

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matters of	)	
	)	
Fostering Innovation and Investment in the Wireless Communications Market	)	GN Docket No. 09-157
	)	
A National Broadband Plan For Our Future	)	GN Docket No. 09-51

**REPLY COMMENTS OF CLEARWIRE CORPORATION**

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**I. INTRODUCTION AND SUMMARY.**

In its comments in this proceeding, Clearwire Corporation (“Clearwire”) suggested that the Federal Communications Commission (“FCC” or “Commission”) promote wireless innovation and advance the nation’s broadband goals by: (1) recognizing that consumers value wireless service highly and that demand will continue to grow; (2) embracing spectrum management policies that provide the regulatory certainty and predictability necessary to spur investment; (3) acknowledging that unlicensed and “test-bed” spectrum can provide the flexibility and low entrance costs to stimulate early-stage innovation; and (4) adopting reforms to improve access to the wireless infrastructure required to produce innovation. The record developed in response to the Commission’s *Wireless Innovation NOI*<sup>1</sup> supports each position.

This reply expands on Clearwire’s initial comments by focusing on three points. *First*, the record demonstrates that private investment for wireless innovation requires regulatory predictability and certainty, and thus that the Commission must not undermine the licensed

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<sup>1</sup> *Fostering Innovation and Investment in the Wireless Communications Market; A National Broadband Plan for Our Future*, Notice of Inquiry, GN Docket Nos. 09-157 and 09-51 (rel. Aug. 27, 2009) (“*Wireless Innovation NOI*”).

spectrum that provides the predictable interference protection needed to attract the substantial, long-term investments that support large-scale infrastructure deployments. *Second*, the record overwhelmingly demonstrates the need for the Commission to foster affordable backhaul, facilitate expeditious tower siting, and address the pole attachment bottleneck. *Third*, comments illustrate that innovation and investment in commercial wireless networks facilitate improvements in education, health care, and public safety. In particular, development of wireless networks in the Educational Broadband Service (“EBS”) band through partnerships between educators and commercial network providers promises to vastly improve educational offerings to students across America.

## **II. REGULATORY PREDICTABILITY AND CERTAINTY SPUR INVESTMENT IN INNOVATIVE TECHNOLOGIES AND BUSINESS PLANS.**

The record demonstrates that to engage in research and development, create new business models that can generate revenue from innovative ideas, and deploy infrastructure, wireless innovators all along the value chain require FCC policies that support investment. As investors have noted in this proceeding, wireless innovators require “ready access to private equity and other funding,” and that “[m]any innovations that exist in the telecommunications sector today were fueled by private equity investments made at critical stages of those companies’ development.”<sup>2</sup> But, as Clearwire and others stated in initial comments, access to the substantial amounts of investment capital needed to power innovative new business ventures are directly

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<sup>2</sup> Comments of Centennial Ventures, Columbia Capital, and M/C Venture Partners at 1–2, GN Docket Nos. 09-157 and 09-51 (filed Sept. 30, 2009). Beyond predictability and uncertainty, comments from private investors have also expressed the negative effect that regulatory burdens and roadblocks have placed on the flow of capital to wireless innovators, and suggest actions that the Commission can take to increase that flow. *Id.* at 3–8.

linked to the level of regulatory certainty a new venture enjoys.<sup>3</sup> The FCC should therefore make regulatory certainty and promoting predictability a core goal.

The record supports this position. The National Cable & Telecommunications Association (“NCTA”), for instance, urges the Commission to provide “a regulatory environment that is conducive to” the types of investments that the cable industry has made in wireless networks, including investments made in building Clearwire’s 4G WiMAX networks.<sup>4</sup> Verizon Wireless similarly notes that “[t]he Commission has long observed the important role that regulatory stability plays in driving investment, going so far as to cite regulatory predictability as an ‘important prerequisite’ for investment.”<sup>5</sup> CTIA also states that “[c]ompanies will not invest billions of dollars in infrastructure for wireless service if they have little certainty that they can operate it at a planned level of quality and modify it to meet the demands of a dynamic, evolving marketplace.”<sup>6</sup>

Predictability is important not only to network operators, but also to device manufacturers. Comments filed by the National Association of Manufacturers and MRFAC, Inc. (“NAM/MRFAC”) stated that “clear and settled rights are important to new entrants, just as they are important to incumbents,” and that “[w]ithout such rights, the owner of an asset will have

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<sup>3</sup> See, e.g., Comments of Clearwire Corporation at 10-12, GN Docket Nos. 09-157 and 09-51 (filed Sept. 30, 2009); Comments of the National Cable & Telecommunications Association at 3-4, WT Docket No. 09-66 (filed Sept. 30, 2009) (“NCTA Competition Comments”); Comments of Verizon Wireless at 118, GN Docket Nos. 09-157 and 09-51 (filed Sept. 30, 2009) (“Verizon Wireless Comments”); Comments of CTIA-The Wireless Association® at 75, GN Docket Nos. 09-157 and 09-51 (filed Sept. 30, 2009) (“CTIA Comments”).

<sup>4</sup> NCTA Competition Comments at 3-4.

<sup>5</sup> Verizon Wireless Comments at 118 (citing *Implementation of Sections 3(n) and 332 of the Communications Act, Regulatory Treatment of Mobile Services*, Second Report and Order, 9 FCC Rcd. 1411, 1421 ¶ 25 (1994) (“This approach should result in the durability of our regulatory classifications, thus promoting the regulatory predictability that is an important prerequisite for investment.”))

<sup>6</sup> CTIA Comments at 75.

little interest in risking the investment capital necessary to develop the asset.”<sup>7</sup> In other words, without knowing that a licensee will keep its rights to use spectrum to its fullest, investors are unlikely to pour money into new networks, devices, applications, and business ventures that depend on those rights.

Clearwire believes that licensed and unlicensed spectrum both have important roles in advancing wireless innovation. As Clearwire stated in initial comments, unlicensed spectrum is very useful in stimulating early stage innovations, the best of which will gain the attention of consumers and private investors. The Commission should not, however, allow the call for additional unlicensed spectrum to undermine the availability of licensed spectrum, which is critical to attracting the investment needed for major advances in wireless broadband. As the Enterprise Wireless Alliance explains in discussing the coexistence of licensed and unlicensed spectrum, “[w]hat is important in fostering innovation is that entities know under which regulatory structure they will operate so they are able to match their investments to their likely return.”<sup>8</sup>

Accordingly, the Commission must be careful in considering and potentially implementing new spectrum allocation techniques that might undermine certainty for innovators like Clearwire that have made substantial investments to acquire the spectrum rights needed to support their new technologies. Some comments in this proceeding have vehemently opposed techniques such as underlays and overlays.<sup>9</sup> Clearwire notes that there is a clear distinction

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<sup>7</sup> Comments of the National Association of Manufacturers and MRFAC, Inc. at 4, GN Docket Nos. 09-157 and 09-51 (filed Sept. 30, 2009).

<sup>8</sup> Comments of the Enterprise Wireless Alliance at 4, GN Docket Nos. 09-157 and 09-51 (filed Sept. 30, 2009).

<sup>9</sup> *See, e.g.*, Comments of Sprint Nextel Corporation at 17–20, GN Docket Nos. 09-157 and 09-51 (filed Sept. 30, 2009) (“Sprint Nextel Comments”); Verizon Wireless Comments at 132-38.

between licensees using underlay and overlay techniques to enhance efficient operations in their assigned spectrum and FCC rules that require licensees to accept interference from other parties. While Clearwire today uses underlay techniques to optimize its own network, the far different prospect of mandatory spectrum sharing using such techniques simply will not support widespread wireless broadband, and the FCC must recognize that there are significant costs that such requirements would impose on network innovation. Therefore, Clearwire continues to recommend that the Commission should not impose requirements on network operators to accept dual-use of their spectrum resources or that hamstringing network operators from efficiently managing their networks now or in the future.

Certain comments also call for a comprehensive review of all spectrum allocation and use.<sup>10</sup> We urge the FCC to undertake any such review with an eye to maintaining settled spectrum expectations, which is especially important for companies in the midst of significant network build-outs. Undermining confidence in spectrum rights would frustrate those looking to invest in innovative wireless projects that require a stable regulatory environment to develop and grow. A spectrum review should not undermine investment by threatening to reverse existing spectrum rights – that underpin licensees’ financial and business models.

### **III. THE FCC SHOULD PROMOTE INNOVATION BY FOSTERING AFFORDABLE BACKHAUL, FACILITATING EXPEDITIOUS TOWER SITING, AND ADDRESSING THE POLE ATTACHMENT BOTTLENECK.**

A wide range of parties addressed the Commission’s inquiry regarding the effect of non-spectrum inputs on wireless innovation. Overwhelmingly, these comments identified three critical issues that are restraining the growth of innovation – unreasonably high backhaul costs,

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<sup>10</sup> See, e.g., Comments of CTIA-The Wireless Association® at 72, GN Docket Nos. 09-157 and 09-51 (filed Sept. 30, 2009); Comments of T-Mobile USA, Inc. at 21, WT Docket No. 09-66, GN Docket Nos. 09-157 and 09-51 (filed Sept. 30, 2009) (“T-Mobile Comments”).

delays related to tower siting, and the bottleneck of pole attachments. By addressing these three issues the FCC can remove the leading non-spectrum barriers to wireless innovation.

*Backhaul.* As T-Mobile succinctly states, “Innovation in wireless service also depends on the wide availability of backhaul to support new wireless applications.”<sup>11</sup> Unfortunately, as the record demonstrates, backhaul remains a chokepoint for wireless innovation.<sup>12</sup> Citing reports from the National Regulatory Research Institute and the General Accountability Office, Sprint Nextel points out that “while wireless carriers may have competitive alternatives in ‘compact downtown areas,’ they generally have no alternatives in suburban and rural areas,” noting that AT&T, Qwest, and Verizon “account for over 90 percent of all interstate special access revenues.”<sup>13</sup>

Such market concentration results in monopolistic prices for backhaul services in many areas, which reduces innovative wireless services and applications that depend on backhaul to operate. As MetroPCS Communications states, “[i]ncumbent LECs have every incentive to overprice special access facilities, not only to ‘protect their local exchange monopolies from

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<sup>11</sup> T-Mobile Comments at 26.

<sup>12</sup> See, e.g., Comments of Google, Inc. at 14-5, GN Docket Nos. 09-157 and 09-51 (filed Sept. 30, 2009) (“Google Comments”); Comments of AT&T Inc. at 96–101, GN Docket Nos. 09-157 and 09-51 (filed Sept 30, 2009) (“AT&T Comments”); Comments of the United States Cellular Corporation at 11-12, GN Docket Nos. 09-157 and 09-51, WT Docket No. 09-66 (filed Sept. 30, 2009) (“US Cellular Comments”); Comments of MetroPCS Communications, Inc. at 22-23, GN Docket Nos. 09-157 and 09-51 (filed Sept 30, 2009) (“MetroPCS Comments”); Sprint Nextel Comments at 28-35.

<sup>13</sup> Comments of Sprint Nextel Corporation at 12-13, WT Docket No. 09-66 (filed Sept. 30, 2009). See also T-Mobile Comments at 26-27 (“T-Mobile’s Neville Ray cautioned that while ‘competitive forces work in metro areas where there’s a lot of fiber . . . those challenges do become tougher, much tougher, as you start to thin out in terms of POP density.’”).

competition,’ but also to subsidize or otherwise protect their own wireless subsidiaries.”<sup>14</sup> Or as the New Jersey Division of Rate Counsel laments, “AT&T and Verizon – through their wireless affiliates, their wireline dominance of the adjacent special access services (upon which their competitors rely for backhaul and transport), and their historic incumbency relationship with the vast majority of consumers throughout their footprints – increasingly control relevant markets.”<sup>15</sup>

Clearwire has every incentive to find alternatives to high ILEC backhaul rates, which leads it to self-provision or purchase from competitors wherever possible. But outside of dense urban areas this is often impossible, thus limiting the ability even of well-funded providers like Clearwire (as well as larger companies such as Sprint Nextel and T-Mobile) to compete on an even playing field where a non-ILEC backhaul alternative does not exist or self-provisioning is not possible. Without the discipline of competition, ILECs have the incentive and ability to charge monopoly rates and raise rivals’ costs, making it more difficult for competitors to enter the market and compete. To remedy this situation, the Commission should immediately issue a focused data request on the special access market and move as quickly as possible to resolve this issue.<sup>16</sup>

*Pole Attachments.* The majority of commenters agree that barriers related to pole attachments are another substantial impediment to innovation.<sup>17</sup> MetroPCS Communications, for

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<sup>14</sup> Comments of MetroPCS Communications, Inc. at 48, WT Docket No. 09-66 (filed Sept. 30, 2009).

<sup>15</sup> Comments of the New Jersey Division of Rate Counsel at 5, WT Docket No. 09-66 (filed Sept. 30, 2009) (footnote omitted).

<sup>16</sup> See generally Reply Comments of Clearwire Corporation, WC Docket No. 05-25 (filed Aug. 15, 2007).

<sup>17</sup> See, e.g., Comments of Comcast Corporation at 17-18, GN Docket Nos. 09-157 and 09-51 (filed Sept. 30, 2009); Comments of NextG Networks, Inc. at 16-22, GN Docket Nos. 09-157 and 09-51 (filed Sept. 30, 2009) (“NextG Networks Comments”); Comments of NewPath Networks, Inc. at 12-18, GN Docket Nos. 09-157 and 09-51 (filed Sept. 30, 2009)

example, states that with the growth of wireless services and the increasing difficulty of obtaining cell sites, “wireless carriers must install antennas and other wireless facilities in non-traditional locations, such as on existing power or telephone poles,” thus “utility poles must now be recognized as ‘bottleneck facilities’ for wireless carriers.”<sup>18</sup> Clearwire agrees, and urges the Commission to adopt its tentative conclusion in the *Pole Attachments NPRM* that Section 224 of the Act, which grants carriers and cable providers the right to pole attachments at just and reasonable rates, terms, and conditions, should apply to all pole attachments used to provide broadband Internet access.<sup>19</sup>

*Tower siting.* Commenters almost universally agree that the FCC must quickly improve the tower-siting process. Clearwire commends Chairman Genachowski for recently stating that “[o]n the issue of tower siting, we have heard your call,” and that “in the near future we are going to move forward with a shot-clock proposal designed to speed the process, while taking into account the legitimate concerns of local authorities.”<sup>20</sup> The entire wireless industry, including large incumbents, appears to welcome this action, as evidenced by the many comments discussing the problems that tower-siting issues cause for wireless innovation.<sup>21</sup> In addition to

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(“NewPath Networks Comments”); T-Mobile Comments at 28-29; Comments of ExteNet Systems, Inc. at 4-9, GN Docket Nos. 09-157 and 09-51 (filed Sept. 30, 2009); MetroPCS Comments at 22-23.

<sup>18</sup> Comments of MetroPCS Communications, Inc. at 49, WT Docket No. 09-66 (filed Sept. 30, 2009).

<sup>19</sup> *See Implementation of Section 224 of the Act; Amendment of the Commission’s Rules and Policies Governing Pole Attachments*, Notice of Proposed Rulemaking, 22 FCC Rcd. 20,195, 20,209 ¶ 36 (2007).

<sup>20</sup> Julius Genachowski, Chairman, Federal Communications Commission, *America’s Mobile Broadband Future* at 6 (Oct. 7, 2009), [http://hraunfoss.fcc.gov/edocs\\_public/attachmatch/DOC-293891A1.pdf](http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-293891A1.pdf).

<sup>21</sup> *See, e.g.*, CTIA Comments at 84-86; MetroPCS Comments at 22-23; NextG Networks Comments at 9-15; NewPath Networks Comments at 5-8; Verizon Wireless Comments at 184-90; Comments of AT&T Inc. at 95-96, WT Docket No. 09-66 (filed Sept. 30, 2009); T-

granting the CTIA “shot-clock” petition setting forth reasonable 45-day and 75-day time periods for tower-siting determinations,<sup>22</sup> Clearwire urges the Commission to state explicitly that Section 332(c) of the Act, which restricts local control over wireless facilities that discriminate among “functionally equivalent services,” applies to *all* wireless broadband services as well as traditional voice service.<sup>23</sup>

#### **IV. INVESTMENTS IN INNOVATIVE TECHNOLOGIES AND WIRELESS NETWORKS SUPPORT ADVANCEMENTS IN EDUCATION, HEALTH CARE, AND PUBLIC SAFETY.**

As Clearwire stated in its initial comments, wireless communications and information services are becoming more valuable to consumers than wireline information services. Consumers are not using wireless services simply for traditional communication, but also as powerful new tools to meet our most critical public needs, including education, public safety, and health care. Clearwire therefore urges the Commission to adopt policies that will stimulate innovation in these crucial areas, allowing commercial networks to address real-world problems.

*Education.* The FCC has implemented a flexible but predictable approach to the EBS frequencies in the 2.5 GHz band, which now can accommodate both traditional one-way instructional video services and new advanced broadband services. The result of this approach is that “EBS will play an increasingly important role in transforming the way educational services

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Mobile Comments at 28-29; Google Comments at 12-13; Comments of the American Legislative Exchange Council (ALEC) at 10-11, GN Docket Nos. 09-157 and 09-51 (filed Sept. 30, 2009); Verizon Wireless Comments at 184-90; Comments of PCIA—The Wireless Infrastructure Association and The Das Forum (A Membership Section of PCIA) at 5-8, GN Docket Nos. 09-157 and 09-51 (filed Sept. 30, 2009); AT&T Comments at 94-96; US Cellular Comments at 17-19.

<sup>22</sup> See *Wireless Telecommunications Bureau Seeks Comment on Petition for Declaratory Ruling by CTIA – the Wireless Association to Clarify Provisions of Section 332(C)(7)(B) to Ensure Timely Siting Review and to Preempt Under Section 253 State and Local Ordinances that Classify All Wireless Siting Proposals as Requiring a Variance*, Public Notice, WT Docket No. 08-165 (rel. Aug 14, 2008).

<sup>23</sup> See 47 U.S.C. § 332(c)(7).

are delivered.”<sup>24</sup> As Catholic Television Network (“CTN”) explains, “EBS licensees can lease a portion of their spectrum to commercial, public safety or other entities deploying services in the 2.5 GHz band and obtain access to advanced broadband services needed for education through the creation of shared networks.”<sup>25</sup> The Commission’s policies “have encouraged educators to forge strategic partnerships with commercial wireless service providers, which provide essential financial, technical, and other resources necessary to deliver educational services at a reasonable cost.”<sup>26</sup> Because of these FCC policies, “there is a robust secondary market for EBS spectrum that has facilitated the delivery of high-quality educational services at a reasonable cost, and at the same time, provided commercial entities such as Clearwire Corporation with ample spectrum for nationwide wireless broadband deployments.”<sup>27</sup>

*Public Safety.* Demonstrating the advantages of flexibility, EBS licensees also actively support public safety organizations, such as a public safety system in New York City, for video, voice, and data applications. EBS support allows traffic light coordination, field reporting, and communications from various devices.<sup>28</sup> The record shows that wireless innovations are assisting public safety providers in many ways throughout the country. As Mobile Future points out, “In cities like Chicago, wireless technology can even activate public safety cameras in the vicinity of a 911 call, giving first responders a potentially life-saving vantage point.”<sup>29</sup> Verizon Wireless also highlights the use of new wireless devices and applications to improve police

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<sup>24</sup> Comments of the Catholic Television Network at 3, GN Docket Nos. 09-157 and 09-51 (filed Sept. 20, 2009).

<sup>25</sup> *Id.* at 7.

<sup>26</sup> *Id.* at 2.

<sup>27</sup> *Id.* at 7.

<sup>28</sup> *Id.* at 5.

<sup>29</sup> Mobile Future, *Welcome to the Mobile Future* at 10, attached to Comments of Mobile Future, GN Docket Nos. 09-157 and 09-51 (filed Sept. 30, 2009) (“Welcome to the Mobile Future”).

dispatch operations and to locate officers remotely, which has “improved coordination and communications, increased productivity and efficiency, and ensured the safety and performance of its task force.”<sup>30</sup>

Health Care. Clearwire agrees with Mobile Future that “[f]rom bringing cutting-edge expertise to rural towns to improving the availability of timely, accurate data bedside to promoting prevention and self-care, wireless innovation will lead the next great revolution in American health care.”<sup>31</sup> The record evidences the emergence of innovative health care-related wireless services.<sup>32</sup> Not only are patients and physicians using new smart phone devices and applications to improve access to medical information, but new wireless devices also are improving the monitoring and treatment of chronic diseases, such as congestive heart failure and diabetes.<sup>33</sup> Wireless innovation not only improves healthcare outcomes, but can also reduce healthcare costs. According to the Continua Health Alliance, “The Veterans Administration (VA) has already shown a dramatic decrease in healthcare spending with the use of home telehealth for its veterans with multiple chronic diseases,” including “a 19 percent reduction in the number of hospital admissions and a 25 percent reduction in bed days of care.”<sup>34</sup>

To assist the emergence of such health care innovations, the Commission should rely on open networks and public-private partnerships that will create the climate necessary to foster

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<sup>30</sup> Verizon Wireless Comments at 75.

<sup>31</sup> *Welcome to the Mobile Future* at 15.

<sup>32</sup> *See, e.g.*, Comments of the West Wireless Health Institute at 8-9, GN Docket Nos. 09-157 and 09-51 (filed Sept. 30, 2009) (“West Wireless Health Institute Comments”); CTIA Comments at 40-44; *Welcome to the Mobile Future* at 15; Comments of the Continua Health Alliance at 4-8, GN Docket Nos. 09-157 and 09-51 (filed Sept. 28, 2009) (“Continua Health Alliance Comments”).

<sup>33</sup> *See, e.g.*, CTIA Comments at 40-41; Continua Health Alliance Comments at 5.

<sup>34</sup> Continua Health Alliance Comments at 7.

growth of new wireless health care services. Clearwire agrees with the West Wireless Health Institute that, “[w]ireless health care will be provided over commercial mobile broadband networks, rather than over dedicated networks constructed by hospitals, which can never attain the wide coverage of commercial mobile broadband networks,” and “[d]octors and patients will use commercially available mobile broadband devices to access these networks for wireless health services.”<sup>35</sup>

**V. CONCLUSION.**

Clearwire appreciates the Commission’s efforts to promote wireless innovation. To do this most effectively, we request that the FCC: (1) provide certainty in spectrum policy to promote investment in innovative wireless companies, (2) act immediately on backhaul, pole attachments, and tower siting, and (3) find that commercial wireless broadband is essential to enhance the nation’s education, public safety, and healthcare. Such actions will nurture wireless innovation and investment to the benefit of consumers across the nation.

Respectfully submitted,

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<sup>35</sup> West Wireless Health Institute Comments at 8-9.