

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

In the Matter of Application of)	
)	
MILWAUKEE METROPOLITAN SEWERAGE)	FCC File Nos. 0001181827, 0001190322
DISTRICT)	
)	
Request for Waiver to Allow Fixed Operations On)	
a Primary Basis in the 450-470 MHz Band)	

ORDER

Adopted: February 11, 2004

Released: February 12, 2004

By the Chief, Public Safety and Critical Infrastructure Division, Wireless Telecommunications Bureau:

I. INTRODUCTION

1. We have before us two applications and associated requests for waiver of the Commission's rules filed by the Milwaukee Metropolitan Sewerage District (MMSD).¹ MMSD seeks authority to operate a fixed wireless Supervisory Control and Data Acquisition (SCADA) system to monitor and control water levels and flow within its sewer system. For the reasons discussed below, we grant MMSD's waiver request, with the conditions described herein.

II. BACKGROUND

2. In February 2003, MMSD filed the subject applications for fixed operation at four locations on four frequency pairs² in the 450-470 MHz band, accompanied by requests for waiver of Section 90.261(a) and (c) of the Commission's Rules.³ Section 90.261(a) permits fixed use in the 450-470 MHz band only on a secondary basis to land mobile radio operations.⁴ MMSD requests primary status because the proposed system would not be able to tolerate excessive interference or service interruptions that might accompany secondary status.⁵ Section 90.261(c) limits fixed system omnidirectional antennas to unity gain.⁶ MMSD requests a waiver of this rule section so that it can use gain antennas in order to

¹ See attachments to FCC File Nos. 0001181827 and 0001190322 (Waiver Requests).

² The four frequency pairs are 453/458.475 MHz, 453/458.750 MHz, 453/458.850 MHz, and 453/458.925 MHz.

³ 47 C.F.R. § 90.261(a), (c). Initially, MMSD also requested a waiver of the twenty-watt effective radiated power (ERP) limit in Section 90.261(b), 47 C.F.R. § 90.261(b), because it sought to operate with an ERP of one hundred watts at three sites and seventy-five watts at the other site. See Waiver Requests at 3. In its reply comments, however, MMSD withdrew its request for waiver of the power limit, and stated that it would operate within the twenty-watt limit. MMSD Reply Comments at 8-9. Consequently, this *Order* will consider only the request for waiver of Section 90.261(a) and (c).

⁴ 47 C.F.R. § 90.261(a).

⁵ Waiver Requests at 2-3.

⁶ 47 C.F.R. § 90.261(c). Unity gain is the ratio (usually expressed in decibels) of the power required at the input of a loss-free reference antenna to the power supplied to the input of the given antenna to produce, in a given direction, the same field strength or the same power density at the same distance.

adequately cover the intended service area from the proposed sites.

3. On April 15, 2003, the Wireless Telecommunications Bureau's former Public Safety and Private Wireless Division⁷ sought comment on MMSD's applications and waiver requests.⁸ We received comments from the Industrial Telecommunications Association (ITA), the American Mobile Telecommunications Association (AMTA), and the State of Wisconsin Department of Transportation (WisDOT). MMSD filed reply comments.

III. DISCUSSION

4. To obtain a waiver of the Commission's Rules, a petitioner must demonstrate either that the underlying purpose of the rule(s) would not be served or would be frustrated by application to the present case and that grant of the waiver would be in the public interest;⁹ or that, in view of unique or unusual factual circumstances of the instant case, application of the rule(s) would be inequitable, unduly burdensome, or contrary to the public interest, or the applicant has no reasonable alternative.¹⁰ We believe that MMSD has shown that a waiver is warranted under the circumstances presented.

5. The Commission allocated spectrum in the 450 MHz band and other bands for private use in 1949 to meet the nation's mobile communications needs.¹¹ The primary purpose served by the allotment of Part 90 frequencies was and continues to be provision of spectrum for land mobile communications.

6. Our rules, however, make allowances for fixed use of certain Part 90 frequencies, but only on a secondary basis to mobile operations. The purpose of Section 90.261 was to provide some needed spectrum for fixed operations while, at the same time, to ensure that the 450-470 MHz band is used primarily for mobile operations.¹² The rule affording fixed operations in the 450-470 MHz band only secondary status is intended to avoid interference to mobile operations.¹³ The purpose of the antenna gain limit also is to protect co-channel mobile radio operations from interference.¹⁴ Based on the record before us, we conclude that grant of MMSD's request would not frustrate this purpose. The engineering data submitted with the request demonstrates that no interference would be caused to land mobile operations,

⁷ The Commission reorganized the Wireless Telecommunications Bureau effective November 13, 2003, and the relevant duties of the Public Safety and Private Wireless Division were assumed by the Public Safety and Critical Infrastructure Division. See Reorganization of the Wireless Telecommunications Bureau, *Order*, FCC Rcd 25414, 25414 ¶ 2 (2003).

⁸ See Wireless Telecommunications Bureau Seeks Comment on Request for Waiver by Milwaukee Metropolitan Sewage District to Allow Fixed Operation on a Primary Basis in the 450-470 MHz Band Above the Power and Antenna Gain Limits, *Public Notice*, 18 FCC Rcd 7029 (WTB PSPWD 2003).

⁹ 47 C.F.R. § 1.925(b)(3)(i).

¹⁰ 47 C.F.R. § 1.925(b)(3)(ii).

¹¹ Amendment of Part 90 Concerning Secondary Fixed Operations in the 450-470 MHz Band, *Report and Order*, PR Docket No. 91-66, 7 FCC Rcd 3498, 3498 ¶ 2 (1992) (*Secondary Fixed Report and Order*). In this connection, we note that other frequency bands higher in the spectrum have been made available for fixed operations. See 47 C.F.R. Part 101. Historically, the Commission has established separate allocations for fixed and mobile use because of the potential for interference between the two types of operations utilizing existing technologies. See *Secondary Fixed Report and Order*, 7 FCC Rcd at 3499 n.9.

¹² *Secondary Fixed Report and Order*, 7 FCC Rcd at 3498 ¶ 2 (citing Docket No. 13847, *Further Notice of Proposed Rule Making*, 10 FCC 2d 885 (1967), *Second Report and Order*, 11 FCC 2d 648 (1968)).

¹³ See *id.* at 3498 ¶ 2, 3499 n.9.

¹⁴ See *id.* at 3501 ¶ 17.

because MMSD would be the only entity using these channels in the Milwaukee area (except as discussed below regarding WisDOT), and there is sufficient physical separation between MMSD's proposed operations and all licensed adjacent channel operations.¹⁵ Moreover, no commenter has suggested that grant of the request would leave inadequate 450-470 MHz spectrum available to accommodate mobile communications needs in the Milwaukee area.

7. Licensees operating on a secondary basis in the 450-470 MHz spectrum must cease operations if their transmissions interfere with the mobile operations of primary users of private land mobile spectrum.¹⁶ We note that MMSD is requesting primary status to allow it to work with other licensees to resolve any interference issues, rather than being forced to shut down immediately at some point in the future if interference problems with any existing or new licensee develop.¹⁷ We find it significant that MMSD acknowledges that primary status does not necessarily guarantee exclusivity of the channels and understands that sharing of the channels might be necessary.¹⁸

8. ITA and AMTA oppose granting MMSD primary status, on the grounds that it would set a damaging precedent by opening the door for other entities to file similar waiver requests, thus creating an environment for further degradation in the band.¹⁹ We reject the suggestion that no waiver should be granted on the grounds that granting too many waivers would undermine the purpose of the rules. Any future waivers of these rules would be based on the particular circumstances presented in the waiver requests. In the event that we receive a number of waiver requests in the same area, the cumulative effect of granting the requested relief would be a relevant factor in our determination of whether grant of such relief would be in the public interest.

9. Regarding reasonable alternatives, ITA states other spectrum alternatives not necessitating a waiver are available to MMSD. In this connection, ITA identifies VHF spectrum in the 170, 173, 217-219 MHz frequency bands as possible alternatives.²⁰ Similarly, AMTA notes that there is spectrum designated for telemetry operations as set forth in Section 90.238 of the Commission's Rules, and that Multiple Address System (MAS) 900 MHz spectrum²¹ is specifically designed for point-to-multipoint transmissions and appears ideally suited for the system described.²² MMSD states that it considered the VHF spectrum identified by ITA, but, because the spectrum is shared by both the Public Safety and Business Pools, it rejected their use due to potential interference issues and antenna size considerations.²³ MMSD states that it also experimented with the 900 MHz MAS spectrum and found that the propagation characteristics of the band limited coverage at many locations, which would significantly increase infrastructure costs at some sites.²⁴ While cost alone does not make the application of the Commission's Rules inequitable, unduly burdensome or contrary to the public interest, it can be a relevant factor in our

¹⁵ Waiver Requests at 4-5.

¹⁶ See *Secondary Fixed Report and Order*, 7 FCC Rcd at 3498 n.2.

¹⁷ See Waiver Requests at 3.

¹⁸ See *id.*

¹⁹ AMTA Comments at 5-6; ITA Comments at 3-4.

²⁰ ITA Comments at 5-6.

²¹ See 47 C.F.R. § 101.1301.

²² AMTA Comments at 5-6.

²³ MMSD Reply Comments at 2, 4-5.

²⁴ *Id.* at 5; Waiver Requests at 3.

determination of whether grant of a waiver is appropriate under the circumstances presented.²⁵

10. Further, we conclude that grant of the subject request is in the public interest. In this regard, we note that MMSD's sewerage system consists of 350 miles of pipes and valves, deep tunnel storage, pumping stations, and two treatment facilities.²⁶ The flow in the system and related water levels must be continuously monitored and controlled, in order to comply with environmental regulations, protect the environment and public health, and mitigate flooding.²⁷ MMSD contends that its proposed system would be one of the primary methods used to monitor and control its sewer system, and as such could not tolerate interference from other users.²⁸ Water services, including systems to handle sewage and wastewater, are primary components of the nation's critical infrastructure.²⁹ The continued use of spectrum is essential to the current and future operations of these industries.³⁰ Without adequate radio spectrum, we are concerned that providers of energy, water and railroad services would be unable to address major service interruptions due to natural disaster, equipment malfunctions or in some cases, terrorist activities.³¹ Thus, grant of MMSD's waiver request promotes the Commission's homeland security objectives.³²

11. We nonetheless note that WisDOT objects in particular to MMSD's proposed use of frequency pairs 453/458.475 and 453/458.925 MHz.³³ WisDOT is the only co-channel license on those frequencies in the Milwaukee area. Specifically, it is licensed for temporary mobile use of these two frequency pairs statewide under Call Sign KNJW977, and argues that licensing MMSD on a primary basis would preclude WisDOT's use of these frequencies in the Milwaukee area.³⁴ Because WisDOT's use of the temporary statewide channels would be highly localized and WisDOT has a fixed system operating in the area on other frequencies, we believe that MMSD's use of the channels would have little to no effect, adverse or otherwise, on WisDOT's operations. In addition, MMSD states that it will work with WisDOT to minimize the impact on WisDOT's temporary operations.³⁵ We therefore agree with MMSD that WisDOT's statewide temporary mobile authorization should not preclude MMSD's use of

²⁵ Wilderness Valley Telephone Co., *Order*, 15 FCC Rcd 11751, 11753 ¶ 6 (WTB PSPWD 2000) (citing Country Cousins, Inc., *Order*, 14 FCC Rcd 19351, 19352-53 ¶ 6 (WTB PSPWD 1999)).

²⁶ Waiver Requests at 1.

²⁷ *Id.*

²⁸ *Id.* at 3.

²⁹ Wireless Telecommunications Bureau Seeks Comment on NTIA Report on Current and Future Spectrum Use by the Energy, Water, and Railroad Industries, *Public Notice*, 17 FCC Rcd 2458, 2459 (WTB PSPWD 2002).

³⁰ *Id.*

³¹ *Id.*

³² To fully and effectively carry out its role in promoting homeland security, network protection, interoperability, redundancy, and reliability, the FCC has established objectives including the following: "[d]evelop policies that promote access to effective communications services by public safety, public health, and other emergency and defense personnel in emergency situations." See FCC Strategic Plan FY 2003-FY2008, Goal 5 - Homeland Security.

³³ WisDOT Comments at 1.

³⁴ *Id.* In addition to temporary mobile use, the license for Station KNJW977 authorizes operations at six fixed locations (with associated mobile frequencies), one of which is in the Milwaukee area. WisDOT's operations at the Milwaukee site, however, do not currently utilize any of the four frequency pairs for which MMSD seeks a waiver, or any adjacent channels.

³⁵ MMSD Reply Comments at 9.

the channels.³⁶ We also believe, however, that grant of MMSD's request should not operate to reduce WisDOT's flexibility under its existing license for Call Sign KNJW977. Therefore, we will impose the following conditions on MMSD's license: 1) MMSD must accept interference from WisDOT's operations under Call Sign KNJW977; 2) MMSD's operations must not interfere with WisDOT's use of its statewide temporary mobile frequencies (453/458.475 and 453/458.925 MHz) and, if warranted, MMSD must develop a mutually agreeable plan with WisDOT to mitigate interference.

12. We conclude, based on the record before us, that the MMSD waiver request should be granted with the conditions as set forth herein.³⁷ The operation of MMSD affects the health, safety and security of approximately one million people in southeastern Wisconsin. We conclude that granting the waivers serves the public interest because the proposed SCADA system protects the eco-system of Southeastern Wisconsin by facilitating MMSD's safety and environmental operations, such as storm water and wastewater overflow. The alternative that MMSD proposes herein was to find unused channels in the Public Safety Pool. MMSD has demonstrated that grant of a waiver is warranted because at the requested power levels no interference is anticipated to adjacent or co-channel users in the area.

IV. ORDERING CLAUSES

13. Accordingly, pursuant to Sections 4(i) and 309(a) of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 309(a), and Section 1.925 of the Commission's Rules, 47 C.F.R. § 1.925, IT IS ORDERED that the waiver requests filed by the Metropolitan Milwaukee Sewage District on February 3, 2003 with respect to application FCC File No. 0001181827 and on February 10, 2003 with respect to application FCC File No. 0001190322, ARE GRANTED SUBJECT TO THE CONDITIONS set forth herein. The Public Safety and Critical Infrastructure Division SHALL PROCESS applications FCC File Nos. 0001181827 and 0001190322 in accordance with this *Order* and the Commission's Rules.

14. This action is taken under delegated authority pursuant to Sections 0.131 and 0.331 of the Commission's Rules, 47 C.F.R. §§ 0.131, 0.331.

FEDERAL COMMUNICATIONS COMMISSION

D'wana R. Terry
Chief, Public Safety and Critical Infrastructure Division
Wireless Telecommunications Bureau

³⁶ See *id.* at 8.

³⁷ The initial request for waiver of Section 90.261(b), which was withdrawn, will not be granted. The facilities will have an authorized ERP of twenty watts.