation by reiterating Wing's commitment to continue and expand its pilot drone delivery program in Virginia.

Presentation: Carbon Capture Technology Final Report

Tara Illgner, Commonwealth of Virginia Engineering and Science (COVES) Fellow, University of Virginia

Ms. Illgner presented on carbon capture and sequestration options and zero-emission power plants and electricity generation. During the 2021 Special Session I, the General Assembly passed SB 1374 (Lewis), which created the Carbon Sequestration Task Force for the purpose of studying carbon sequestration, including possible methods of increasing carbon sequestration within the natural environment. Ms. Illgner stated that also exploring carbon capture through technological processes, such as the Allam-Fetvedt Cycle, could result in low-cost, emission-free growth in electricity generation in Virginia. Commission members asked for clarification of the Allam-Fetvedt Cycle. Ms. Illgner described the process as one of capturing, compressing, and liquefying carbon dioxide and using it as a renewable resource to power hydroelectric turbines. She concluded by emphasizing that new technologies offer an option for reaching Virginia's 2045 carbon emissions goals.

The full issue brief can be found [here](#).

The following is a summary of the information presented at the Work Group's meeting on October 13, 2021, in Richmond:

Presentation: SVT Robotics

A.K. Schultz, CEO, SVT Robotics

Mr. Schultz presented on SVT Robotics, a company based in Norfolk that deploys warehouse robotics systems based on software technology. He said the company is "like Bluetooth for robotics." SVT Robotics is currently in the planning process for securing a 60,000-square-foot location to gather over 100-plus robotics companies in one central hub to serve as a "neverending trade show." The goal is to create a robotics hub centered on the logistical center of Hampton



Roads to attract talent and capital to the region. Members asked about the feasibility of remote work. Mr. Schultz noted that while some aspects of the job can be done remotely, things like brainstorming are best done in person. Mr. Schultz also highlighted that SVT Robotics has and is currently attracting interns from universities and high schools in the Hampton Roads area. He noted that tech talent in Virginia usually leaves for big tech cities such as Boston and Austin. However, the presence of small companies attracts both the tech talent and larger tech companies to other cities, he said. He cited Pittsburgh and its recent success becoming a hub for artificial intelligence and self-driving cars spurred by Carnegie Mellon University and the growth of smaller companies in the area. Members underscored better promotion of current tools such as the economic partnership and Commonwealth talent accelerator available to promote startups in the Commonwealth. Mr. Schultz concluded by highlighting access to national capital, affordable talent, affordable infrastructure (rent, utilities, etc.), direct flights to Norfolk, and access to grants and subsidies as essential to attracting tech talent to the Commonwealth.

Advisory Committee Final Reports

Senator Barbara A. Favola, chair, Children's Online Protection Advisory Committee

The Children's Online Protection Advisory Committee (the Advisory Committee) was briefed on several bills¹ referred to JCOTS from the 2020 session. The Advisory Committee also considered the recently passed Virginia Consumer Data Protection Act (the Act) and wanted to flag the monetary penalty and fines mechanisms for consideration by the Consumer Data Protection Work Group. Senator David W. Marsden noted there will be some refinement in the enforcement section this upcoming session to allow the Attorney General greater breadth in enforcing the Act before it goes into effect in 2023. Senator Favola concluded by thanking the members of the Advisory Committee for their efforts.

Delegate Hayes, chair, Facial Recognition within Law Enforcement Advisory Committee

Delegate Hayes reported on the work of the Facial Recognition within Law Enforcement Advisory Committee. The issue was referred to the JCOTS prior to the introduction of the Act. The issue was removed from consideration from this bill and the topic was referred to JCOTS for further study. On a parallel path, Delegate Lashrecse D. Aird introduced HB 2031. The bill put a moratorium on law enforcement purchasing and deploying facial recognition technology unless expressly authorized by statute. As a result, legislative options have been put on hold. After the upcoming session, JCOTS will study the issue to carve out narrow exceptions as needed.

For more information, see the [*Joint Commission's website*](#) or contact the Division of Legislative Services staff:

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¹ HB 952, 955, and 956 (2020 Session)

