GOVERNMENT-UNIVERSITY-INDUSTRY-RESEARCH ROUNDTABLE

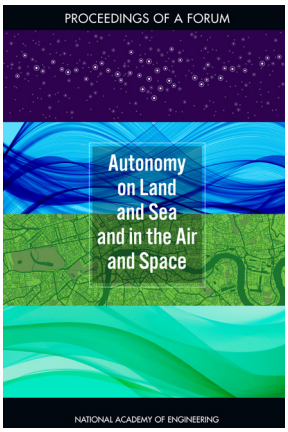
List of selected reports from the National Academies Press related to the meeting topic.

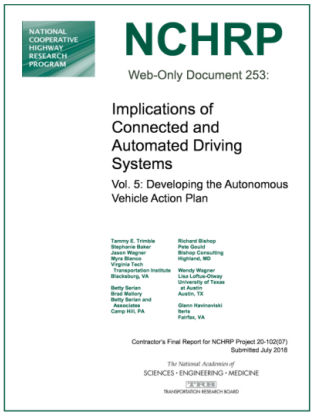
5G: FIFTH GENERATION WIRELESS COMMUNICATIONS (DEPS/ICSB 2018)

On November 13, 2018 the National Academies of Sciences, Engineering, and Medicine conducted a colloquium to explore the architectures and technologies that will form the basis of the upcoming 5G system and how they will enable a host of new applications for the user. The colloquium program included an assessment of how these applications will affect the U.S. and the world. This unclassified event featured individual presentations followed by a panel discussion. For more information: http://sites.nationalacademies.org/DEPS/icsb/DEPS_189075.

AUTONOMY ON LAND AND SEA AND IN THE AIR AND SPACE: PROCEEDINGS OF A FORUM (NAE 2018)

Autonomy is multidisciplinary, multicultural, and global in its development and applications. Autonomous vehicles rely on communications, artificial intelligence, sensors, virtual and enhanced reality, big data, security, and many other technologies. Each year the annual meeting of the National Academy of Engineering highlights an engineering theme that is quickly developing in the world. The theme of the 2017 meeting was autonomy on land and sea and in the air and space. This publication summarizes the presentations and discussions from the meeting.



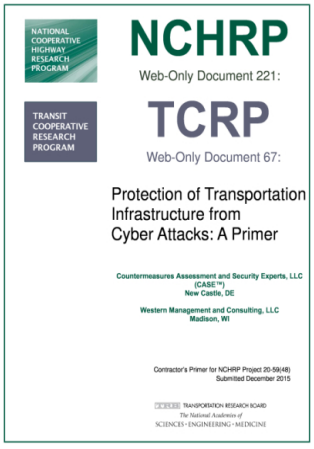


IMPLICATIONS OF CONNECTED AND AUTOMATED DRIVING SYSTEMS, VOL. 5: DEVELOPING THE AUTONOMOUS VEHICLE ACTION PLAN (TRB 2018)

TRB's National Cooperative Highway Research Program (NCHRP) Web-Only Document 253: Implications of Connected and Automated Driving Systems, Vol. 5: Developing the Autonomous Vehicle Action Plan provides technical background on developing Volumes 1 through 4 of NCHRP Web-Only Document 253. It includes further background on terminology and definitions used in the suite of reports; legal and regulatory reviews and needs assessment; state legal and regulatory audit; a prioritization and harmonization analysis; and a Connected and Automated Driving Systems (C/ADSs) analysis.

STRATEGIES TO ADVANCE AUTOMATED AND CONNECTED VEHICLES (TRB 2017)

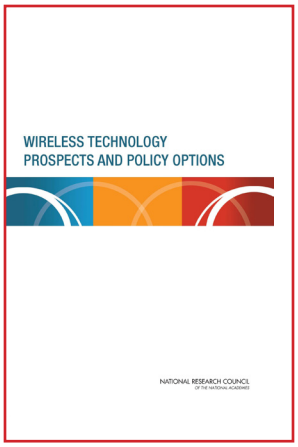
TRB's National Cooperative Highway Research Program (NCHRP) has released Strategies to Advance Automated and Connected Vehicles: Briefing Document. It is intended for state, regional, and local agency and political decision makers who are framing public policy making for these transformational technologies. The briefing document makes the case for taking action in spite of uncertainties and presents 18 policy and planning strategies that may be useful in advancing societal goals. The briefing document is based on NCHRP Research Report 845: Advancing Automated and Connected Vehicles: Policy and Planning Strategies for State and Local Transportation Agencies. The report assesses policy and planning strategies at the state, regional, and local levels that could influence private-sector automated vehicle (AV) and connected vehicle (CV) choices to positively affect societal goals. The report aims to assist agencies with exploring actions that might increase the likelihood that AV and CV technologies will have beneficial impacts on traffic crashes, congestion, pollution, land development, and mobility (particularly for older adults, youths under the age of 16, and individuals with disabilities). TRB has partnered with the American Association of State Highway and Transportation Officials (AASHTO) to develop a Transportation TV Special Report on Automated Vehicles in America, featuring the results of this briefing document.



PROTECTION OF TRANSPORTATION INFRASTRUCTURE FROM CYBER ATTACKS: A PRIMER (TRB 2016)

TRB's Protection of Transportation Infrastructure from Cyber Attacks: A Primer provides transportation organizations with reference materials concerning cybersecurity concepts, guidelines, definitions, and standards. The primer is a joint product of two TRB Cooperative Research Programs, and is categorized as Transit Cooperative Research Program (TCRP) Web-Only Document 67 and National Cooperative Highway Research Program (NCHRP) Web-Only Document 221. The Primer delivers strategic, management, and planning information associated with cybersecurity and its applicability to transit and state DOT operations. It includes definitions and rationales that describe the principles and practices that enable effective cybersecurity risk management. The primer provides transportation managers and employees with greater context and information regarding the principles of information technology and operations systems security planning and procedures. The report is supplemented with an Executive Briefing for use as a 20-minute presentation to senior executives on security practices for transit and DOT cyber and industrial control systems. A PowerPoint summary of the project is also available.

WIRELESS TECHNOLOGY PROSPECTS AND POLICY OPTIONS (DEPS/CSTB 2011)



The use of radio-frequency communication--commonly referred to as wireless communication--is becoming more pervasive as well as more economically and socially important. Technological progress over many decades has enabled the deployment of several successive generations of cellular telephone technology, which is now used by many billions of people worldwide; the near-universal addition of wireless local area networking to personal computers; and a proliferation of actual and proposed uses of wireless communications. The flood of new technologies, applications, and markets has also opened up opportunities for examining and adjusting the policy framework that currently governs the management and use of the spectrum and the institutions involved in it, and models for allocating spectrum and charging for it have come under increasing scrutiny. Yet even as many agree that further change to the policy framework is needed, there is debate about precisely how the overall framework should be changed, what trajectory its evolution should follow, and how dramatic or rapid the change should be. Many groups have opinions, positions, demands, and desires related to these questions--reflecting multiple commercial, social, and political agendas and a mix of technical, economic, and social perspectives. The development of technologies and associated policy and regulatory regimes are often closely coupled, an interplay apparent as early as the 1910s, when spectrum policy emerged in response to the growth of radio communications. As outlined in this report, current and ongoing technological advances suggest the need for a careful reassessment of the assumptions that inform spectrum policy in the United States today. This book seeks to shine a spotlight on 21st-century technology trends and to outline the implications of emerging technologies for spectrum management in ways that the committee hopes will be useful to those setting future spectrum policy.

ABOUT THE GOVERNMENT-UNIVERSITY-INDUSTRY RESEARCH ROUNDTABLE (GUIRR)

GUIRR's mission is to convene senior-most representatives from government, universities, and industry to define and explore critical issues related to the national and global science and technology agenda that are of shared interest; to frame the next critical question stemming from current debate and analysis; and to incubate activities of on-going value to the stakeholders. The forum is designed to facilitate candid dialogue among participants, to foster self-implementing activities, and, where appropriate, to carry awareness of consequences to the wider public.

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For more information about GUIRR, visit our web site at www.nas.edu/guirr
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