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FW to Council Reps + C.A. Sylvia 1/6/12

January 6, 2012

AUDITOR 01/06/12 AM10:38

Honorable Mayor Sam Adams and
City Commissioners
City of Portland
1221 SW 4th Ave.
Portland, OR 97204

Re: **Appellant's Hearing Memo**
LU 11-125536 CU AD (Verizon Wireless)

Dear Mayor Adams and Commissioners:

I am writing on behalf of Verizon Wireless in the above-mentioned case to outline three key issues in this appeal and to provide you with our recommendation for resolving this case. The three key issues in this appeal are:

I. ERP Interpretive Issue

Issue: Did the City intend to regulate wireless facilities, such as this one, through the CUP standards in PCC 33.815.225(C)?

Answer: Yes. The City intended to regulate wireless facilities such as this one, through the CUP standards in PCC 33.815.225(C), as "facilities operating at 1,000 watts ERP or less."

A) Legislative Intent. The hearings officer struggled with his interpretation of the phrase "facilities operating at 1,000 watts ERP or less" in PCC 33.815.225(C). In doing so, he misinterpreted that phrase and violated what the Oregon Supreme Court recently called the "cardinal rule" of statutory construction, which is that the court "shall pursue the intention of the legislature if possible." *See* ORS 174.020(1)(a) and State v. Gaines, 346 Or 160, 206 P3d 1042 (2009).

Legislative history shows that when the 1,000 watt ERP threshold was enacted by the City in 2004, the City's intent was to regulate wireless facilities, such as this one, through the CUP standards in PCC 33.815.225(C), as "facilities operating at 1,000 watts ERP or less." The

City's 1,000 watt ERP threshold was specifically enacted in 2004 to distinguish between wireless telecommunication facilities such as Cellular, PCS and SMRS technologies that are required by the FCC to operate at a power limit of 1,000 watts ERP (1,640 EIRP) or less, and moderate- to high-power broadcast facilities, such as dispatch radio, broadcast radio and broadcast television facilities, that are authorized by the FCC to operate at higher power limits. The City intended that moderate- to high-power broadcast facilities would be regulated under the CUP standards in PCC 33.815.225(D) and that wireless facilities, such as this one, would be regulated under PCC 33.815.225(C). This legislative intent is consistent with the testimony provided by staff to the hearings officer, and is supported by additional legislative history attached as Appellant's Exhibit A.

B) FCC Power Limits. In this case, the hearings officer either did not realize, or overlooked the fact that the FCC regulates the maximum power of wireless facilities, such as this one, to 1,000 watts ERP (1,640 EIRP) or less. As a matter of federal law, the proposed facility and other functionally equivalent wireless facilities such as Cellular, PCS and SMRS facilities, will therefore operate at a maximum power of 1,000 watts ERP or less. 47 CFR § 27.50(b)(1) (*See* Record Exhibit (H)(26)(b)). While the methodology for calculating ERP is not articulated in the City's code, federal rules generally require ERP to be calculated by antenna, by channel, in a given direction. *See, e.g.,* 47 CFR § 27.4 (definition of ERP), 47 CFR § 27.50(h) (peak transmit power measured over full bandwidth of the channel), and Local Officials Guide to RF, June 2, 2000, published by the FCC, Appendix B, (measuring ERP per channel) (*See* Record Exhibits (H)(26)(b) and (c). In any event, because federal rules set a limit of 1,000 watts ERP or less for wireless facilities, such as this one, this facility will not exceed the 1,000 watt ERP threshold specified in PCC 33.815.225(C). The CUP criteria in PCC 33.815.225(C) therefore apply. The hearings officer erred by misinterpreting the phrase "facilities operating at 1,000 watts ERP or less" in PCC 33.815.225(C), and as a result, failed to apply the approval criteria in PCC 33.815.225(C).

C) Unintended Consequences. If the City were to interpret its code to conclude that the proposed wireless facility and others like it will operate at more than 1,000 watts ERP, such an interpretation would turn the City's code on its head and would create a number of unintended consequences. For example, if the City determines that the proposed wireless facility and others like it will operate at more than 1,000 watts ERP, then the development standards in PCC 33.274.040(D) that help protect the neighborhood would not apply. These development standards prohibit "top hat"-type antenna mounts within 50 feet of an R zone and restrict the visual impact of antennas mounted on existing buildings.

Furthermore, the development standards in PCC 33.274.040(C)(2) encourage towers to be grouped together if they operate at more than 1,000 watts ERP. If wireless facilities like ours

are deemed by the city to operate at more than 1,000 watts ERP, then the code will encourage them to be grouped together. We do not believe this was the city's intent.

Also, under PCC 33.274.030(B) and (L), if wireless facilities such as this one are deemed by the City to operate at more than 1,000 watts ERP, then the replacement of existing wireless antennas and proposed colocations on those facilities would be subject to Type III review. Again, we do not believe this was the city's intent. The city's intent in those subsections was to exempt wireless facilities from conditional use review when replacing antennas or colocating on existing facilities. In fact, if the City interprets its code so that wireless facilities are deemed to operate at an ERP of more than 1,000 watts, then most wireless facilities would require a Type III review under PCC 33. 815.225(D) and would also be subject Design Review under PCC 33.420.045(N). While some opponents may prefer this result, we do not believe this is what City Council intended when it enacted the 1,000 watt ERP threshold in 2004.

In short, we believe that the City Council intended to regulate wireless facilities as "facilities operating at 1,000 watts ERP or less," under subsection PCC 33.815.225(C), in a way that is consistent with federal law. This is the position that BDS staff took in this case, and it is consistent with the position staff took when the 1,000 watt ERP threshold was proposed in 2000 and enacted in 2004. We agree with staff's position on this issue because it is consistent with federal law, with the legislative history of PCC 33.815.225(C), and with the facts in this case.

II. ERP Factual Issue

Issue: Is there substantial evidence in the record that the proposed facility will operate at 1,000 watts ERP or less?

Answer: Yes. There is substantial evidence in the record that the proposed facility will operate at 1,000 watts ERP or less.

A) Federal Law. The factual issue in this case is quite simple. As noted above, the FCC has established maximum power limits for wireless facilities, including this one, that are 1,000 watts ERP (1,640 EIRP) or less. Therefore, as a matter of federal law, the proposed wireless facility will operate at 1,000 watts ERP or less.

B) Substantial Evidence in the Record. Beyond the fact that the facility will operate at 1,000 watts or less as a matter of federal law, the record also contains a detailed report prepared by Mr. David Pinion with the well-known consulting firm of Hatfield & Dawson. In his report, Mr. Pinion clearly states that the facility will operate at less than 1,000 watts ERP. The record shows that Mr. Pinion is highly qualified to render such an opinion. Mr. Pinion is a partner in the Hatfield & Dawson firm, he is a professional engineer registered in the State of Oregon, and he holds an FCC General Radio-Telephone Operators License. The professional

qualifications of Mr. Pinion have not been challenged. In his report dated October, 2011, Mr. Pinion concluded that:

1) "All of the per-channel power levels will be less than the maximum power limits allowed by FCC rules."

2) "The maximum ERP for any single channel from any of the Verizon antennas will be less than 759 watts." and

3) "Therefore the facility will operate at less than 1,000 watts based on one channel of one antenna."

C) Credibility. The hearings officer erred by rejecting the expert opinion of Mr. Pinion, based on an indirect attack of Mr. Culley's credibility by the opponents. Mr. Culley works in the network department of Verizon Wireless, and holds the title of "RF Engineer." At the hearing, Ms. Hopfer mistakenly testified that Mr. Culley was a licensed engineer in Oregon. Mr. Culley is not a licensed engineer in Oregon. In his decision, the hearings officer found that Mr. Culley's testimony was not credible because Mr. Culley is not a registered professional engineer in Oregon. However, the hearings officer did not cite to any federal, state or local regulation that requires Mr. Culley to be a registered professional engineer in order to provide ERP calculations to Mr. Pinion in this case. Mr. Pinion is a licensed engineer in Oregon. To the best of our knowledge, there is no federal, state or local regulation that prevents a licensed engineer from providing the city with his expert opinion, even if that opinion includes calculations performed by a non-engineer.

The requirement in PCC 33.274.070 referred to by the hearings officer in his decision does not create such a requirement. PCC 33.274.070(A) provides as follows:

> "Measurements by an engineer. All measurements required in this chapter must be made by a qualified licensed engineer with a Federal Communications Commission First Class or General Radio-Telephone License or under the supervision of a registered professional electrical engineer."

PCC 33.274.070 pertains to "measurements" required in PCC Chapter 274, and does not apply to the ERP calculations provided by Mr. Culley to Mr. Pinion. This is true for several reasons. First, Mr. Culley's calculations contained in Mr. Pinion's October report relate to the threshold ERP calculations required in PCC Chapter 33.815; they do not relate to any measurements required in PCC Chapter 33.274. Second, Mr. Culley did not measure anything. In the information supplied by Mr. Culley to Mr. Pinion, Mr. Culley used the manufactures' specifications for each antenna to calculate the expected ERP for the proposed facility, based on

the maximum number of transmitters expected to be installed on the site. Mr. Culley's calculations did not require measurements to be taken. Because the facility has not been built, there is nothing to measure. The requirement in PCC 33.274.070 that "Measurements required in Chapter 33.274 be made by a qualified licensed engineer with an FCC First Class or General Radio-Telephone License or under the supervision of a registered professional electrical engineer," therefore does not apply. Third, the fact that Mr. Culley is not a registered professional engineer does not prevent Mr. Culley from providing ERP calculations to Mr. Pinion, nor does it prevent Mr. Pinion from using those calculations as a basis for his expert opinion. In short, the fact that Mr. Culley is not a registered professional engineer is a red herring.

With regard to any so-called "conflicting representations" referred to by the hearings officer in his decision, the record demonstrates that the three different ERP estimates in the record are not "conflicting representations" at all. The first ERP estimate in the record was provided early in the application process by Mr. Pinion, in his March, 2011 report. At that time, he estimated that ERP for this facility would be less than 10,000 watts. That statement is true. The estimate in his March report was prepared before more detailed ERP information was available and was expressly superseded by Mr. Pinion's October, 2011 report. The second ERP estimate in the record was provided by Mr. Pinion in his October report, based on more detailed ERP information that was then available. His October report estimated that the ERP for this facility would be less than 759 watts. This statement is also true and does not conflict with the first estimate. This estimate was discussed at the hearing and is the applicant's estimate of the ERP for this facility, for purposes of applying the PCC 815.225(C)(1) ERP threshold. The third ERP estimate in the record is in a City of Portland "Radio Frequency Transmission Facilities Registration Form" signed by the applicant's representative, Ms. Laura Hopfer, dated October 4, 2011. This form estimates the ERP at 39.28 watts ERP for the pilot channel of the facility. This estimate is also true and does not conflict with the first or second estimate. The purpose of this ERP estimate was to specify the maximum power of the pilot channel of the facility. In any event, both estimates for this facility are less than 1,000 watts ERP. Since the FCC limits power for wireless facilities to 1,000 watts ERP or less, and since our expert testimony shows that the facility will operate under those levels, there is substantial evidence in the record to conclude that this facility can and will operate at 1,000 watts ERP or less.

City Council can and should find that the data, estimates and opinions provided by both Mr. Culley and Mr. Pinion to be both credible and consistent with the federal requirements for this facility, which limit ERP to 1,000 watts or less. Council should also find that the data, estimates and opinions provided by Mr. Culley and Mr. Pinion are not conflicting and are supported by substantial evidence in the record. Moreover, because the proposed wireless facility is regulated by federal law and is subject to a maximum ERP limit of 1,000 watts or less, Council should find that as a matter of federal law, ERP for this facility will not exceed 1,000

watts. For all of these reasons, City Council should find that the facility will operate at an ERP of 1,000 watts or less, and that it is therefore subject to the criteria in PCC 33.815225(C). If for any reason Council doubts the credibility of the testimony provided by Mr. Culley and Mr. Pinion, we ask that you accept a letter from Thomas S. Gorton PE, verifying this testimony. (*See* Applicant's Exhibit B attached hereto.)

D) ORS 197.522. As noted earlier, the FCC limits power emitted from this facility to 1,000 watts ERP or less. Federal law therefore ensures that the facility will operate at 1,000 watts ERP or less. With regard to the 1,000 watt ERP threshold in PCC 33.815.225(C), the City can condition approval of this facility to ensure that the facility will operate at 1,000 watts ERP or less. ORS 197.522 provides that a local government shall approve an application for a permit for construction on any land that is consistent with the comprehensive plan and applicable land use regulations, or shall impose reasonable conditions on the application to make the proposed activity consistent with the plan and applicable regulations. In this case, it was error for the hearings officer not to find that the facility can and will operate at 1,000 watts ERP or less. In the alternative, the hearings officer could have conditioned approval of this application pursuant to ORS 197.522, to ensure that it would operate at or below 1,000 watts ERP, consistent with federal law.

III. Substantive Approval Criteria Issue

Issue: Is there substantial evidence in the record showing that all of the substantive approval criteria in PCC 33.815.225(C)(1)-(6), PCC 33.274.040(C), and PCC 33.805.040(A)-(F) are or can be met, subject to reasonable conditions of approval?

Answer: Yes. There is substantial evidence in the record that all of the substantive approval criteria are or will be met, subject to reasonable conditions of approval.

A) The Hearings Officer erred by not determining what criteria applied, and by not making findings on any of the substantive approval criteria. In his decision, the hearings officer determined that "the question of which approval criterion (PCC 33.815.225(C) or (D)) applies remains undetermined." Furthermore, the hearings officer did not make any findings regarding any of the substantive approval criteria in PCC 33.815.225(C) or (D), PCC 33.274.040(C) or PCC 33.805.040(A)-(F).

The appellant notes that there is no dispute in this case that the criteria in either PCC 33.815.225(C) or (D) apply. As a practical matter, the hearings officer could have, and should have, made alternative findings under both subsections (C) and (D), since there is no dispute that one or the other of these subsections applies. Likewise, he could have and should have made findings on all of the other relevant criteria, since there was no dispute that they applied. The hearings officer's failure to do so violates ORS 227.173(3). This statute requires

the hearings officer to explain the justification for his decision based on the applicable approval criteria and the evidence in the record. As both a legal and a practical matter, the hearings officer's failure to decide what approval criteria apply, along with his failure to make the required findings, violates the applicant's substantial right in that regard.

B) There is substantial evidence in the record that all of the relevant approval criteria are or can be met, subject to reasonable conditions of approval. The staff report for the October 3, 2011 hearing reviewed what staff and the applicant believe to be all of the relevant approval criteria, along with all of the evidence in the record, and determined that there was substantial evidence in the record that all of the relevant approval criteria are or could be met, subject to the conditions of approval proposed by staff. Similarly, the applicant's narrative and supporting materials demonstrate that there is substantial evidence in the record that all of the relevant approval criteria are or can be met. The rebuttal memo from staff dated 10/16/11, along with the rebuttal information submitted by the applicant, further demonstrate that there is substantial evidence in the record that all of the relevant approval criteria are or can be met.

The appellant has also submitted a document as part of this appeal titled "Applicant's Proposed Findings." (*See* Appellant's Exhibit C attached.) This document addresses all of the relevant approval criteria, and further demonstrates that there is substantial evidence in the record that all of the relevant approval criteria are or can be met.

IV. Applicant's Recommendation

Verizon Wireless asks that City Council grant our appeal and approve this application, subject to the conditions proposed by BDS staff in their report prepared for the October 3, 2011 hearing, which are set forth below.

In the alternative, we ask that City Council accept additional evidence in this appeal, including relevant legislative history regarding the adoption of the city's 1,000 watt ERP threshold in PCC 33.815.225(C) (*see* Appellant's Exhibits A-1, A-2 and A-3 attached), and a letter from Thomas S. Gorton PE, verifying the testimony of Mr. Culley and Mr. Pinion. (*See* Appellant's Exhibit B attached.) If Council elects to reopen the evidentiary record, we would ask that Council provide the public with an opportunity to rebut such evidence, and that it otherwise comply with ORS 197.763(7). The applicant will extend both the state 120-day shot clock and the FCC 150-day shot clock for a reasonable period of time to facilitate this continuance. The applicant respectfully reserves its right under ORS 197.763(6)(e) to submit final written rebuttal argument.

V. Proposed Conditions of Approval

The following conditions of approval were recommended by staff. The applicant concurs with these conditions:

A) As part of the building permit application submittal, the following development-related condition (B) must be noted on each of the four required site plans or included as a sheet in the numbered set of plans. The sheet on which this information appears must be labeled "ZONING COMPLIANCE PAGE – Case File LU 11-125536 CU AD." All requirements must be graphically represented on the site plan, landscape, or other required plan and must be labeled "REQUIRED."

B) The applicant must place all of the accessory equipment, except for the electrical service meter within an equipment building and the emergency generator screened by a matching wall.

In addition, the applicant is willing to install street trees and ground cover in the public ROW along the frontage of the site on SE Foster Road, subject to the review and approval of the Portland Bureau of Transportation Engineering. This vegetation would significantly upgrade the site's frontage and would provide an additional benefit to the community. The following additional condition is therefore recommended by the applicant:

C) The applicant shall install street trees and ground cover in the public ROW along the frontage of the site on SE Foster Road, subject to the review and approval of the Portland Bureau of Transportation Engineering.

Respectfully submitted,

Davis Wright Tremaine LLP

Phillip E. Grillo

PEG/lkt/slb
Enclosures – Exhibits A-1, A-2 & A-3 (Legislative History)
Exhibit B (Letter from Thomas S. Gorton PE, Hatfield & Dawson)
Exhibit C (Applicant's Proposed Findings)

cc: Verizon Wireless
John Hendrickson
Sylvia Cate, City Planner

Office of Planning
and
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Land Use Review Division

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MEMO

Date: **May 12, 2000**

To: **Kathryn Beaumont, Ben Walters; City Attorney's Office**

From: **Sylvia Cate, Land Use Review**
Phone number (503) 823-7771

Susan Feldman, Principal Planner
Land Use Review

Re: **EFFECTIVE RADIATED POWER AS A REVIEW THRESHOLD IN CHAPTER 33.274**

The purpose of this memo is to summarize the issues surrounding the use of 100 watts Effective Radiated Power as a threshold for review determinations in Chapter 33.274. Given the number of situations that have occurred recently between Land Use Review applications, and zoning/building permit applications for those facilities allowed by right, I conclude that we have a potentially serious problem with our current regulations and the way in which they are structured.

After meeting with Susan Feldman and Margaret Mahoney yesterday to discuss these issues in depth, it was determined that we need to apply the code as it is written until it can be amended, and to request an opinion from the City Attorney as to whether existing FCC regulations have any impact on how we can administer the current ERP threshold of the Zoning Code.

BACKGROUND

Chapter 33.274, originally entitled "Radio and Television Broadcast Facilities" was adopted in May 1992, with minor amendments adopted in October 1993.

The structure of the original body of regulations established a threshold that determined which procedural path radio and television broadcast facilities were to be reviewed. That threshold was established as 1,000 watts Effective Radiated Power (ERP). Those facilities operating at or below 1,000 watts ERP and mounted on an existing non-broadcast structure were reviewed through a Type II procedure. All other facilities were reviewed through a Type III procedure.

These regulations were primarily intended for moderate to very high powered broadcast facilities for dispatch radio, broadcast radio and broadcast television stations. Circa 1986, the FCC issued licenses to two cellular phone service providers for the Portland metropolitan area, and these regulations were applied to the resultant low-powered, line-of-sight broadcast networks for cellular phone service.

With the passage of the 1996 Telecommunications Act and associated broadcast spectrum auctions, new types of cellular services, known as 'wireless telecommunications' were introduced to the consumer market, and the resultant explosive proliferation of 'monopoles' or 'cell towers' to support the associated line-of-sight broadcast networks captured the public's attention due to their rapid increase and visual impacts. The 1996 Telecom Act created three different types of personal mobile wireless telecommunications systems: the original 'Cellular' mobile phone service, and two new types, Personal Communication Service (PCS) and Specialized Mobile Radio Service (SMRS). To the average consumer, these

three types of services are more familiar by brand names, such as AT&T Wireless, Voicestream, and Nextel, respectively. Each of these systems, from the layperson's perspective, belong to the same general category of low-power, cellular-networked radio frequency emission facilities.

In response to the 1996 Telecommunications Act and public concerns, Chapter 33.274 and the associated conditional use review Section 33.815.225, were significantly revised in November 1997 to include new development standards, new approval criteria and revised review procedures to better address these new wireless telecommunications facilities and their impacts.

The 1997 revisions and amendments to Chapter 33.274 and Section 33.815.225 created a three-tier threshold for review of broadcast facilities, again expressed in terms of "Effective Radiated Power." The revised threshold now includes facilities operating at 100 watts ERP or less; facilities operating between 101 and 999 watts ERP; and facilities at 1,000 watts ERP or greater. The 100 watts ERP threshold was created specifically to distinguish Cellular, PCS and SMRS facilities from the other moderate- and high-powered broadcast facilities. The intention of this threshold was to assign these facilities to a specific review track so that all low-powered wireless telecommunications facilities that provide services via line-of-sight networks either be allowed or reviewed via certain procedure levels. The revisions relaxed regulatory review of these facilities in some cases, and created more stringent review in other cases in order to encourage co-location on existing towers and rooftops of buildings, and to discourage applications for new towers. If a conditional use review is required, these facilities must meet new approval criteria specifically written to address the impacts of 'cellular monopoles' and associated equipment in or near residential neighborhoods.

Because these facilities are extremely low-powered, and given the City's experience with the traditional Cellular facilities and their broadcast technology, early in the 1997 revision draft process, a threshold of 100 watts ERP was established to distinguish the low-powered wireless telecommunications facilities from other broadcast facilities. The code revisions included public input from both citizens concerned with the proliferation of monopoles and vigorous participation by representatives of the telecommunications industry. The Healy Heights Advisory Board, also reviewed the proposed code amendments and supported them. The first draft of the proposed amendments were presented to the Planning Commission on March 21, 1997. Subsequent revisions were proposed to the Planning Commission on May 16, 1997, a third revised draft was heard on June 27, 1997, and The Planning Commission's final Report and Recommendation to City Council was published September 30, 1997. Each of the revisions had ample public testimony and input from citizens and the telecommunications industry.

Meanwhile, the FCC was conducting a number of rulemaking proceedings, as directed by the 1996 Telecom Act, and in August of 1997 issued OET Bulletin 65, *Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields*. This document was reviewed by staff during the 1997 zoning code revisions to determine that the FCC's newly adopted RF exposure levels were consistent with Table 274-1 of the Portland Zoning Code. This table establishes maximum permissible levels of equivalent plane-wave power densities by frequency range. (The City's maximum levels defined by this Table are virtually identical to the FCC's regulations.)

What was not noticed at that time was the FCC had also established ERP standards for the three primary services of wireless telecommunications (officially: Cellular Radiotelephone Service, Personal Communications Service, and Specialized Mobile Radio Service). Each of these classifications are regulated by limits of power, defined as effective radiated power (ERP), equivalent isotropically radiated power (EIRP) or peak envelope power (PEP), as defined in 47 CFR. § 2.1. The power limits of the three categories of wireless telecommunications services are regulated as follows: Cellular, 47 CFR § 22, Subpart H; PCS, 47 CFR § 24; and SMRS, 47 CFR § 90. [ref. OET Bulletin 65, pp. 65 – 70]. In general, it appears that these types of facilities are authorized by the FCC to routinely operate at or

below 1000 watts ERP (1640 watts EIRP). Any facility exceeding these FCC thresholds requires a 'routine environmental evaluation' as further defined by the FCC.

THE CRUX OF THE ISSUE

The Portland Zoning Code establishes 100 watts ERP as the threshold to distinguish these types of facilities from higher powered broadcast facilities. The Zoning Code defines ERP as:

A calculation of the amount of power emitted from a radio frequency antenna.

The FCC's rules (47 CFR § 2.1 and § 1.1310) defines ERP as follows:

The product of the power supplied to the antenna and its gain relative to a half-wave dipole in a given direction.

Furthermore, the FCC defines EIRP (equivalent isotropically radiated power) as the product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna. By my layperson's calculations, this results in these types of facilities being limited to 1000 watts ERP or 1640 watts EIRP. [ref. OET Bulletin 65, pp. 12 – 20], a significant difference from the 100 watts ERP allowed by chapter 33.274.

This discrepancy between the FCC limits and the City's zoning code limits was not apparent during the code revision process, likely because the FCC's new guidelines were being established in a parallel timeframe. The threshold was not identified as a potential problem by any of the telecommunications representatives who reviewed the draft revisions and testified before the Planning Commission. The industry participants included individuals with RF engineering expertise. It has only recently become evident as applications are being made to the City by wireless telecommunications service providers for either building permits or land use review for new facilities, and the calculated ERP for the new facilities are being declared above the 100 watt ERP threshold. The problem is significant because these facilities operate well below the maximum thresholds established by the FCC, but exceed the 100 watts ERP established by the Portland Zoning Code. This results in facilities we intended to allow by right requiring land use reviews, and in some cases the review would be a Type III Conditional Use. In other cases, the approval criteria intended specifically for these facilities would not be applicable, and other, less restrictive criteria would be triggered.

This problem first became apparent in mid- to late January of this year when the required registration forms for these facilities were submitted with building permit plans and the zoning specialist in the Development Services Center noticed the higher values of ERP. I have been investigating this problem since then, initially assuming that the values being declared were the total output of all antennas of the facility, rather than of one single antenna, as defined by Chapter 33.910. In many instances, dividing the total number of antennas by the declared ERP resulted in values well below 100 watts. I have discussed this situation with Steve Gerber, Senior Planner and technical support staff for the 1997 amendments, who understands this area of RF science far better than I do. Steve has been extremely helpful in suggesting ways to approach the problem from an ERP power calculation perspective, but the routes I have explored have not yielded a simple, formulaic solution.

I interviewed a representative for Cellular service (Spencer Vail) who described the concept of 100 watts ERP *per channel* for this class of service, which appeared to be the mathematical bridge I was seeking in determining an equivalency calculation. However, upon further investigation, I've determined this is inadequate, because these various wireless facilities can employ four different access methods to the wireless network, including Frequency Division Multiple Access (FDMA), Time Division Multiple Access (TDMA) Code Division Multiple Access (CDMA) and Global System for Mobile (GSM). Each of these technologies divide and share bandwidth in vastly differing ways, with differing calculations of ERP (as I understand it) and some of the technologies don't utilize 'channels.' After investigating the information in OET Bulletin 65, the broadband PCS

power limits described in 47 CFR § 24.232 - §24.237, and reviewing a letter from a Sprint RF engineer (see attached) I have concluded that the threshold set by the Portland Zoning Code is problematic, given the federal regulatory rulemakings and technologies that have derived from passage of the 1996 Telecom Act.

Currently, I have been operating under the assumption that those facilities applied for by Nextel, Sprint, Voicestream, etc. that declare higher ERP values should be processed by the regulations intended for such facilities. I have advised the zoning specialist in the Development Services Center to treat the allowed by right facilities as under 100 watts ERP, despite the modestly higher values declared. (To date these have ranged from 200 to 450 watts ERP). The rationale and assumptions I have relied on in making this judgement call includes the reasons described above, plus the fact that despite the higher levels of ERP, these facilities operate well below the maximum plane wave equivalent power densities described in Table 274-1. In addition, the FCC has pre-empted local jurisdictions from denying applications on the basis of 'harmful radio frequency emissions;' thus, the protocol has been to apply those regulations that were clearly intended for these facilities until such time that I could develop a clear calculation demonstrating that the declared ERP values were equivalent to the ERP thresholds as defined by the Zoning Code. I have spared you the mind-numbing equations for predicting RF fields in ERP and EIRP values, which appear to involve calculations of logarithmic power gain, in dB, and πR^2 functions subsequently divided by power, gain, and EIRP values. Therein may lie a formulaic solution that allows for a translation to the City's threshold, but it is beyond my technical abilities to discover it.

More problematic are Pre-Application Conferences and Conditional Use Reviews. It is difficult to explain in a Pre-App why certain provisions apply when it appears that others should. Those planners in the DSC who are rotating through Pre-App research shifts are correctly identifying criteria not intended for these facilities based on the 100 watts ERP threshold. Current Conditional Use Reviews are also problematic, and one in particular has already been identified to staff by a neighborhood activist as destined for appeal, although currently on somewhat different issues. However, I am highly certain that this issue would become readily apparent during the close scrutiny of the record on appeal. In addition, other cases are in currently process (LUR 00-00200 CU) where the applicant has declared 444 watts ERP, but the facility is a low-powered wireless communications monopole for Sprint PCS. As a result, it is awkward to apply the approval criteria intended for this sort of application, and the applicant is expressing some justifiable frustrations with the situation.

It appears that we need to address this awkward threshold in some manner, and *quickly*, so that both planners and applicants have some surety about which regulations are applicable. This issue is not going to go away, and future and pending applications are hindered by a cloud of uncertainty. I hope this explanation captures the essence of the problem. I conclude that our threshold distinction for these facilities is not adequate for the operational reality of this class of RF emission facilities, and our options are:

- Ask the City Attorney to determine if the FCC has a regulation which supercedes the zoning code's ERP threshold and therefore our authority to apply this regulation
- Amend Chapter 33.274

cc: Margaret Mahoney
Susan McKinney
Phil Nameny
Mark Walhood
Shannon Buono
Cary Pinard

CITY OF PORTLAND, OREGON
BUREAU OF PLANNING

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MEMORANDUM

To: Cary Pinard
From: Barry Manning
Date: June 14, 2000

RE: Code Issues in Chapter 33.274

This memo summarizes some of the issues regarding code changes that may be needed in Chapter 33.274. Most of this was detailed in a May 12 memo from Sylvia Cate regarding Effective Radiated Power (ERP) as a review threshold.

The code was rewritten in 1997 to include new development standards, new approval criteria and revised review procedures to better address changes in wireless telecommunications facilities and their impacts. Essentially, the intent of the code is to:

- allow co-location of low power wireless telecommunications antennas on existing permitted towers outright;
- allow placement of low power wireless telecommunications antennae on existing buildings, structures or new towers in C, E or I zones if they are more than 50 feet from an R zone and do not exceed height requirements of the zone;
- provide conditional use review processes for facilities that are not allowed outright that are appropriate for the type facility proposed.

In the 1997 code revisions for RF facilities, 100 watts ERP was set as the threshold to distinguish low power wireless communications facilities from larger, more powerful facilities. The power threshold was set at 100 watts ERP, based on what the city understood the power of these facilities to be and was developed with industry input. In a concurrent process, the FCC determined power limits for three types of wireless communications facilities: cellular, PCS, and SMRS. In general, it appears that these types of facilities are authorized by the FCC to routinely operate at or below 1000 watts ERP.

The problem is that many of the wireless telecommunications facilities that are now proposed are triggering conditional use reviews because they have ERP ratings that exceed 100 watts. For example, a PCS antenna proposed to be co-located on an existing tower in an C, E or I zone would be the type of facility we would like to allow outright, but the power output over 100 watts ERP makes it a Type III conditional use review. On the other hand, if the facility were proposed on a new tower, it would be allowed outright. A further problem exists in that the conditional use review criteria developed specifically to address wireless communications facilities is not applicable, because they were established with the 100 watt ERP maximum threshold. The criteria for those facilities that exceed 100 watts ERP are the same as were in effect prior to the code revisions.

The permit center and development review staff are encountering problems with the code with applications for new facilities over 100 watts ERP. Development review staff has recommended that the code be amended. I would like to discuss the next steps in the process and determine how to proceed. It is possible that the Healy Heights Radiofrequency Advisory Board could be helpful in resolving some of the questions about whether the 100-watt threshold is appropriate, and could advise us on revision to the code.

Code Maintenance 2004
Parts 1A, 1B and 2

Staff Training Packet

City of Portland
Bureau of Development Services
July 13, 2004

Part 1B: Amendments to Radio Frequency Transmission Facilities

CHAPTER 33.274
RADIO FREQUENCY TRANSMISSION FACILITIES

These amendments will conform Title 33 to the City Council's adopted Cable Office right-of-way franchise policy for wireless facilities and Federal Communications Commission (FCC) regulations. The threshold of 100 watts effective radiated power (ERP) is outdated, particularly for cellular telephones, because of changes in radio communication technology and in the FCC standards. In addition, this threshold impedes implementation of the franchise policy, which is intended to encourage placement of cellular telephone equipment in the right-of-way whenever possible. These amendments propose to increase 100 watts ERP to 1,000 watts ERP in most places in this chapter and in the conditional use approval criteria in 33.815.225.

Some cellular telephone technology operates with facilities of 100 watts, or less, ERP. Newer wireless technology operates at higher frequencies and requires higher ERP to achieve the same coverage. Though these two technologies provide the same service, operators of higher frequency wireless facilities are subject to a higher review standard under the current code. All wireless telephone providers were intended to be reviewed under the approval criteria currently stated for facilities of less than 100 watts ERP. Increasing the threshold to 1,000 watts ERP will level the field for all providers and make the Zoning Code regulations consistent with FCC regulations.

33.274.030 Facilities Exempt from this Chapter

The first amendment sets the threshold for review of existing facilities that increase their emission level to be consistent with the other thresholds for review. The second amendment is the first of several places where the ERP is raised from 100 watts to 1,000 watts.

33.274.035 Facilities Allowed Without a Conditional User Review

Increasing the threshold to 1,000 watts ERP allows paragraph C., D. and E. to be deleted because the circumstances described in them are covered by paragraphs A. and B.

CHAPTER 33.274
RADIO FREQUENCY TRANSMISSION FACILITIES

(Amended by: Ord. No. 166920, effective 10/1/93; Ord. No. 165376, effective 5/29/92; Ord. No. 171718, effective 11/29/97; Ord. No. 174263, effective 4/15/00.)

Sections:

33.274.010 Purpose
33.274.020 When the Regulations Apply
33.274.025 When a Conditional Use Review is Required
33.274.030 Facilities Exempt from This Chapter
33.274.035 Facilities Allowed Without a Conditional Use Review
33.274.040 Development Standards
33.274.050 Procedures for Conditional Use Review
33.274.060 Registration of Existing Facilities
33.274.070 Measurements
33.274.080 Review of Radio Frequency Transmission Facility Regulations

33.274.030 Facilities Exempt from this Chapter

All of the following are allowed without a conditional use and are exempt from the regulations of this chapter:

A. Emergency or routine repairs, reconstruction, or routine maintenance of previously approved facilities, or replacement of transmitters, antennas, or other components of previously approved facilities which do not create a significant change in visual impact or an increase in radio frequency emission levels above 1,000 watts ERP;

B. through J. [No change]

K. Facilities operating at ~~100~~ 1,000 watts ERP or less, locating on any existing radio transmission tower that has been approved as a conditional use or allowed under Section 33.274.035, below. Triangular "top hat" style antenna mounts are prohibited. Antennas must be mounted to a tower either on davit arms that are no longer than 5 feet, flush with the tower, or within a unicell style top cylinder.

33.274.035 Facilities Allowed Without a Conditional Use Review

All of the following are allowed without a conditional use but are subject to the development standards in this chapter:

A. Facilities in C, E, or I zones operating at ~~100~~ 1,000 watts ERP or less, mounted on an existing building or other non-broadcast structure provided that the facility is more than 50 feet from an R zone.

B. Facilities in C, E, or I zones operating at ~~100~~ 1,000 watts ERP or less, supported by a new tower provided that:

1. The tower is more than 50 feet from an R zone;

2. The tower meets the height requirement for buildings in the base zone; and

3. The tower is more than 2,000 feet from any other facility that is supported by a tower not operated by the applicant.

33.274.035 Facilities Allowed Without a Conditional User Review (continued)

Increasing the threshold to 1,000 watts ERP allows paragraph C., D. and E. to be deleted because the circumstances described in them are covered by paragraphs A. and B. This also makes Title 33 consistent with the federal laws that regulate wireless facilities.

33.274.040 Development Standards

This amendment changes the ERP from 100 watts to 1,000 watts.

~~**C.** Facilities in C or EX zones operating at between 101 and 999 watts ERP mounted on an existing building or other non-broadcast structure provided that the facility is more than 50 feet from an R zone.~~

~~**D.** Facilities in EG or I zones operating at between 101 and 999 watts ERP mounted on an existing building or other non-broadcast structure.~~

~~**E.** Facilities in C, E, or I zones operating at between 101 and 999 watts ERP supported by a new tower provided that:~~

~~1. The tower is more than 50 feet from an R zone;~~

~~2. The tower meets the height requirement for buildings in the base zone; and~~

~~3. The tower is more than 2,000 feet from any other facility that is supported by a tower.~~

33.274.040 Development Standards

A. through B. [No change]

C. General requirements

1 through 10 [No change]

11. Mounting device. The device or structure used to mount facilities operating at ~~100~~ 1,000 watts ERP or less to an existing building or other non-broadcast structure may not project more than 10 feet above the roof of the building or other non-broadcast structure.

12. [No change]

D. Additional requirements in OS, R, C, and EX zones and EG and I zones within 50 feet of an R zone.

1. Purpose. These additional regulations are intended to ensure that facilities operating at ~~100~~ 1,000 watts ERP or less have few visual impacts. The requirements encourage facilities that look clean and uncluttered.

2. Standards. In addition to the regulations in Subsection C., above, facilities operating at ~~100~~ 1,000 watts ERP or less located in OS, R, C, or EX zones or EG or I zones within 50 feet of an R zone must meet all of the following standards:

a through c [No change]

E. [No change]

33.274 Radio Frequency Transmission Facilities (continued)

33.274.050 Procedures for Conditional Use Review

A. Type I procedure.

The first amendment eliminates the Type I procedure for Radio Frequency Transmission Facilities and assigns equipment associated with and RF facilities that are in the ROW a Type I review procedure.

The Cable Office franchise policy for wireless facilities seeks to have radio frequency transmission facilities operating at 1,000 watts ERP or less placed in the right-of-way as much as possible. However, some associated equipment is too large to be placed on poles and sometimes the sidewalk and planting area do not have enough room for additional fixtures. In some cases this equipment can be placed on an existing building but in many cases it has to be placed on the ground. Under the current regulations equipment associated with transmission facilities in the right-of-way must go through a Type III review procedure. Assigning these reviews to the Type I review will encourage the placement of the transmission facility in the ROW.

33.274.050 Procedures for Conditional Use Review
Unless exempted by 33.274.030 or 33.274.035, above, all Radio Frequency Transmission Facilities are reviewed through the procedures stated below.

A. Type I procedure. ~~Requests for Radio Frequency Transmission Facilities operating at 100 watts ERP or less, to be located on an existing building or other non-broadcast structure in an OS or R zone or within 50 feet of an R zone are processed through a Type I procedure.~~ In all zones, requests for equipment cabinets or shelters located on private property associated with Radio Transmission Facilities mounted in a right-of-way are processed through a Type I procedure.

B. Type II procedure. Requests for Radio Frequency Transmission Facilities operating ~~between 101 and 999~~ at 1,000 watts ERP or less to be located on an existing building or other non-broadcast structure in an OS or R zone or C or ~~EX~~ zone within 50 feet of an R zone are reviewed through a Type II procedure.

C. Type III procedure. All other requests for Radio Frequency Transmission Facilities are reviewed through a Type III procedure.

CHAPTER 33.420
DESIGN OVERLAY ZONE

33.420.045 Exempt From Design Review

N. Radio frequency transmission facilities

This section is another location in Title 33 where the reference to 100 watts ERP is recommended to be amended to 1,000 watts ERP.

CHAPTER 33.420
DESIGN OVERLAY ZONE

33.420.045 Exempt From Design Review
The following items are exempt from design review:

A. through M. [No change]

N. Radio frequency transmission facilities operating at ~~100~~ 1,000 watts ERP or less that are added to the facade of an existing penthouse that contains mechanical equipment provided the antenna and any accessory equipment are no higher than the top of the penthouse and painted to match.

O. through Q. [No change]

CHAPTER 33.815
CONDITIONAL USES

33.815.225 Radio Frequency Transmission Facilities

These amendments make the review criteria consistent with the changes recommended in 33.274, Radio Frequency Transmission Facilities. The changes in that chapter make Title 33 consistent with the City Council adopted Cable Office right-of-way franchise policy for wireless facilities and FCC regulations. An addition to the criterion requires documentation as to why the facility cannot be placed in the right-of-way. This is consistent with the City Council approved utilities franchise policy, which seeks to encourage RF facilities to be placed in the ROW whenever feasible. However, the range of reasons why a facility cannot be located in the right-of-way includes but is not limited to: pole height, location, and availability, the feasibility of placing the facility in the right-of-way, the lack of a signed agreement with the City; and the applicant's business preferences for placement on private property.

CHAPTER 33.815
CONDITIONAL USES

33.815.225 Radio Frequency Transmission Facilities
These approval criteria allow Radio Frequency Transmission Facilities in locations where there are few impacts on nearby properties. The approval criteria are:

A. Approval criteria for facilities operating at ~~100~~ 1000 watts ERP or less, proposing to locate on an existing building or other non-broadcast structure in an OS or R zone or in a C, E, or I zone within 50 feet of an R zone:

1 through 3 [No change]

B. Approval criteria for facilities operating at ~~100~~ 1000 watts ERP or less, proposing to locate on a tower in an OS or R zone, or in a C, E, or I zone within 50 feet of an R zone:

1. The applicant must prove that a tower is the only feasible way to provide the service, including documentation as to why the proposed facility cannot feasibly be located in a right-of-way;

2. through 6. [No change]

C. Approval criteria for facilities operating at ~~100~~ 1000 watts ERP or less, proposing to locate on a tower in a C or EX zone more than 50 feet from an R zone:

1. The applicant must prove that a tower that is taller than the base zone height standard allows or is within 2,000 feet of another tower is the only feasible way to provide the service, including documentation as to why the proposed facility cannot feasibly be located in a right-of-way;

2. through 6. [No change]

D. [No change]

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January 5, 2012

Honorable Mayor Sam Adams and
City Commissioners
City of Portland
1221 SW 4th Ave.
Portland, OR 97204

Re: **LU 11-125536 CU AD (Verizon Wireless)**

Dear Mayor Adams and Commissioners:

Hatfield & Dawson Consulting Engineers has been retained to review the prior written testimony of Mr. Jeff Culley of Verizon Wireless, and the prior written testimony of Mr. David Pinion of Hatfield & Dawson, with regard to the above-mentioned case. Specifically, we have been asked to review prior evaluations of the proposed Verizon Wireless personal wireless telecommunication facility "POR FOSTER" for compliance with current Federal Communication Commission (FCC) regulations regarding human exposure to radio frequency (RF) and electromagnetic fields (EMF), and maximum Effective Radiated Power (ERP) limits.

Qualifications

I am an experienced radio engineer whose qualifications are a matter of record with the Federal Communication Commission. I am an engineer in the firm of Hatfield & Dawson Consulting Electrical Engineers. I am a Registered Professional Engineer in the states of Oregon and Washington. I also hold an FCC General Radio Telephone Operator License, number PG-13-10466. I hold a Bachelors Degree in Electrical Engineering from Seattle University, and have been employed as an engineer at Hatfield & Dawson since 1999. Prior to joining Hatfield & Dawson I worked as an RF design engineer for a nationwide cellular provider.

Documents Reviewed

I have reviewed the following documents that have been submitted into the record in this case:

1. Record Exhibit A-2 (Engineering Certification from Mr. David Pinion of Hatfield & Dawson, dated March 2011 (superseded).

2. Record Exhibit A-3 (Revised Report from Mr. David Pinion of Hatfield & Dawson, dated August 2011).

3. Record Exhibit H7 (Letter from Mr. Jeff Culley of Verizon Wireless, with allotments, dated 9/26/11).

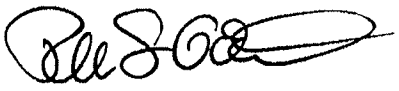
4. Record Exhibit H28(a) (Supplement to Revised Report from Mr. David Pinion of Hatfield & Dawson, dated October 2011.

Conclusion

Based upon my professional experience, the information and conclusions contained in the above-mentioned exhibits are professionally credible and are consistent with standard industry practice concerning wireless network design and compliance with current FCC ERP, RF and EMF regulations. I find the per channel ERP values and number of channels specified by Verizon for use at the proposed POR FOSTER site to be consistent with those provided by Verizon and other providers for use at similar sites reviewed by Hatfield & Dawson. Mr. Pinion's reports are based on the calculation methodology specified in OET Bulletin 65 *Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields* published by the Office of Engineering & Technology of the Federal Communications Commission.

I will be available at the City Council hearing on January 11, 2012, if you have any questions.

Respectfully submitted,



Thomas S. Gorton, PE
Hatfield & Dawson
Consulting Electrical Engineers

APPLICANT'S PROPOSED
FINDINGS
in
LU 11-123536 CU AD (Verizon Wireless)

I. CONDITIONAL USE APPROVAL CRITERIA

33.815.225 Radio Frequency Transmission Facilities

(C) Approval criteria for facilities operating at 1,000 watts ERP or less, proposing to locate on a tower in a C or EX zone more than 50 feet from an R zone:

33.815.225(C)(1)

(1) The applicant must prove that a tower that is taller than the base zone height standard allows or is within 2,000 feet of another tower is the only feasible way to provide the service, including documentation as to why the proposed facility cannot feasibly be located in a right-of-way.

Proposed Findings: There is substantial evidence in the record that the proposed tower is within 2,000 feet of another tower, but that the proposed tower is the only feasible way to provide the service, including documentation as to why the proposed facility cannot feasibly be located in a right-of-way.

The applicant has documented a gap in service capacity and coverage. (*See* Exhibits A-1, H-7 and 28). As part of the applicant's analysis within the search ring, the applicant identified three options for providing the needed service. These options include potential colocation on an existing tower within the search ring, potential colocation on an existing rooftop facility within the search ring, and potential colocation within the right-of-way on SE Foster Road, within the search ring.

Colocation on Existing Tower. This option was discussed in detail in the applicant's materials and in the staff report. Evidence in the record shows that colocation on a nearby tower is not feasible because Verizon's coverage objectives cannot be met due to inadequate tower height. In addition, space constraints on the site prevent the applicant from locating its ground equipment within the leased area or in other available areas on the site. This option is therefore not feasible.

Colocation on Existing Rooftop Facility. This option was also discussed in detail in the applicant's materials and in the staff report. Evidence in the record shows that colocation on a nearby rooftop facility is not feasible because the structural integrity of the rooftop is not capable of supporting the applicant's antenna. In addition, evidence in the record shows that it is not feasible for the applicant to locate needed ground equipment on the site. This option is therefore not feasible.

Colocation within the ROW. This option was discussed in detail in the applicant's materials and in the staff report. The Bureau of Transportation also commented on this option. Evidence in the record shows that colocation within the public ROW on SE Foster Road is not feasible because there is insufficient area within the ROW to locate needed equipment and cabinets. Based upon city GIS information, the Bureau of Transportation indicated that there are multiple underground service laterals that would make it problematic to locate needed equipment and cabinets underground within the search ring. PDOT has determined that above grade or below grade installation of needed equipment and cabinets would not be feasible in the ROW on SE Foster Road within the search ring. For all of these reasons, colocation within the ROW along SE Foster Road is not feasible.

Overall, there is substantial evidence in the record that the proposed tower is the only feasible way to provide the needed service. This criterion is therefore met.

33.815.225(C)(2)

(2) The tower, including mounting technique, must be sleek, clean and uncluttered.

Proposed Findings: Evidence in the record shows that the tower design, including the mounting design, will be sleek, clean and uncluttered. The 45-foot monopole will be sleek and clean in appearance as shown by the photos and plans in the record. The photos also show that the mounting design and antennas will be attached to the pole in an uncluttered way. The submitted plans show davit arms approximately 2 feet in length supporting a lateral mounting bar that the antennas are mounted on. No "top hat" style antenna mounts are proposed, and there will be no grating around the mounting device. This mounting configuration and overall design is as sleek, clean and uncluttered as possible. This criterion is therefore met.

33.815.225(C)(3)

(3) Accessory equipment associated with the facility must be adequately screened. If a new structure will be built to store the accessory equipment, the new structure must be designed to be compatible with the desire character of the surrounding area.

Proposed Findings: Evidence in the record shows that accessory equipment associated with the facility will be adequately screened and that the small structures that will be built to store accessory equipment and screen the proposed generator will be designed to be compatible with the desired character of the surrounding area. Evidence in the record shows that the perimeter of the property along the west, south and east property lines is surrounded by a concrete wall that screens the site from adjacent uses. In addition, evidence in the record shows that there is an existing building directly north of the proposed facility that screens the accessory equipment associated with the facility from adjacent uses.

With regard to the desired character of the area, there is substantial evidence in the record that the small equipment shelter that will be built to screen the accessory equipment associated with the facility and the matching wall that will be built to screen the emergency generator will be compatible with the desired character of the surrounding area. These structures will provide complete visual screening of the equipment and will be more compatible with the surrounding area and the desired character of the commercial area along SE Foster Road. The staff report at pp. 10-11 provides detailed findings concerning the desired character of the area that adequately explain why these small structures will be compatible with the desired character of the area and the purpose of the CG zone. It should also be noted that by placing this accessory equipment in an equipment shelter/building, the site will become more conforming, because this equipment will not be used as an external work activity area or an area for exterior display, as much of the site is now. For all of these reasons, there is substantial evidence in the record that this criterion can and will be met.

33.815.225(C)(4)

(4) The visual impact of the tower on the surrounding area must be minimized.

Proposed Findings: There is substantial evidence in the record that the tower will be located as far away from adjacent residential uses to the west as possible, within the leased area. As noted in the staff report, PCC 33.815.225(B)(3)(a)-(e) lists several ways that visual impacts can be minimized. The evidence shows that the applicant has utilized two of these methods to minimize visual impacts on the surrounding area. First, the applicant has limited the height of the tower to 45 feet, which is a permitted height in the base zone. Second, the applicant has located the tower as far away from the adjacent residential uses to the west as possible, given the lease area, and has located the tower behind the main building on the site for additional screening. The facility itself is 53 feet away from the adjacent residential zone, and is approximately 110 feet away from the nearest residential structure. For all of these reasons, the visual impact of the tower on the surrounding area will be minimized.

In addition, evidence in the record shows that the visual context of the surrounding area includes a significant amount of overhead infrastructure, including numerous 45-foot tall utility poles. These 45 foot tall poles are located along most of the streets in the surrounding area. In addition, there is a set of 65-foot tall utility poles located along SE 70th Street and SE 65th Street, near the site. As a result, this neighborhood, like many others in Portland, contains a significant amount of overhead infrastructure that provides electrical power, land-line phones, cable and street light service to homes and business in the area. The height of the proposed 45-foot wireless monopole is similar to the existing overhead infrastructure in the area. On the other hand, the overall design of the proposed 45 foot wireless monopole is more sleek and uncluttered than other overhead infrastructure in the surrounding area, because most of the existing overhead infrastructure has multiple davit arms of varying lengths that often support multiple attachments, including various wires, transformers and mounting devices.

Evidence in the record also shows that within the existing visual context of the surrounding area, the visual impact of the tower will be minimized because the height of the proposed 45-foot monopole is consistent with or less than the height of existing overhead infrastructure in the surrounding area. Unlike overhead power, cable and telephone poles that support overhead wires, the proposed monopole provides wireless services, and in doing so, creates less visual impact than similar or taller power, cable or telephone poles in the surrounding area. For all of these reasons, and for the reasons discussed in the staff report and applicant's narrative, there is substantial evidence in the record that this criterion will be met.

33.815.225(C)(5)

(5) Public benefits of the use outweigh any impacts which cannot be mitigated.

Proposed Findings: There is substantial evidence in the record that the public benefits of the use outweigh any impacts that cannot be mitigated.

The record shows that the most important public benefit of the use is enhanced wireless telecommunication service in the area. The evidence shows that this enhanced wireless service provides a significant public benefit because it improves data transfer and voice communication, which in turn provides significant benefits to business, individuals, and emergency service providers who rely on wireless data transfer and voice communication in order to respond to emergency service calls.

These public benefits outweigh any impacts that cannot be mitigated. The impacts that cannot be fully mitigated are related to visual and radio frequency concerns expressed by the neighborhood. With regard to visual impacts, the height and design of the monopole will impact the surrounding area somewhat. However, as described above, the facility will not exceed the 45-foot height limit in the zone and it has been designed to be as sleek, clean and uncluttered as possible to help minimize the visual impact of the pole as much as possible. The pole has also been set back from the adjacent residential zone as much as possible. For these reasons, the public benefits of the use outweigh the visual impacts that cannot be mitigated.

The RF impacts from the proposed facility include increased radio frequency emissions from the site. Evidence in the record shows that the proposed facility will meet emission standards established by both the city and the FCC. As a matter of federal law, the facility cannot and will not exceed federal RF emission limits. Evidence in the record confirms that these limits will not be exceeded and that RF emissions from the facility will be well within city and FCC limits. Also, it should be noted that the Federal Telecommunication Act of 1996 prohibits local governments from denying a request to construct a wireless facility based on radio frequency emissions, so long as the facility meets the standards set by the FCC. Because the facility can and will meet the RF standards established by the FCC, this application cannot be denied based on RF emission levels.

Overall, because the RF emission levels for the facility will meet established city and federal limits and the visual impacts from the facility will be mitigated as much as possible, and because there is a significant public benefit associated with the use, the public benefits of the use outweigh any impacts that cannot be mitigated.

33.815.225(C)(6)

(6) The regulations of Chapter 33.274, Radio Frequency Transmission Facilities, be met.

Proposed Findings: The relevant regulations of Chapter 33.274 are the development standards in 33.274.040(C), discussed below. All of the applicable development standards in 33.274.040(C) are met, except the landscaping requirement in subsection (C)(9). The applicant has requested an Adjustment from that standard and the record shows that the approval criteria for the adjustment can and will be met. This criterion is therefore met.

II. DEVELOPMENT STANDARDS

33.274.040 Development Standards Radio Frequency Transmission Facilities

(C) **General requirements**

(C)(1) Tower sharing. Where technically feasible, new facilities must co-locate on existing towers or other structures to avoid construction of new towers. Requests for a new tower must be accompanied by evidence that application was made to locate on existing towers or other structures, with no success; or that location on an existing tower or other structure is infeasible.

Proposed Findings: As discussed above, there is substantial evidence in the record that colocation on an existing monopole located within the search ring is not feasible, even if the existing monopole was made taller, because it is not feasible for the applicant to locate its equipment on that site. This criterion is therefore met.

(C)(2) Grouping of towers. The grouping of towers that support facilities operating at 1,000 watts ERP or more on a site is encouraged where technically feasible. However, tower grouping may not result in radio frequency emission levels exceeding the standards of this chapter.

Proposed Findings: The proposed facility does not operate at 1,000 watts ERP or more. This tower grouping criterion therefore does not apply.

(C)(3) Tower finish. For towers not regulated by the Oregon Aeronautics Division or Federal Aviation Administration, a finish (paint/surface) must be provided that reduces the visibility of the structure.

Proposed Findings: There is substantial evidence in the record that the proposed tower does not require aviation warning paint or lighting and is not regulated in that way by the

OAD or FAA. Evidence in the record also shows that the monopole will have a typical, utilitarian grey matte finish that will help reduce the visibility of the structure. Therefore, there is substantial evidence in the record that this criterion will be met.

(C)(4) Tower illumination. Towers must not be illuminated except as required for the Oregon State Aeronautics Division or the Federal Aviation Administration.

Proposed Findings: The tower is not required by the Oregon State Aeronautics Division or Federal Aviation Administration to be illuminated and evidence in the record shows that it will not be illuminated. This criterion is therefore met.

(C)(5) Radio frequency emission levels. All existing and proposed Radio Frequency Transmission Facilities are prohibited from exceeding or causing other facilities to exceed the radio frequency emission standards specified in Table 2743-1, except as superseded by Part 1, Practice and Procedure, Title 47 of the Code of Federal Regulations, Section 1.1310, Radio Frequency Radiation Exposure Limits.

Proposed Findings: There is substantial evidence in the record that the proposed wireless facility will not exceed or cause other facilities to exceed the RF emission standards specified above.

Evidence in the record shows that the applicant submitted three RF engineering reports for the proposed facility prepared by Mr. David Pinion at Hatfield & Dawson Consulting Electrical Engineers, showing that the facility will not exceed applicable RF standards and that it will not cause other facilities to exceed applicable RF standards. These reports are dated March 2011 (Rec. Ex. A-2), August 2011 (Rec. Ex. A-3), and October 2011 (Rec. Ex. (H)(28)(a)). These reports show that the proposed Verizon Wireless facility will be in compliance with current FCC and City of Portland regulations regarding radio frequency emission levels.

For example, Mr. Pinion's report calculated the predicted "maximum worst-case" power densities and unattenuated exposure levels that are predicted for this facility and has concluded that:

> "The proposed Verizon Wireless facility will be in compliance with current FCC and city rules regarding minimum siting distances and public exposure to radio frequency electromagnetic fields. This conclusion is based on information supplied by Verizon representatives, and estimates at future RF exposure conditions, due to the proposed Verizon facility, and ambient conditions." (Rec. Ex. (H)(28)(a), p. 15)

Mr. Pinion's report also surveyed RF exposure conditions near the project site and in the vicinity of the SBA monopole at 6514 SE Foster Road, which is the other wireless facility in the area. Mr. Pinion's report concludes that "RF emissions from the two facilities will be low enough to ensure that the cumulative RF exposure conditions due to those facilities will not exceed FCC limits in any publicly accessible location." (*See* Rec. Ex. (H)(28)(a)). For all of these reasons, there is substantial evidence in the record that

this facility will not exceed applicable city and FCC RF emission standards and that this criterion will therefore be met.

(C)(6) Antenna requirements. The antenna on any tower or support structure must meet the minimum siting distances to habitable areas of structures shown in Table 274.2. Measurements are made from points A and B on the antenna to the nearest habitable area of a structure normally occupied on a regular basis by someone other than the immediate family or employees of the owner/operator of the antenna. Point A is measured from the highest point of the antenna (not the tower) to the structure, and Point B is measured from the closest point of the antenna to the structure.

Proposed Findings: There is substantial evidence in the record that the proposed antenna will meet the minimum siting distance requirements as shown in Table 274-2.

The engineering report provided by Mr. Pinion shows that the new Verizon Wireless antennas will be at least 17 feet horizontally from the nearest property line and that they will be 19 feet above the roof line of the adjacent building. (Rec. Ex. A-3) Evidence in the record therefore shows that all of the Verizon Wireless antennas will be at least 25 feet slant distance from the adjacent building, which is the nearest habitable space. Evidence in the record also shows that the proposed antennas will be approximately 45 feet above grade, and will operate below 1,000 watts ERP. (*See* staff report and Rec. Ex. 28(a)). According to Table 274-2, antennas associated with this facility are required to be at least 15 feet from Point A, and at least 6 feet from Point B. Point A is the minimum distance from the highest point of the antenna to the habitable area of a structure. Point B is the minimum distance from the closest portion of an antenna to the habitable area of a structure.

In this case, the record shows that the closest point from the antenna to the nearest habitable structure is 25 feet, which exceeds the minimum required distance of 15 feet from Point A, and 6 feet from Point B. This criterion is therefore met. The applicant notes that even if the ERP for this facility is between 1,000 watts and 9,999 watts as alleged by some opponents, the distance to a habitable structure would still exceed the Point A and Point B minimum distances of 20 feet and 10 feet respectively as shown on Table 274-2. This criterion will therefore be met.

(C)(7) Setbacks. All towers must be set back at least a distance equal to 20 percent of the height of the tower or 15 feet, whichever is greater, from all abutting R and OS zoned property and public streets. Accessory equipment or structures must meet the base zone setback standards.

Proposed Findings: Evidence in the record shows that the fenced area where the proposed monopole and accessory equipment will be located is 53 feet from the nearest property line. This criterion requires the proposed monopole to be setback 15 feet from the property line. (Since 20 percent of the 45-foot monopole height is 9 feet, the 15-foot setback in subsection (C)(7) applies.) The accessory equipment is also located at least 53 feet from the closest property line and also significantly exceeds the required setback. The base zone setback standard for the CG zone allows a 0-foot setback, unless the

property line abuts an R zoned lot. In that case, the rear lot setback is 0 feet and the side yard setback is 5 feet, as described in Table 130-4. This criterion is therefore met.

(C)(8) Guy anchor setback. Tower guy anchors must meet the main building setback requirements of the base zone.

Proposed Findings: Evidence in the record shows that the applicant is not proposing any guy anchors. This standard therefore does not apply.

(C)(9) Landscaping and screening. The base of a tower and all accessory equipment or structures located at grade must be fully screened from the street and any abutting sites as follows:

(a) In C, E or I zones more than 50 feet from an R zone. A tower and all accessory equipment or structures located in the C, E, or I zones more than 50 feet from an R zone must meet the following landscape standard:

(1) Generally. Except as provided in (2), below, a landscaped area that is at least 5 feet deep and meets the L3 standard must be provided around the base of a tower and all accessory equipment or structures.

(2) Exception. If the base of the tower and any accessory equipment or structures are screened by an existing building or fence, then some or all of the required landscaping may be relocated subject to all of the following standards.

- *The building or fence must be on the site;*
- *The fence must be at least six feet in height and be totally sight-obscuring;*
- *The relocated landscaping must meet the 1L2 standards. The relocated landscaping cannot substitute for any other landscaping required by this Title; and*
- *If any part of the base of the tower or accessory equipment is not screened by a building or fence, 5 feet of L3 landscaping must be provided.*

Proposed Findings: There is substantial evidence in the record that the base of the tower and all accessory equipment located at grade will be fully screened from the street and from any abutting sites, because the base of the tower and the proposed accessory equipment and structures will be screened by a 6 foot high concrete barrier and existing buildings. The base of the tower and the proposed accessory equipment will also be screened by a site-obscuring fence, an equipment shelter and by a matching wall around the proposed emergency generator. The screening requirement in this criterion will therefore be met.

The applicant has requested an adjustment from the landscape requirement in this criterion. Because the adjustment criteria can and will be met through a condition of

approval, the landscape requirement in this criterion either does not apply or will be met through approval of the proposed adjustment. This criterion will therefore be met.

(C)(10) Tower design.

(a) For a tower accommodating a Radio Frequency Transmission Facility of 100,000 watts or more, the tower must be designed to support at least two additional transmitter/antenna systems of equal or greater power to that proposed by the applicant and one microwave facility, and at least three two-way antennas for every 40 feet of tower over 200 feet of height above ground.

(b) For any other tower, the design must accommodate at least three two-way antennas for every 40 feet of tower, or at least one two-way antenna for every 20 feet of tower and one microwave facility.

(c) The requirements of Subparagraphs a. and b. above may be modified by the City to provide the maximum number of compatible users within the radio frequency emission levels.

Proposed Findings: Evidence in the record shows that the proposed 45-foot monopole is not a radio frequency transmission facility of 100,000 watts or more, so subsection (b), rather than subsection (a), applies. Evidence in the record shows that the proposed facility will accommodate at least three two-way antennas for every 40 feet of tower, or at least one two-way antenna for every 20 feet of tower and one microwave facility, because 9 two-way antenna are proposed on the proposed 45-foot monopole. This criterion is therefore met.

(C)(11) Mounting device. The device or structure used to mount facilities operating at 1,000 watts ERP or less to an existing building or other non-broadcast structure may not project more than 10 feet above the roof of the building or other non-broadcast structure.

Proposed Findings: Evidence in the record shows that the proposed antennas will be mounted on a monopole and will not be mounted on any existing building or other non-broadcast structure. This criterion therefore does not apply.

(C)(12) Abandoned facilities. A tower erected to support one or more Federal Communication Commission licensed Radio Frequency Transmission Facilities must be removed from a site if no facility on the tower has been in use for more than six months.

Proposed Findings: Evidence in the record shows that the applicant has agreed to remove the tower and accessory equipment within six months of non-use. Evidence in the record indicates that the lease between Verizon Wireless and the property owner addresses abandonment and removal of the facility. This criterion will therefore be met.

(D) **Additional requirements in OS, R, C, and EX zones and EG and I zones within 50 feet of an R zone.**

(D)(1) Purpose. These additional regulations are intended to ensure that facilities operating at 1,000 watts ERP or less have few visual impacts. The requirements encourage facilities that look clean and uncluttered.

(D)(2) Standards. In addition to the regulations in Subsection C., above, facilities operating at 1,000 watts ERP or less located in OS, R, C, or EX zones or EG or I zones within 50 feet of an R zone must meet all of the following standards:

(a) Antennas mounted on towers. Triangular "top hat" style antenna mounts are prohibited. Antennas must be mounted to a tower either on davit arms that are no longer than 5 feet, flush with the tower, within a unicell style top cylinder, or other similar mounting technique that minimizes visual impact.

(b) Antennas mounted on existing buildings or other non-broadcast structures. This standard only applies to facilities located in OS or R zones or within 50 feet of an R zone. The visual impact of antennas that are mounted to existing buildings or other non-broadcast structures must be minimized. For instance, on a pitched roof, an antenna may be hidden behind a false dormer, mounted flush to the façade of the building and painted to match; mounted on a structure designed with minimal bulk and painted to fade into the background; or mounted by other technique that equally minimizes the visual impact of the antenna. The specific technique will be determined by the conditional use review.

(c) Lattice. Lattice towers are not allowed.

Proposed Findings: Evidence in the record shows that the proposed facility will be located on C zoned property more than 50 feet from an R zone. The criteria in subsection (D)(2) therefore do not apply. Opponents assert that this subsection should be interpreted to mean that any project located in an OS, R, or C zone, regardless of whether or not it is located within 50 feet of an R zone, must meet the standards in subsection (D)(2). Based on the text and context of the standard and the facts in the record, the applicant agrees with the interpretation and conclusion of staff that this criterion does not apply. Even if the opponents' interpretation is correct, however, there is substantial evidence in the record that the criterion in subsection (D)(2) will be met, because, as required in subsection (D)(2)(a), no top hat style antenna mounts are proposed. Evidence in the record shows that davit arms will be approximately 2 feet in length and flush with the tower, within a unicell style top cylinder or other similar mounting device that minimizes visual impact. The evidence also shows that subsections (D)(2)(b) and (c) do not apply because the antennas will not be mounted on an existing building or other non-broadcast structure, nor will they be mounted on a lattice tower. If the criteria in subsection (D)(2) applies, it therefore will be met.

III. ADJUSTMENT CRITERIA

33.805.010 Approval Criteria

Adjustment requests will be approved if the review body finds that the applicant has shown that approval criteria A. through F. below have been met.

(A) Granting the adjustment will equally or better meet the purpose of the regulation to be modified; and

Proposed Findings: The applicant is requesting an adjustment from the landscaping standard in PCC 33.274.040(9)(a)(1) and (2). As noted above, the buffering standard in that code section will be met. As previously discussed, evidence in the record shows that it is not practical for the applicant to provide landscaping around the base of the tower under PCC 33.274.040(9)(a)(1), nor is it practical to provide landscaping elsewhere on the site under PCC 33.274.040(9)(a)(2). The applicant is therefore seeking an adjustment from the landscaping standard in those subsections.

In order to ensure that granting the adjustment will equally or better meet the purpose of the regulation to be modified, the applicant has agreed to place its equipment in an equipment shelter and to fully screen the emergency generator behind a matching wall, so that this equipment will be more visually compatible with adjacent uses. This agreement is reflected in Condition B below, as proposed by staff.

The proposed adjustment, along with Condition B, will equally or better meet the purpose of the regulation to be modified, because the additional screening reduces the visual impact of the accessory equipment and better ensures that it will be compatible with adjacent uses. In this case, given the fact that a 6 foot tall concrete barrier exists around the perimeter of the facility on the west, south and east sides of the site, and that a building abuts the site long the north side of the site where the facility will be located, planting landscape material around the base of the tower, inside the perimeter wall, serves no practical purpose related to the purpose of the regulation to be modified. On the other hand, placing the equipment within a shelter and the generator behind a solid wall equally or better satisfies the purpose of the screening and landscaping requirement in PCC 33.274.040(9), because it ensures that the facility will be completely screened from view. At best, landscaping will only partially screen the equipment from view. It should also be noted that the landscaping and screening standards in PCC 33.274.040(9) are intended to screen: "The base of the tower and all accessory equipment or structures located at grade." This standard is not intended to screen the entire tower from view, nor is it intended to reduce RF emissions from the facility. RF emissions levels are regulated by the city under PCC 33.274.040(5) and antenna siting distance requirements are regulated by the city under PCC 33.274.040(6). As the staff reports notes, the city's authority to regulate wireless facilities based on RF emissions is limited under the Federal Telecommunication Act of 1996, and by rules adopted by the FCC which regulate RF emissions from wireless facilities. Because the proposed Verizon Wireless facility will comply with federal rules concerning RF emissions, it will also be in

compliance with local regulations concerning RF emissions. For all of these reasons, this criterion will be met.

(B) If in a residential zone, the proposal will not significantly detract from the livability or appearance of the residential area, or if in an OS, C, E, or I zone, the proposal will be consistent with the classifications of the adjacent streets and the desired character of the area; and

Proposed Findings: Evidence in the records shows that the proposed adjustment is not in a residential zone. The proposed facility is located in a commercial zone. There is substantial evidence in the record that the proposed adjustment will be consistent with the classification of the adjacent streets and the desired character of the area.

The staff report explains why the proposal does not conflict with the classification of the adjacent streets. Evidence shows that the adjustment will have no impact on the street system. The record shows that the wireless facility itself will generate only one or two trips per month for technical servicing. The adjustment itself will not generate any new trips. The adjustment will therefore be consistent with the classification of adjacent streets.

The proposed adjustment will also be consistent with desired character of the area, because the enhanced screening, including placing the accessory equipment in an equipment shed and screening the generator with a matching wall, will provide full screening and will be more consistent with the overall appearance and character of nearby commercial and residential uses in the area. Overall, the additional screening required by Condition B will be more visually compatible with the desired character of the area than the required landscaping would have been.

The desired character of the area is defined in PCC 33.910, as follows:

> **"Desired Character."** The preferred and envisioned character (usually of an area) based on the purpose statement or character of the base zone, overly zone, or plan district. It also includes the preferred and envisioned character based on any adopted area plans or design guidelines for an area.

The staff report analyzed the purpose of the base zone and the adopted Mt. Scott-Arleta Neighborhood Plan, and concluded that the proposed adjustment is consistent with the desired character of the area. For the reasons described in the staff report, this criterion can and will be met through the imposition of Condition B that the accessory equipment and the proposed generator to be fully screened. This criterion will therefore be met.

(C) If more than one adjustment is being requested, the cumulative effect of the adjustments results in a project which is still consistent with the overall purpose of the zone; and

Proposed Findings: Only one adjustment is required. This criterion therefore does not apply.

(D) City-designated scenic resources and historic resources are preserved; and

Proposed Findings: There is substantial evidence in the record that there are no city designated scenic or historic resources on the site. This criterion therefore does not apply.

(E) Any impacts resulting from the adjustment are mitigated to the extent practical; and

Proposed Findings: There is substantial evidence in the record that any impacts resulting from the proposed adjustment will be mitigated to the extent practicable. As the staff report indicates, existing concrete barriers, existing buildings and a proposed site-obscuring fence around the accessory equipment and base of the tower will screen the equipment and base of the tower from public view. Condition B ensures that the accessory equipment will be fully screened from view, by requiring that the accessory equipment be placed in an equipment shelter and that the emergency generator be completely screened by a matching wall. For these reasons, it is unlikely that any impacts will result from the adjustment. Even if any visual impacts might occur from a lack of landscaping, and for the other reasons described in the application and the staff report, this criterion can and will be met because any impacts resulting from the adjustment will be mitigated to the extent practicable.

(F) If in an environmental zone, the proposal has few significant detrimental impacts on the resource and resource values as is practicable.

Proposed Findings: The site is not located in an environmental zone. This criterion therefore does not apply.

IV. CONCLUSION

For the reasons set forth above, there is substantial evidence in the record that all of the relevant approval criteria can and will be met, subject to the following conditions:

A) As part of the building permit application submittal, the following development-related condition (B) must be noted on each of the four required site plans or included as a sheet in the numbered set of plans. The sheet on which this information appears must be labeled "ZONING COMPLIANCE PAGE – Case File LU 11-125536 CU AD." All requirements must be graphically represented on the site plan, landscape, or other required plan and must be labeled "REQUIRED."

B) The applicant must place all of the accessory equipment, except for the electrical service meter within an equipment building and the emergency generator screened by a matching wall.

C) The applicant shall install street trees and ground cover in the public ROW along the frontage of the site on SE Foster Road, subject to the review and approval of the Portland Bureau of Transportation Engineering.