MEMORANDUM

DATE: April 22, 2011
TO: Chairman Genachowski
Commissioners Copps, McDowell, Clyburn and Baker
FROM: Tom Wheeler, Chairman, Technical Advisory Council
SUBJECT: Technical Advisory Council Chairman's Report

On November 4, 2010, Chairman Genachowski convened the first meeting of the FCC's 5th Technical Advisory Council (TAC) under the authority of the Federal Advisory Committee Act. I have had the honor of serving as the Chair of this Council, which has been charged to "identify important areas of innovation and develop informed technology policies supporting America's competitiveness and job creation in the global economy."

After its formation, the TAC moved quickly to identify topics for in-depth work and investigation through four working groups:

- Critical Transitions
- Broadband Infrastructure Deployment
- IPv6
- Sharing Opportunities

At a meeting on March 30th, the four working groups reported back a variety of ideas to the full TAC for further discussion and ratification. At the meeting's conclusion, the TAC selected eight of the best ideas to recommend to the Chairman and Commissioners as near term opportunities for promoting innovation, competition, and job creation in the technology sector. Other ideas were targeted for further effort by the TAC and will continue to be considered through the working groups and at future TAC meetings with the goal of producing further recommendations.

In selecting these eight recommendations, described below, the TAC considered not only the potential for economic development and job creation, but also which actions that could have the greatest near-term impact on our Nation's economic condition. Each recommendation is an opportunity for the FCC to unleash new private sector innovation and job creation, without working through traditional regulatory processes. By acting on these recommendations, the FCC can promote competition, foster industry best practices, and encourage executive action in order to help innovators, small businesses, and local governments pursue new economic development and job growth.

<u>Recommendations</u>

1. **Municipal Race-to-the-Top program.** The FCC should sponsor a Race-to-the-Top-style awards/recognition program to identify a list of cities with the best practices in terms of broadband infrastructure deployment. The "Broadband City USA" contest could provide top rankings for cities and towns based on being the most broadband-friendly in terms of infrastructure planning, accommodation, and permitting/approvals processes. Cities and towns would have an incentive to compete for this designation, making it a tool to further new investment and economic development. The FCC could also use this program as an opportunity to highlight a host of best identified practices for broadband infrastructure deployment, including model city "rights of way" codes.

2. **Broadband Infrastructure Executive Order.** The FCC should formally request that the President issue an Executive Order on broadband infrastructure deployment on federal land and in federal buildings. The Executive Order would mandate the following for Federal rights of way and antenna siting approvals:

   - Single document format for permitting
   - Single federal agency to coordinate the permit approval process
   - Sixty day time frame for approvals

   Such an Executive Order would place the Federal government in a position to advance network deployment and resiliency in communities with Federal buildings, especially urban areas where network congestion is most acute. In addition, this Executive Order could advance the development of micro cells, distributed antenna systems (DAS), and other innovative broadband infrastructure, demonstrating a path for growth in this market.

3. **Advocacy for Rapid Tower Siting.** The FCC should propose that states and municipalities employ a shortened "shot clock" for co-locations on existing structures or permit co-location "by right" - absent special circumstances. The TAC has identified several impediments to tower siting processes which could be overcome through updates to state and local procedures, including:

   - Inconsistent and non-concurrent time frames for environmental assessments
   - Redundant requirements for co-location applications
   - Repetitive rejection of incomplete applications without identification of deficiencies.

   Expediting the process for tower siting could have an important impact on the development of local broadband access in communities, boosting their marketability to new employers and network access for local entrepreneurs. If states and municipalities do not agree to expedite co-location approvals, the Commission should express its willingness to proceed with a new, shorter "shot clock" rule for co-locations.

4. **Best Practices/Technology Outreach to State and Local Governments.** The FCC should begin a dialogue with states and municipalities about proven new technologies for efficiently deploying broadband (e.g., micro-trenching, DAS equipment on city light poles, directional boring). The Commission should host a "road show" or series of workshops highlighting best identified practices with new technologies. This road show, in combination with leadership on the federal level through the Executive Order (See recommendation #1), can help accelerate the development of this new market for network infrastructure.

5. **Model an Online Deployment Coordination System.** The TAC believes that timely access to underground facilities has a direct bearing on infrastructure costs and deployment. The FCC should develop a "white label," web-based communication tool that can be adopted and labeled as their own by localities to provide advance notification of planned infrastructure projects. Such a web-based capacity would allow all those who must excavate rights-of-way to coordinate openings (i.e., "dig once") and thus speed deployment and reduce costs and civic disruption. Any state or municipality could voluntarily use the FCC model to implement its own "reverse one-call" system to provide notification of new infrastructure projects.

6. **New Metrics to Measure Broadband Network Quality.** The TAC believes that, for some usage models, developing metrics beyond throughput speed to measure the quality of Internet

Protocol (IP) broadband networks is important for helping the IP ecosystem flourish by enabling "extended" quality standards that can support the subset of applications that require not only fast, but precise, timely and reliable broadband networks. Simply measuring broadband networks by throughput speed does not provide a full picture nor set sufficient performance parameters to support uses with "extended" quality requirements such as healthcare monitoring, emergency services, alarms, etc. Although network services that meet such extended criteria may not be offered by all service providers, or included in all service plans, it would be beneficial to have common metrics for them.

Additionally, in transitioning to IP based networks the TAC will be identifying how reliability can be characterized in a multi-modal environment -where reliability is provided by having many alternate paths, means and/or modes of communications. The FCC should initiate the steps necessary for determining how this aspect of the transition will impact the basic architecture of emergency services.

7. **Highlight Stranded PSTN Investments.** Network providers have huge investments in existing PSTN infrastructure including copper wire, switches, pole space, and software. Although new information services are designed for IP networks, many homes and businesses still use devices that depend on specific characteristics of the PSTN (e.g., auto-dialers, alarm systems, ATMs, PoS terminals). These services and devices will have to be replaced and the accompanying construction and inspection "codes" revised. The TAC will be creating an inventory of such services. We would recommend that the FCC highlight this concern and initiate a public dialogue so that the technology and know-how for replacing such services is widely disseminated.

The TAC in the coming months will conduct a further technical analysis of the potential short term, and low cost transitions of this legacy infrastructure, including new, IP-enabled devices and the use of traditional copper lines for high speed, high quality broadband.

8. **Promote Small Cell Deployment.** Small cell deployments have the ability to greatly increase spectral efficiency to meet demands of increasing teledensity. The FCC, with the participation of other relevant agencies (e.g., General Services Administration) should convene an industry-led group (e.g., providers, vendors, standards groups, and building owners) to discuss ways to accelerate the deployment of small cell wireless devices (i.e., femtocells, DAS, Wi-Fi) in commercial and government buildings and other high teledensity venues. Accelerating this deployment would meet growing market demand for mobile broadband in dense, urban areas and potentially create new employment for design, installation, and operation of wireless systems.

Two ideas in particular that should be explored: (1) development of "universal architectures" for picocells, femtocells, etc., perhaps leveraging convergence around LTE, so that multiple providers using multiple spectrum bands could be served from a single device; and (2) creation of a new "small cell band" spectrum allocation, conceptually a hybrid between licensed and unlicensed spectrum, in which property owners and/or mobile broadband providers would have the ability to freely deploy networks to offload broadband services from other networks with assurances of interference protection from neighboring users.

RESPECTFULLY SUBMITTED BY:

Technical Advisory Council Chairman

Tom Wheeler, Core Capital Partners

Technical Advisory Council Members

Shahid Ahmed, Accenture

Mark Bayliss, Virginia ISP Association

Nomi Bergman, Bright House Networks

Peter Bloom, General Atlantic

Vinton Cerf, Google

John Chapin, Wireless Innovation Forum

kc claffy, Cooperative Assoc. for Internet Data Analysis

Wesley Clark, Wesley K. Clark and Associates

Lynn Claudy, National Assoc. of Broadcasters

Richard Currier, Loral Space and Communications

Brian Daly, AT&T

David Clark, MIT

Adam Drobot, 2M Companies

Tom Evslin, State of Vermont

Charlotte Field, Comcast

Mark Gorenberg, Hummer Winblad Venture Partners

Dick Green, Liberty Global

Russ Gyurek, Cisco Systems

Dale Hatfield, Silicon Flatirons Center

Erwin Hudson, WildBlue Communications

Ari Juels, RSA Laboratories/EMC

Kevin Kahn, Intel

Gregory Lapin, American Radio Relay League

Richard Lynch, Verizon

Paul Mankiewich, Juniper Networks

John Marinho, Dell

Brian Markwalter, Consumer Electronics Association

John McHugh, OPATSTCO

Geoffrey Mendenhall, Harris Corporation

Randy Nicklas, XO Communications

Hilton Nicholson, SIXNET

Roberto Padovani, Qualcomm

Devin Parekh, Insight Capital Ventures

Daniel Reed, Microsoft

Dennis Roberson, WINCOM

Jesse Russell, incNETWORKS

Andy Setos, Fox Group

Marvin Sirbu, Carnegie Mellon University

Paul Steinberg, Motorola

Harold Teets, TW Telecom

David Tennenhouse, New Venture Partners

Bud Tribble, Apple

Jack Waters, Level 3 Communications

Robert Zitter, HBO

FCC Staff Team

Walter Johnston, Designated Federal Officer

Julius Knapp, Alt. Designated Federal Officer

Lisa Gelb

John Leibovitz

Christopher Lewis

Michael McKenzie

Deena Shetler

Doug Sicker

Jordan Usdan