MEETING AGENDA

TUALATIN PLANNING COMMISSION

November 16, 2017; 6:30 p.m.
JUANITA POHL CENTER
8513 SW TUALATIN RD
TUALATIN, OR 97062

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1. **CALL TO ORDER & ROLL CALL**
   Members: Bill Beers (Chair), Kenneth Ball, Alan Aplin, Angela DeMeo, Travis Stout, Mona St. Clair, Janelle Thompson
   Staff: Aquilla Hurd-Ravich, Planning Manager

2. **APPROVAL OF MINUTES**

3. **COMMUNICATION FROM THE PUBLIC (NOT ON THE AGENDA)**
   Limited to 3 minutes

4. **ACTION ITEMS**

5. **COMMUNICATION FROM CITY STAFF**

   A. Consideration of a Variance to the Wireless Communication Facility (WCF) Separation Requirement for the POR Durham project in the Light Manufacturing (ML) Planning District at 10290 SW Tualatin Road (Tax Map/Lot: 2S1 23B 000800) (VAR-17-0001) (RESO TDC 609-17).

6. **FUTURE ACTION ITEMS**

7. **ANNOUNCEMENTS/PLANNING COMMISSION COMMUNICATION**

8. **ADJOURNMENT**

STAFF REPORT
CITY OF TUALATIN

TO: Tualatin Planning Commissioners

FROM: Lynette Sanford, Office Coordinator

DATE: 11/16/2017

SUBJECT: **APPROVAL OF MINUTES**

ISSUE BEFORE TPC:

Attachments: TPC Minutes 9.21.17

City of Tualatin

www.tualatinoregon.gov

UNOFFICIAL

TUALATIN PLANNING COMMISSION - MINUTES OF September 21, 2017

TPC MEMBERS PRESENT:	**STAFF PRESENT**
Bill Beers	Aquilla Hurd-Ravich
Kenneth Ball	Charles H. Benson III
Janelle Thompson	Rich Mueller
Travis Stout	Lynette Sanford
Mona St. Clair	
Alan Aplin	

TPC MEMBER ABSENT: Angela DeMeo

GUESTS:

1. CALL TO ORDER AND ROLL CALL:

Bill Beers, Chair, called the meeting to order at 6:29 pm and reviewed the agenda. Roll call was taken.

2. APPROVAL OF MINUTES:

Mr. Beers asked for review and approval of the August 17, 2017 TPC minutes. MOTION by St. Clair SECONDED by Ball to approve the minutes as written. MOTION PASSED 6-0.

3. COMMUNICATION FROM THE PUBLIC (NOT ON THE AGENDA):

None

4. COMMUNICATION FROM CITY STAFF:

A. Parks and Recreation Master Plan Update

Rich Mueller, Parks and Recreation Manger, shared information about the Parks and Recreation Master Plan. Mr. Mueller stated that the current master plan is 30 years old and is in the process of being updated. The Master Plan should be completed by next summer or fall and will guide decisions for the next 20 years. Mr. Mueller noted that one of the public involvement pieces includes the online survey – which he encouraged the Commission members to complete. Mr. Mueller added that over 3,000 people have been involved in the public involvement piece.

Mr. Mueller asked the Commission members for their input regarding their priorities for this plan.

Mr. Beers stated that it would be beneficial to be able to cross Tualatin/Sherwood Rd. without dealing with traffic. A shared use path connection for bike and pedestrians would be nice.

Mr. Aplin stated that neighborhood park areas seem to be reserved by many people who do not live in Tualatin. He suggested that some reservation times should be blocked out for residents. Mr. Mueller agreed that it is hard to find parking spaces due to increased attendance at the parks.

Mr. Stout suggested a study regarding peak use of the parks and that certain events should be reserved outside peak hours.

Mr. Ball asked if the property owners of the RV Park of Portland site will be advancing the trail to Browns Ferry. Ms. Hurd-Ravich stated that Paul Hennon, Community Services Director, has been in discussion with the owners and they are aware of the dedication requirements to make the trail connection. Mr. Mueller added that the owner is fully committed to dedicating the property and having the connection built. Mr. Ball added that it would be useful to have the trail connect to downtown without going onto the main roads.

Ms. Thompson stated that Mr. Mueller has done a great job in getting the survey out to the public and she agreed with the connectivity of the park trail. Ms. Thompson added that the recreation fields are at capacity during soccer season and it would be beneficial to have additional fields.

Ms. Hurd-Ravich acknowledged that connectivity is important especially with employment areas and sharing multi-use paths connecting to downtown. WES and transit stations need connectivity (bicycle and pedestrian) to employment areas.

Mr. Aplin stated maximizing the river is the best amenity the City has.

Mr. Benson asked for continued work on the Tonquin Trail.

Mr. Mueller left an activity for the Commission members to complete prioritizing their requests.

5. ACTION ITEMS:

B. Plan Text Amendment 17-01 to change the approval of authority of Conditional Use Permits from the City Council to the Planning Commission

Charles H. Benson III, Associate Planner, stated that said the Commission members

had voted to change the approval authority of Conditional Use Permits from the City Council to the Planning Commission. This amendment will involve revisions to Chapters 2, 31, and 32 of the Tualatin Development Code (TDC). Plan Text Amendment (PTA) 17-01 is scheduled to be heard at the City Council meeting on October 23, 2017.

Mr. Benson went through the specific text changes in the TDC and the Analysis and Findings. Mr. Benson added that upon approval of this change, appeals will go directly to City Council instead of the Land Use Board of Appeals (LUBA).

Mr. Benson stated that a recommendation to approve PTA-17-01 would result in the following:

- The deletion of TDC Sections 2.060 and 2.070;
- The creation of TDC Section 31.068;
- Revisions to TDC Sections 31.067, 32.030, 32.040, 32.070, 32.080, and 32.090; and
- Change the approval authority of conditional use permits from the City Council to the Planning Commission.

MOTON by Beers, SECONDED by Stout to approve PTA-17-01. MOTION PASSED 6-0.

6. FUTURE ACTION ITEMs

Ms. Hurd-Ravich stated that a couple of conditional use permits may come before the members in the first or second quarter of next year. A variance may be presented in November. Ms. Hurd-Ravich noted that our December meeting is scheduled for the 21st so we'll have to determine if members will be available.

7. ANNOUNCEMENTS/PLANNING COMMISSION COMMUNICATION

Mr. Beers inquired about who owns the property on the north side of Tualatin Elementary. Ms. Hurd-Ravich responded that the school district currently owns it. Mr. Beers acknowledged that it works out well for parking during soccer games.

Ms. Hurd-Ravich noted that we presented the Food Cart Ordinance to Council on September 11th. No changes were made and it will go to a hearing on September 25th for a vote. Ms. Hurd-Ravich noted that the ordinance will reside in the Municipal Code which doesn't require a recommendation from the Commission. If approved, it will return to the Commission members to remove from the Development Code.

Mr. Ball stated that at the previous meeting, he didn't feel like there was an opportunity to discuss and offer feedback regarding the food cart ordinance. Mr. Ball added that this ordinance was put into place due to food carts being in the Commons area at events and he feels that we're putting a law into place that doesn't have anything to do with the

original process. Ms. Hurd-Ravich replied that food carts will be allowed everywhere except for the Central Commercial (CC) zone and the existing food cart will have to move. Ms. Hurd-Ravich added that we received positive feedback from the public and the restaurants submitted their input. Through that, it became clear that restaurants were concerned about food carts around the Commons. Ms. Hurd-Ravich stated that at the beginning Council gave direction to explore what an ordinance would look like. Staff members researched other cities' rules and regulations, conducted public outreach, and worked closely with the Commercial Citizen Involvement Organization and Chamber. Mr. Ball noted that our ordinance is unlike any other cities' and it seems like an attempt to discourage a certain type of business to do business in Tualatin.

Ms. St Clair added that she felt like she had an opportunity to comment in our previous meeting.

Ms. Hurd-Ravich stated that Basalt Creek Concept Plan is continuing and we're still working on the Development Code Update.

Mr. Aplin asked if there is any information regarding a new City Hall. Ms. Hurd-Ravich responded that she has not heard any new developments.

Mr. Beers stated that on Tuesday, September 26th there will be a presentation from the Red Cross called *Prepare Out Loud*. It will be held at Tigard High School from 6:30-8:00 pm. Mr. Beers will be in attendance with other SERT team members and he noted it's a great presentation regarding potential earthquakes and other disasters.

8. ADJOURNMENT

MOTION by Thompson to adjourn the meeting at 7:08 pm.

_____ Lynette Sanford, Office Coordinator

STAFF REPORT
CITY OF TUALATIN

TO: Tualatin Planning Commissioners

FROM: Charles Benson, Associate Planner

DATE: 11/16/2017

SUBJECT: Consideration of a Variance to the Wireless Communication Facility (WCF) Separation Requirement for the POR Durham project in the Light Manufacturing (ML) Planning District at 10290 SW Tualatin Road (Tax Map/Lot: 2S1 23B 000800) (VAR-17-0001) (RESO TDC 609-17).

ISSUE BEFORE TPC:

The issue before the Tualatin Planning Commission (TPC) is consideration of a Variance request for a Wireless Communication Facility (WCF), POR Durham, to locate at 10290 SW Tualatin Road within 1,500 feet of an existing WCF. A separate Architectural Review decision will review the construction of a new 100-foot-tall monopole with antennas mounted at the top and opportunities for ancillary ground equipment. The existing WCF is located at 10699 SW Herman Road approximately 750 feet southwest of the proposed WCF location (see Attachment A).

RECOMMENDATION:

Staff recommends that the Tualatin Planning Commission (TPC) consider the staff report and supporting attachments and grant a variance based on the analysis and findings of the variance criteria.

EXECUTIVE SUMMARY:

Acom Consulting, Inc. proposes to construct a new unmanned wireless communication facility (WCF) on behalf of Lendlease (US) Telecom Holdings LLC - c/o PI Tower Development LLC, Verizon Wireless, and the property owner, Tote 'N Stow, Inc. on the southwest corner of 10290 SW Tualatin Road. The proposed WCF would include a new 100-foot monopole support tower with antennas mounted at the top and opportunities for ancillary ground equipment including equipment cabinets, natural gas generator, cabling and ice bridge will be located below in a new 25' x 48' secure fenced lease area surrounding the tower. It is anticipated that the proposed WCF will generate approximately 1-2 visits per month from a site technician.

The proposed WCF would be located on an approximately 3.6-acre parcel (Washington County Tax Lot 2S1 23B 000800), the southern of two lots that comprise the entire Tote 'N Stow property. The Tote 'N Stow provides a range of covered and open storage services for recreational vehicles and the proposed WCF would be located on a paved area in the southwest corner of the project site and would not affect existing storage operations. The subject lot and neighboring properties on all sides are located in the City of Tualatin's Light

Manufacturing (ML) Planning District, which generally extends northward to SW Tualatin Road, eastward to SW 100th Court, southward to SW Herman Road, and westward to SW 108th Avenue.

A pre-application conference for this project was held on March 23, 2017. A neighborhood/developer meeting—as required by Tualatin Development Code (TDC) 31.063—was held on May 10, 2017, commencing at 5:30 PM at the Juanita Pohl Center, 8513 SW Tualatin Road, Tualatin, OR 97062. Meeting attendees included members from the project team, one representative from the City of Tualatin, and 14 members from the community.

As the proposed WCF would be located within 1,500 feet of an existing WCF at 10699 SW Herman Road, the proposed WCF requires a variance by the Tualatin Planning Commission (TPC) from the provisions of Tualatin Development Code (TDC) 73.470(9), which requires a 1,500-foot separation between WCFs (see Attachment B, Variance Application).

As stated in TDC Section 33.025(1): "(1) The City may grant a variance from the provisions of TDC 73.470(9), which requires a 1500-foot separation between WCFs, providing the applicant demonstrates compliance with (a) or (b)." The applicant has chosen to demonstrate compliance with TDC Section 33.025(1)(a)(i) through (iii), and staff have reviewed the application materials included pertinent excerpts in Attachment C, Analysis & Findings, a summary of which is included below.

To grant the requested variance, the TPC must find the applicant has demonstrated compliance with the following:

TDC 33.025(1)(a): Coverage and Capacity

(i) It is technically not practicable to provide the needed capacity or coverage the tower is intended to provide and locate the proposed tower on available sites more than 1,500 feet from an existing wireless communication facility or from the proposed location of a wireless communication facility for which an application has been filed and not denied. The needed capacity or coverage shall be documented with a Radio Frequency report.

The applicant states that the potential sites outside of the 1,500-foot radius from the existing WCF at 10699 SW Herman Road were eliminated from consideration due to the lack of adequacy of service improvements from these locations and their close proximity to residential areas where these facilities are not permitted or where visual impacts may occur. The applicant also noted that the existing WCF at 10699 SW Herman Road was not a suitable location due to interference from trees surrounding this site (which would affect coverage) and the applicant provided a RF Engineer Interference Letter in addition to the required RF report.

(ii) The collocation report, required as part of the Architectural Review submittal, shall document that the existing WCFs within 1500 feet of the proposed WCF, or a WCF within 1500 feet of the proposed WCF for which application has been filed and not denied, cannot be modified to accommodate another provider.

The applicant states that modifications to the existing WCF at 10699 SW Herman Road required to host the proposed antennas would result in greater impacts than those of constructing an entirely new monopole structure at the proposed Tote 'N Stow site, namely increasing the height of the 146-foot-tall existing WCF (which required a variance to permit its construction in 2000) or the topping or removal of trees that were preserved as a condition of that variance (VAR-99-02). The maximum permitted height of WCFs in the Light Manufacturing (ML) Planning

District is 100 feet and the proposed WCF would not require a height variance.

(iii) There are no available buildings, light or utility poles, or water towers on which antennas may be located and still provide the approximate coverage the tower is intended to provide.

Staff has confirmed via study area reconnaissance that no such structures exist in the immediate area, noting that maximum structure height in ML Planning Districts (outside of flagpoles and WCFs) is 50 feet.

Staff finds that VAR-17-0001 meets the criteria of TDC 33.025(1)(a).

Staff received one public comment letter voicing concerns about this proposal prior to the scheduled public hearing for this application, which is included as Attachment E.

OUTCOMES OF DECISION:

Approval of VAR-17-0001 and Resolution TDC 609-17 would result in the following:

- Allows the applicant to locate a Wireless Communication Facility (WCF) at 10290 SW Tualatin Road; and
- Allows staff to review an Architectural Review (AR) for the proposed WCF project with an appropriate location.

Denial of VAR-17-0001 would result in the following:

- Prohibits the applicant from locating a WCF at 10290 SW Tualatin Road.

ALTERNATIVES TO RECOMMENDATION:

The Tualatin Planning Commission (TPC) has three options:

1. Approve the proposed variance (VAR-17-0001);
2. Deny the proposed variance with findings that state which criteria in Tualatin Development Code (TDC) 33.025(1) the applicant fails to meet; or
3. Continue the discussion of the proposed variance and return to the matter at a later date.

FINANCIAL IMPLICATIONS:

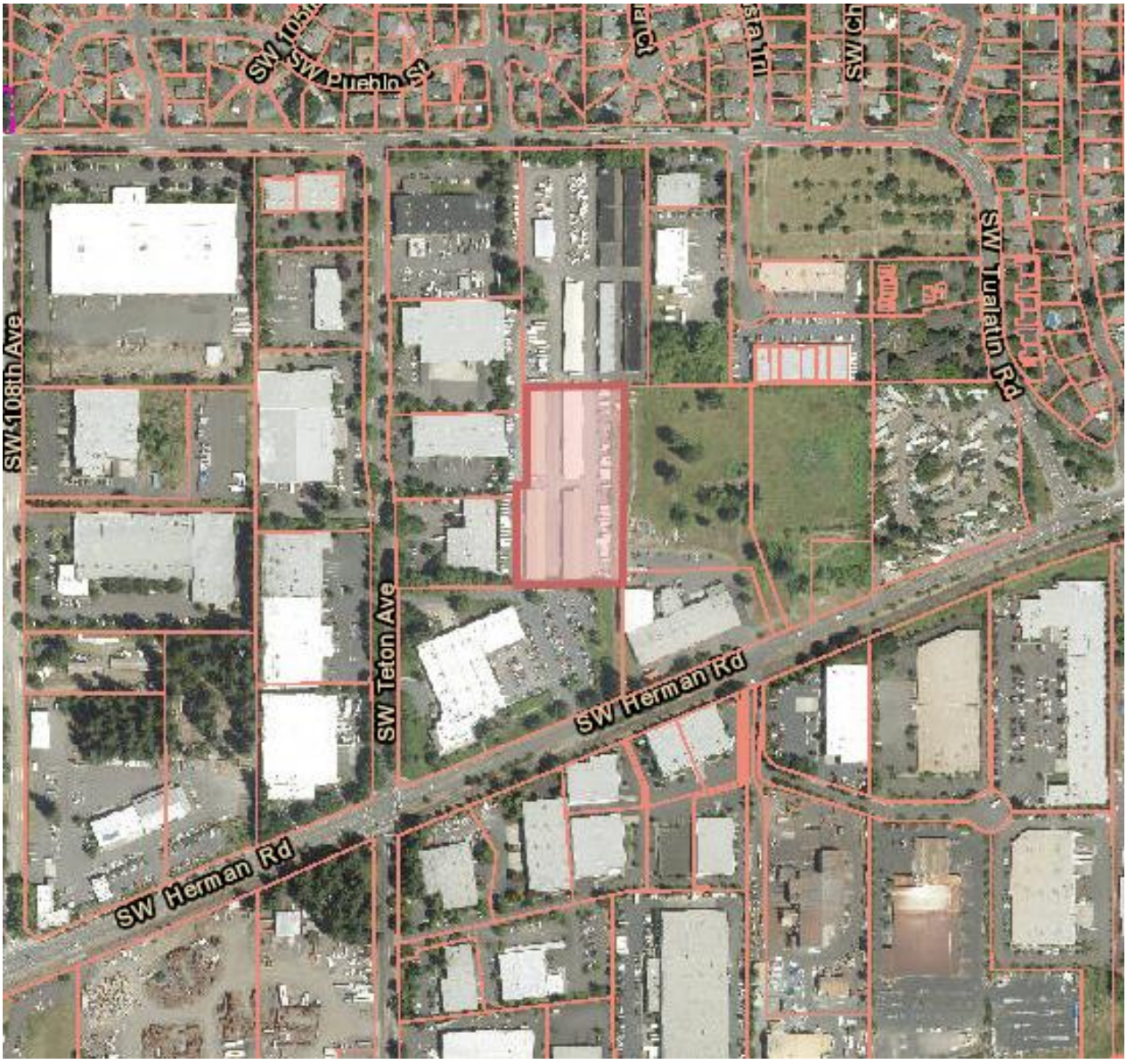
The Fiscal Year 2017/18 budget allocated revenue to process current planning applications, and the applicant submitted payment per the City of Tualatin Fee Schedule to process the application.

Attachments: Attachment A - Vicinity Map
Attachment B - Variance Application
Attachment C - Analysis & Findings
Attachment D - Powerpoint Presentation
Attachment E - Public Comments

POR DURHAM WIRELESS COMMUNICATION FACILITY

VARIANCE APPLICATION

ATTACHMENT A: VICINITY MAP



City of Tualatin

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APPLICATION FOR VARIANCE

Information			
Name: Reid Stewart		Title: Consultant/Agent	
Company Name: Acom Consulting, Inc.			
Current address: 4015 SW Battaglia Avenue			
City: Gresham	State: OR		ZIP Code: 97080
Phone: 503.720.6526	Fax: N/A	Email: reid.stewart@acomconsultinginc.com	

Applicant			
Name: Brandon Olsen		Company Name: Lendlease (US) Telecom Holdings LLC c/o PI Tower Development LLC	
Address: 909 Lake Carolyn Parkway			
City: Irving	State: TX		ZIP Code: 75039
Phone: 503.951.7515	Fax: N/A	Email: brandon.olsen@pitowers.com	
Applicant's Signature: See attached LOA		Date:	

Property Owner			
Name: TOTE-N-STOW INC. - Joana Freedman			
Address: 10290 SW Tualatin Road			
City: Tualatin	State: OR		ZIP Code: 97062
Phone: 503.692.3930	Fax: N/A	Email:	
Property Owner's Signature: See attached LOA		Date	
(Note: Letter of authorization is required if not signed by owner)			

Architect			
Name: Rick Matteson			
Address: 5200 SW Meadows Road, Suite 150			
City: Lake Oswego	State: OR		ZIP Code: 97035
Phone: 425.209.6723	Fax: N/A	Email: rick.matteson@acomconsultinginc.com	

Landscape Architect			
Name: N/A			
Address:			
City:	State:		ZIP Code:
Phone:	Fax: N/A	Email:	

Engineer			
Name: TBD			
Address:			
City:	State:		ZIP Code:
Phone:	Fax: N/A	Email:	

Project			
Project Title: POR Durham			
Address: 10290 SW Tualatin Road			
City: Tualatin	State: OR		ZIP Code: 97062
Brief Project Description: New 100' monopole associated with new wireless communications facility			
Proposed Use: Wireless communications facility			

Value of Improvements: $130,000

AS THE PERSON RESPONSIBLE FOR THIS APPLICATION, I HEREBY ACKNOWLEDGE THAT I HAVE READ THIS APPLICATION AND STATE THAT THE INFORMATION ABOVE, ON THE FACT SHEET, AND THE SURROUNDING PERTY OWNER MAILING LIST IS CORRECT. I AGREE TO COMPLY WITH ALL APPLICABLE CITY AND COUNTY ORDINANCES AND STATE LAWS REGARDING BUILDING CONSTRUCTION AND LAND USE.	
Applicant's Signature:	Date:

Office Use		
Case No:	Date Received:	Received by:
Fee: Complete Review:	Receipt No:	
Application Complete as of:	ARB hearing date (if applicable):	
Posting Verification:	6 copies of drawings (folded)	
1 reproducible 8 ½" X 11" vicinity map	1 reproducible 8 ½" X 11" site, grading, LS, Public Facilities plan	
Neighborhood/Developer meeting materials		

APPLICATION FOR
VARIANCE

UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY AT:

10290 SW Tualatin Road
Tualatin, OR 97062

Prepared By

Acom
CONSULTING, INC

Date
October 03, 2017

Project Name
POR Durham

Applicant:	Lendlease (US) Telecom Holdings LLC c/o PI Tower Development LLC 909 Lake Carolyn Parkway Irving, TX 75039
Co-Applicant:	Verizon Wireless (VAW), LLC dba, Verizon Wireless 5430 NE 122nd Avenue Portland, OR 97230
Representative:	Acom Consulting, Inc. Reid Stewart 5200 SW Meadows Road, Suite 150 Lake Oswego, OR 97035
Property Owner:	Tote 'N Stow, Inc. 10290 SW Tualatin Road Tualatin, OR 97062

Project Information:

Site Address:	10290 SW Tualatin Road, Tualatin, OR 97062
Parcel:	2S123B000800
Parcel Area:	3.63 acres
Zone Designation:	ML (Light Manufacturing Planning District)
Existing Use:	Storage Facility
Project Area:	1,200 square foot lease area (25' x 48' fenced equipment area)

Chapter 33: Variances

Section 33.025 – Criteria for Granting a Variance for a Wireless Communication Facility.

No variance to the separation or height requirements for wireless communication facilities shall be granted by the Planning Commission unless it can be shown that the following criteria are met. The criteria for granting a variance to the separation or height requirements for wireless communication facilities shall be limited to this section, and shall not include the standard variance criteria of Section 33.020, Conditions for Granting a Variance that is not for a Sign or a Wireless Communication Facility.

(1) The City may grant a variance from the provisions of TDC 73.470(9), which requires a 1500-foot separation between WCFs, providing the applicant demonstrates compliance with (a) or (b) below.

(a) coverage and capacity.

(i) It is technically not practicable to provide the needed capacity or coverage the tower is intended to provide and locate the proposed tower on available sites more than 1,500 feet from an existing wireless communication facility or from the proposed location of a wireless communication facility for which an application has been filed and not

denied. The needed capacity or coverage shall be documented with a Radio Frequency report;

Response: Verizon Wireless, the co-applicant, has done extensive research looking at opportunities in the area to collocate on existing towers or buildings, as that is always a preferred option when available. If an existing tower or structure is not available at the specified height or not attainable because of space constraints or unreliable structural design, then Verizon Wireless will propose a new tower. In this instance, there is one existing tower, the ATC tower, which is located outside of the search area designated as usable by Verizon Wireless' RF department, but within the 1,500-foot radius of the proposed facility. This tower is not viable as a solution to meet their coverage and capacity objectives due to the existing trees that would cause interference. There are no other existing towers available to collocate on within the area of interest thus a new tower is being proposed, which will in turn be available for other providers to collocate on in the future.

In order to meet the Verizon's coverage and capacity objectives, it is necessary to site a tower within the search ring provided by Verizon's RF department as shown below. Moving outside this search ring is technically not practicable and has adverse effects on providing the needed coverage and capacity objectives the tower is intended to provide, which include nearby high-traffic residential areas to the North. Siting outside the search ring can also create interference with other nearby network sites where coverage may overlap.

The Applicant is requesting a variance to the 1,500-foot tower separation requirement. There is an existing 146-foot ATC monopole support structure outside of the search ring, approximately 750 feet to the SW of the proposed support tower, located at 10699 SW Herman Road. Per the tower owner, there is currently available space on the tower at the 100-foot level, however this is not high enough to avoid interference from multiple trees surrounding the tower and still meet coverage and capacity objectives to the North, as detailed in the attached RF Usage and Facility Justification Report and RF Engineer Interference Letter.

Locating the tower within the search ring and outside the 1,500-foot radius of the nearby existing ATC tower is also not a desirable alternative as it would mean locating in another part of the ML zone without existing screening or in the RML or RMH zone, where a conditional use permit would be required and where it would be very visible to nearby residential areas.

In addition, T-Mobile has also indicated that they intend on co-locating on the proposed WCF, if approved, as the existing ATC tower to the SW will not meet their coverage and capacity requirements either as noted in the attached Letter from T-Mobile RF.

(ii) The collocation report, required as part of the Architectural Review submittal, shall document that the existing WCFs within 1500 feet of the proposed WCF, or a WCF within 1500 feet of the proposed WCF for which application has been filed and not denied, cannot be modified to accommodate another provider; and,

Response: The only existing monopole tower located within 1,500 feet of the proposed location cannot be modified as it is not designed to be extended to the necessary height required to avoid interference from the tall trees currently surrounding the tower. The existing tower would need to be removed and replaced with a new tower at least 20-30 feet taller to avoid interference unless the trees were to be removed or reduced in height to approximately the 100-foot level or lower.

Topping the trees would create undesirable visual impacts to nearby residential areas, whereas the proposed location is well screened to nearby residential areas to the North and does not require the removal or trimming of any existing trees. The topped trees would also create a negative visual impact on their own, as over a third of the height would need to be removed to avoid interference.

(iii) There are no available buildings, light or utility poles, or water towers on which antennas may be located and still provide the approximate coverage the tower is intended to provide.

Response: No available buildings, light or utility poles, or water towers with adequate height to meet coverage objectives are located in the geographical search ring necessary to provide coverage. See Search Ring and ½ mile radius maps below.

(b) site characteristics. The proposed monopole location includes tall, dense evergreen trees that will screen at least 50% of the proposed monopole from the RL District or from a small lot subdivision in the RML District.

Response: Application has demonstrated compliance with Section 33.025(1)(a) above, however proposed location also meets this requirement and includes tall, dense evergreens trees that will screen at least 50% of the proposed monopole from adjacent residential areas. The proposed support tower is sited in the least intrusive location possible to cover the gap in coverage and capacity.

(2) The City may grant a variance to the maximum allowable height for a WCF if the applicant demonstrates:

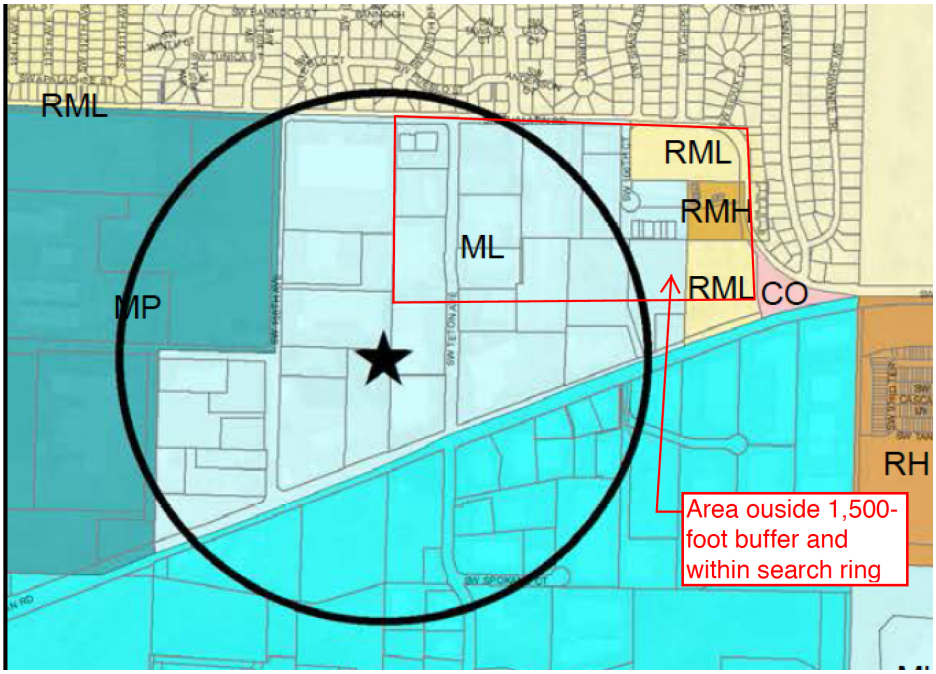
(a) It is technically not practicable to provide the needed capacity or coverage the tower is intended to provide at a height that meets the TDC requirements. The needed capacity or coverage shall be documented with a Radio Frequency report; and,

(b) The collocation report, required as part of the Architectural Review submittal, shall document that existing WCFs, or a WCF for which an application has been filed and not denied, cannot be modified to provide the capacity or coverage the tower is intended to provide.

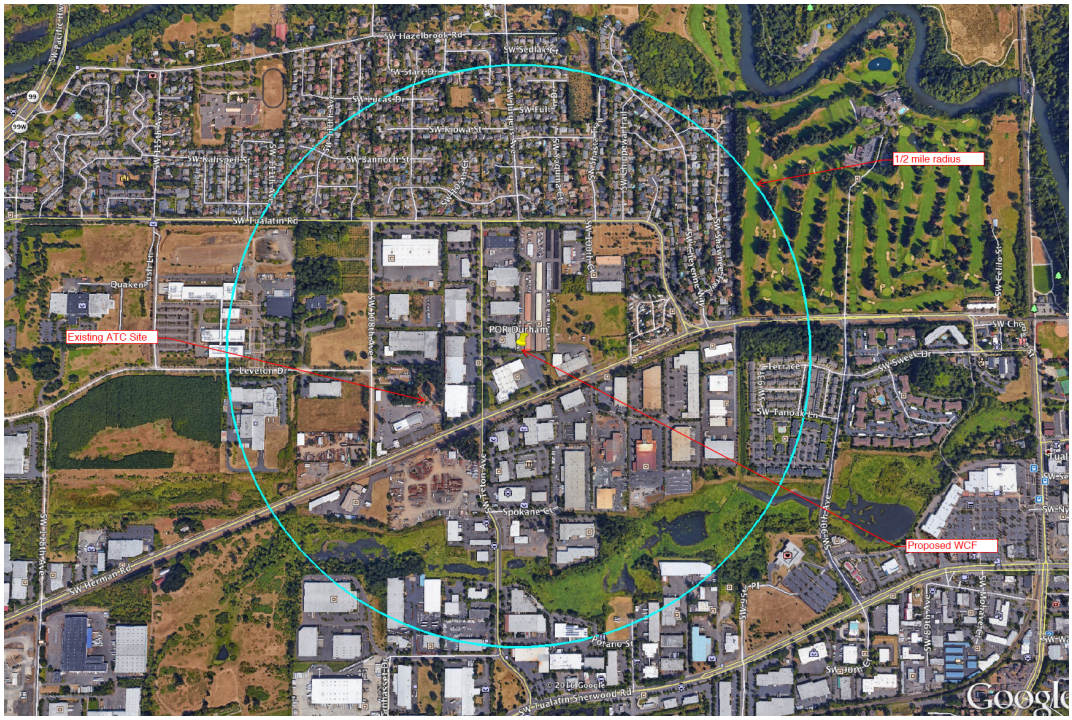
Response: Not applicable – Applicant is not requesting a variance to the maximum allowable height for the proposed WCF.

VERIZON SEARCH RING

EXISTING TOWER 1,500' RADIUS WITH VERIZON SEARCH RING OVERLAP



½ MILE RADIUS OF PROPOSED TOWER



RF Usage and Facility Justification

Durham

Prepared by Verizon Wireless Walid Nasr

Jun 14, 2017

verizon

Introduction:

There are two main drivers that prompt the need for a new cell site. One is coverage and the other is capacity.

Coverage is the need to expand wireless service into an area that either has no service or bad service. The request for service often comes from customers or emergency personnel. Expansion of service could mean improving the signal levels in a large apartment complex or new residential community. It could also mean providing new service along a newly built highway.

Capacity is the need for more wireless resources. Cell sites have a limited amount of resources to handle voice calls, data connections, and data volume. When these limits are reached, user experience quickly degrades. This could mean customers may no longer be able to make/receive calls nor be able to browse the internet. It could also mean that webpages will be very slow to download.

verizon

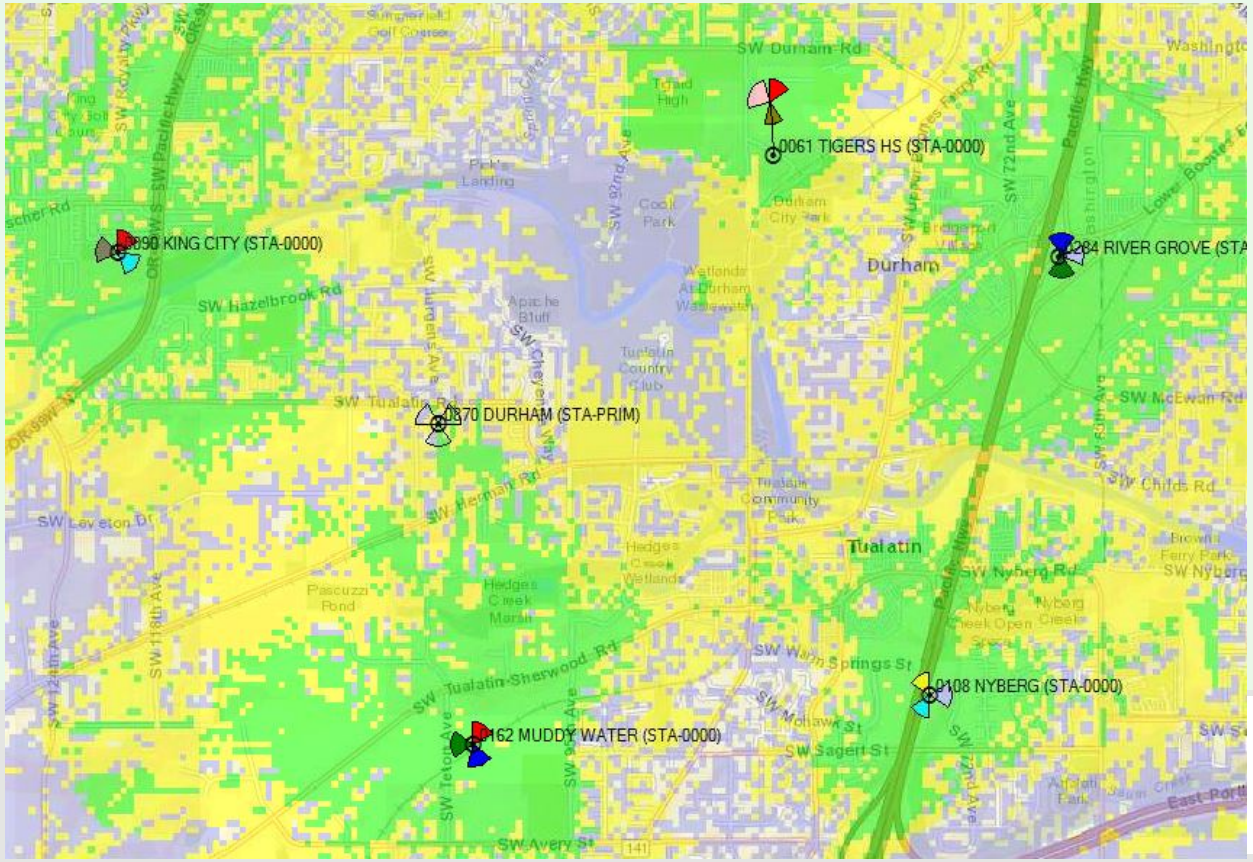
Capacity is the amount of resources a cell site has to handle customer demand. We utilize sophisticated programs that use current usage trends to forecast future capacity needs. Since it takes an average of (1-3) years to complete a cell site project, we have to start the acquisition process several years in advance to ensure the new cell site is in place before the existing cell site hits capacity limits.

Location, Location, Location. A good capacity cell site needs to be in the center of the user population which ensures even traffic distribution around the cell. A typical cell site is configured in a pie shape, with each slice (aka. sector) holding 33% of the resources. Optimal performance is achieve when traffic is evenly distributed across the 3 sectors.

verizon

Coverage Area of Existing Site

The proposed Durham site is a capacity site. This site will offload the existing sites King City, Muddy Water, TigerHS.



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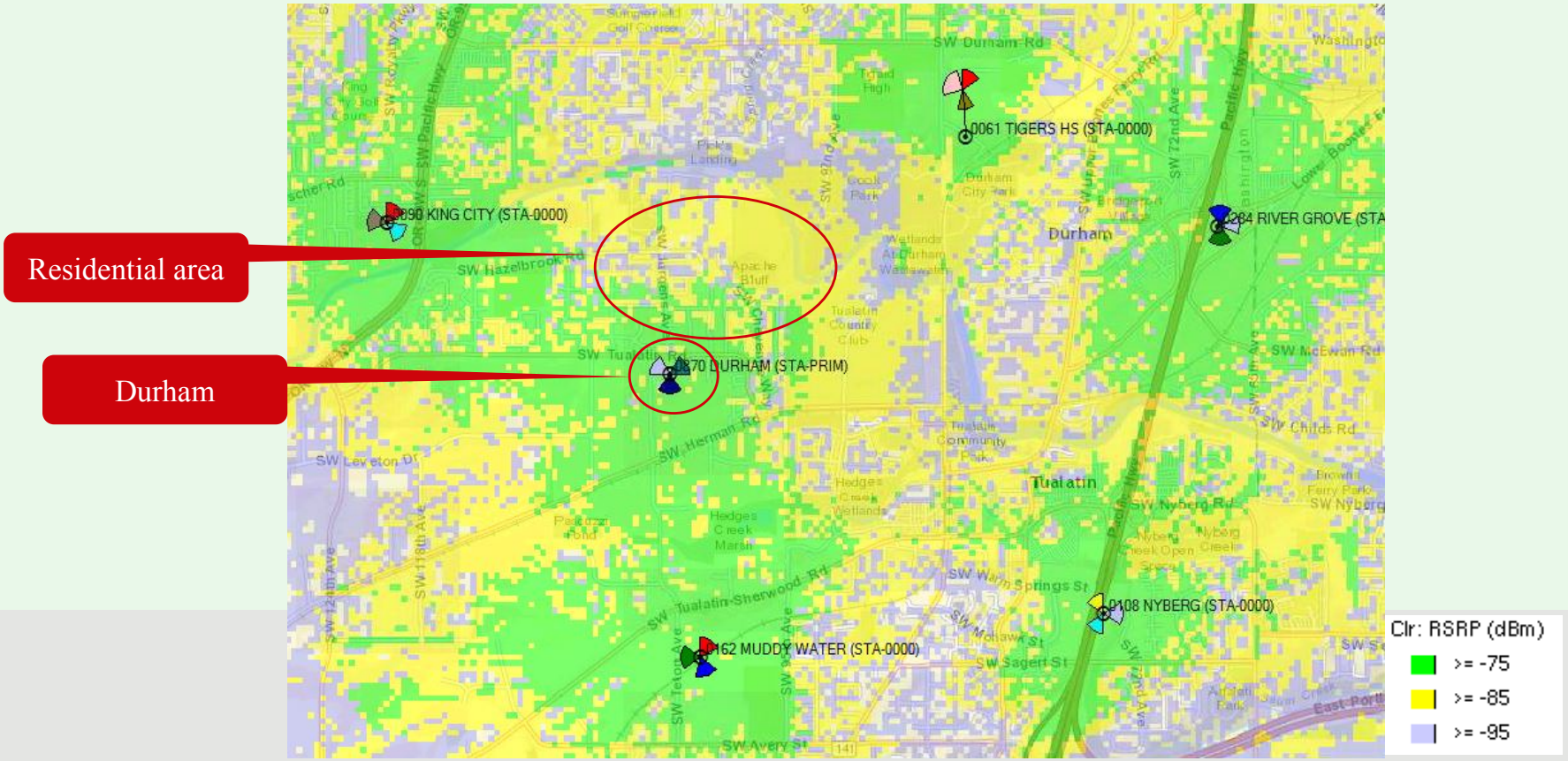
Coverage Area Offloaded by New Site

The proposed Durham site is a capacity site. This site will offload the existing sites King City, Muddy Water, TigerHS.



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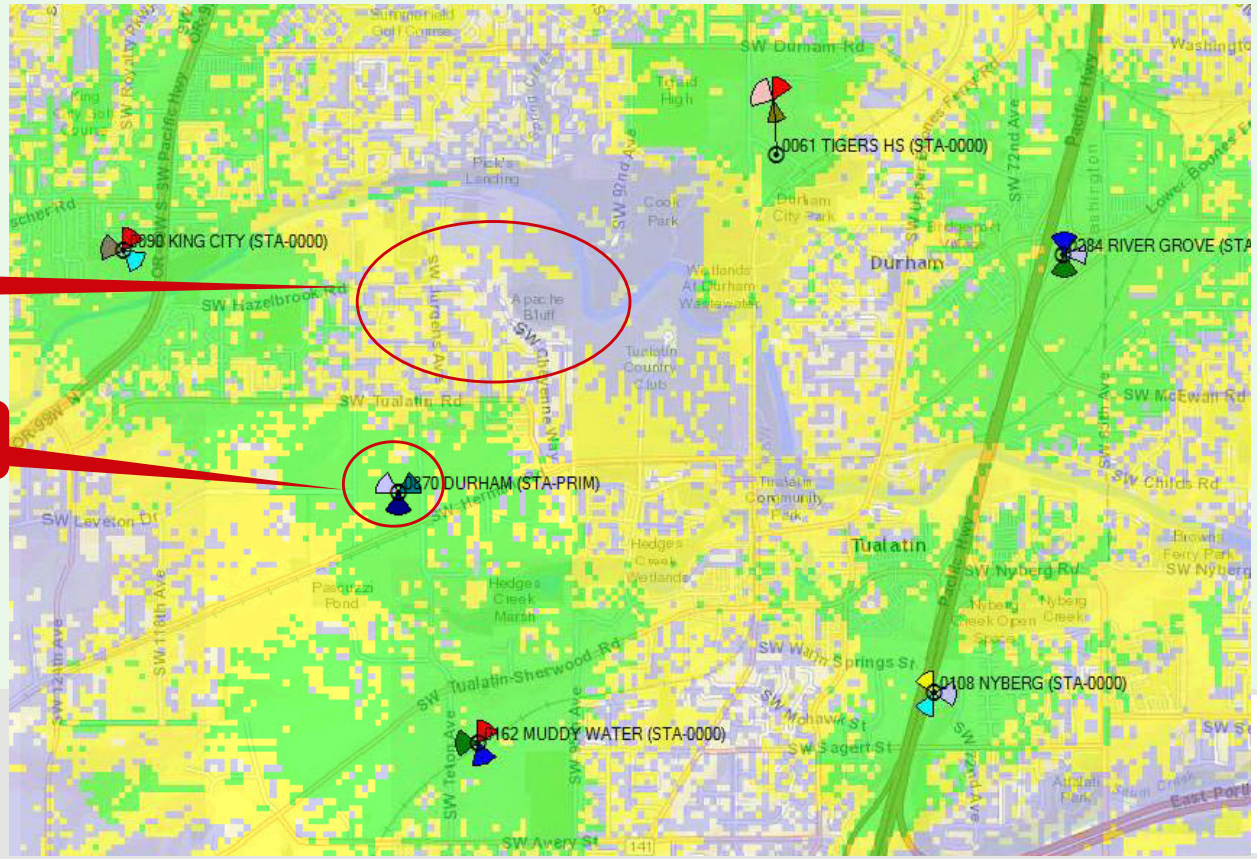
Coverage Area Offloaded by New Site at New Proposed Location

The proposed Durham site is a capacity site. This site will offload the existing sites King City, Muddy Water, TigerHS.

Residential area

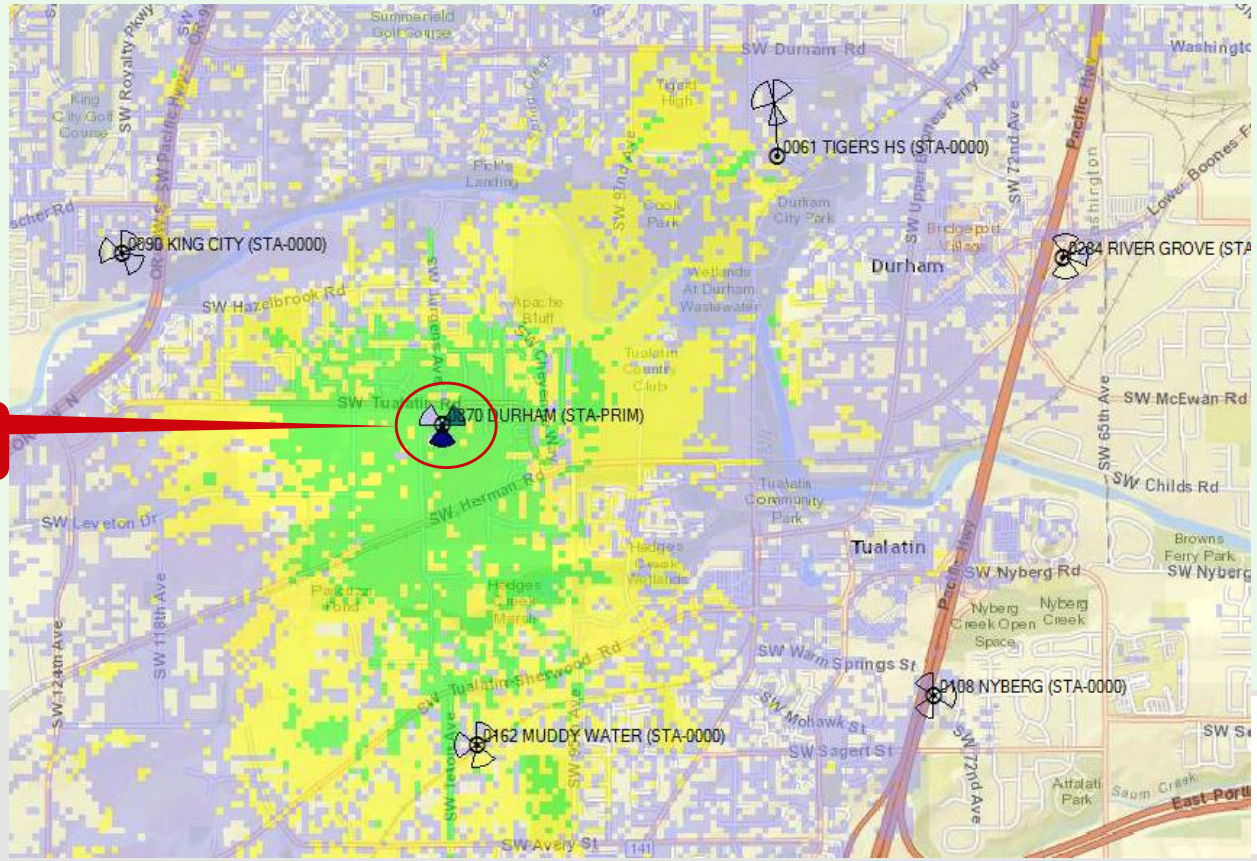
Durham



Marginal coverage in residential area due to surrounding trees at existing ATC tower

verizon

Coverage with Durham Site



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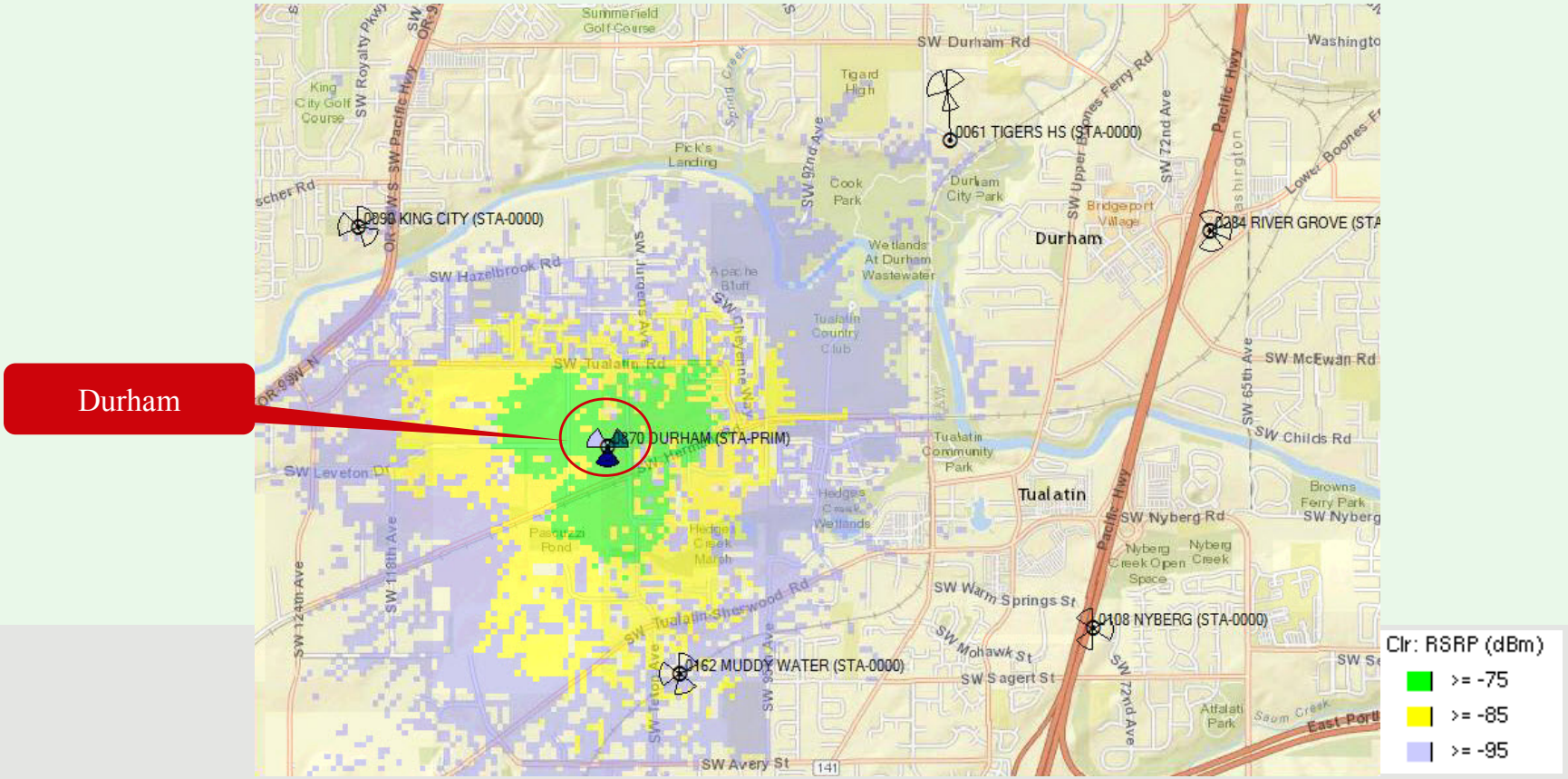
Coverage with Durham Site at New Proposed Location



verizon

Need Case for: Durham

Summary: The existing sites King City, Muddy Water, TigerHS cannot carry the data traffic that exists in the area it serves.

Detail below:

- Exact data about sites is proprietary and cannot be disclosed due to competitive reasons.

- The existing cell sites King City, Muddy Water, TigerHS are forecasted to reach capacity in the near future.

- The new cell site Durham will provide additional resources to existing sites. It will take some users off of existing sites, which will alleviate the capacity constraint.

- This will improve customer experience (faster webpage downloads and fewer drop calls).

- Without the new site Durham, existing sites in area will reach capacity which will negatively impact customer's ability to make/receive calls and browse the internet.

verizon

Andrew H. Thatcher
Environmental Health Physics

July 13, 2017

To:
Acom Consulting, Inc.
5200 SW Meadows Rd
Suite 150
Lake Oswego, OR 97035

Acom consulting has requested that I review the existing antenna site at 10699 SW Herman Road, Tualatin OR, and evaluate the interference potential due to the existing tree canopy as shown in Figure 1. In performing this evaluation I'll review the basics of wireless transmission, what cellular technology can compensate for and what results in a deficient site. Included in the review is Verizon's propagation models[1] for both their proposed Durham site and the existing ATC tower.

In a perfect world for wireless transmission, an un-attenuated radio signal would be sent by the antenna and received by the user without any interference. This is rarely the case as buildings, hills and trees all combine to make the signals propagate along multiple pathways. The three primary components of signal propagation paths are reflection, diffraction and scattering. Reflection occurs from large smooth surfaces such as roadways or buildings. Diffraction occurs when a large object is in the direct line of sight path, such as a hill or building. Scattering occurs when the radio waves contact objects similar or smaller than the wavelength of the frequency of interest. For wireless transmission that can be from 700 MHz (~17" wavelength) to 2100 MHz (~6" wavelength). Scattering would be the dominant interaction with trees while all sources of interference serve to attenuate the signal to some degree with each interaction.

So the presence of trees creates scattering which causes signal distortion in addition to signal attenuation. The transmitted signals received by the end user (a person's cell phone) will consist not only of the original (un-attenuated) signal but also several secondary signals traveling on different paths. These multi-path signals, since they are a result of scattering (since we're concerned with the effects of trees), travel a longer signal path and therefore arrive at an end user (cell phone) later than the original un-attenuated signal. These late signal arrivals become interference and can result in distortion of the original signal. This type of distortion is frequency dependent with greater distortion occurring at higher frequencies. Multi-path signals are a common occurrence in our environment but such multi-path signals are due to stationary objects such as homes, rooftops, and even trees at a distance. Such distortions can readily be corrected due to the use of a RAKE[2] receiver in the phone. However, for a tree canopy in a near field environment such as in Figure 1 the obstruction is not constant but in fact continuously

[1] Propagation modeling provided by W. Nasr, Verizon RF Engineer, 7/5/2017.
[2] Briefly, RAKE receivers are used in the receiver phones of Code Division Multiple Access (CDMA) systems. The receiver collects and treats each time shifted version of the original signal as an independent signal and then combines them into a single signal provided the delay is not too long.

522 NORTH E ST • TACOMA, WA • 98403
PHONE: 253.617.1449 • THATCHER.DREW@COMCAST.NET

changing. The result is scattered signals that may be stronger than direct signal due to signal attenuation since the tree canopy density is not uniform and the signals going through the tree will be attenuated differently. Further, the motion of the trees with wind presents a continuously changing foliage density that results in selective signal fading with time. For the tree canopy shown in Figure 1, the near field environment could easily result in signal attenuation of 10 dB to as much as 20 dB. Combine this attenuation with the constantly changing signal fading environment and the result in a constantly changing delay (due to wind) that the RAKE receiver would have difficulty separating as noise. Reviewing Figure 1 again and one can see that the antennas are near the tops of the trees so the tree movement would include swaying of the trees in addition to individual branch movements.

Figure 2 is the predicted propagation to the residential location of interest from the existing antenna located within the trees. Figure 3 shows the same residential area with the antenna located in the proposed location. Both figures are provided to support the previous qualitative analysis. The figures show that the Reference Signal Received Power (RSRP) is at least 10 dBm lower for each location. Note that this analysis does not consider the effect of wind.

Trees at a distance from the antennas may present acceptable interference as the overall impact could be managed. For antennas placed well beneath the tree canopy in a near field environment affecting all three radiating sectors, it would be difficult to envision a wireless network that could compensate for these factors, the presence of wind, and remain effective in terms of capacity for the site and successful integration with the surrounding wireless sites. The attenuation and scattering of the signal through the trees would result in a lower transmitted power level that could not be improved by increasing the power as that would only serve to also increase the power of the multipath signals. In short, such a setup in the trees would present a problem regardless of the transmitted power level.

To summarize, the existing ATC tower is not a suitable antenna site without substantial modification based on the information provided in this report.

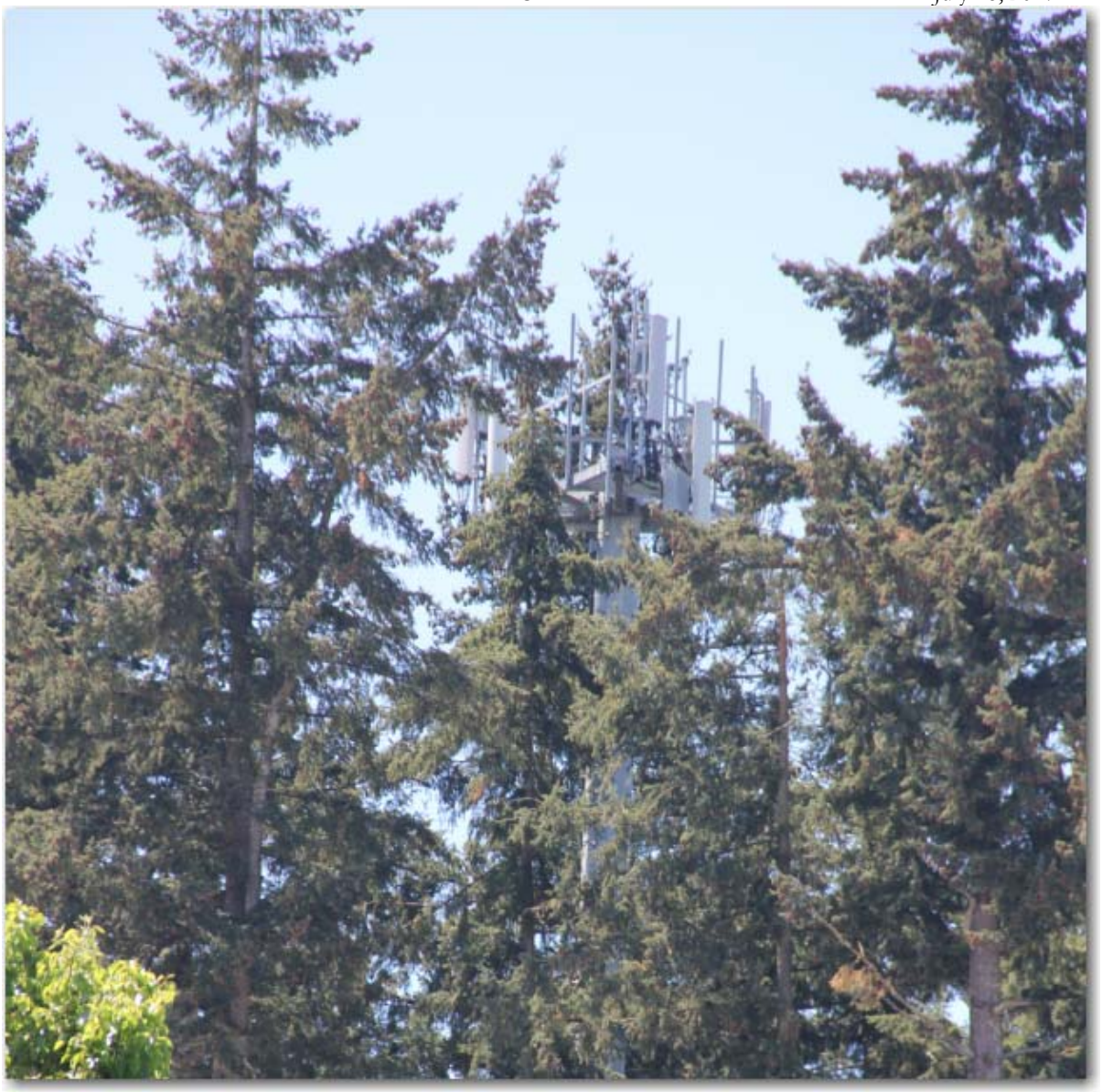


Figure 1: Photo of existing tower surrounded by a dense tree canopy in a near field environment

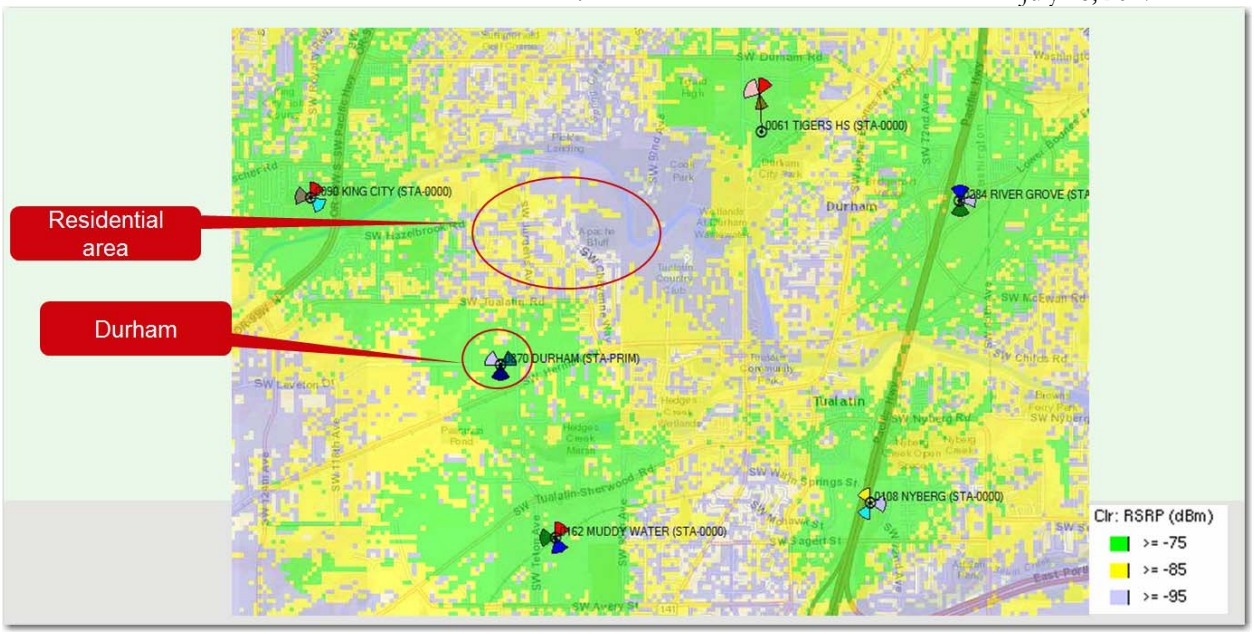


Figure 2: Predicted propagation model showing the residential area of interest from the existing antenna.

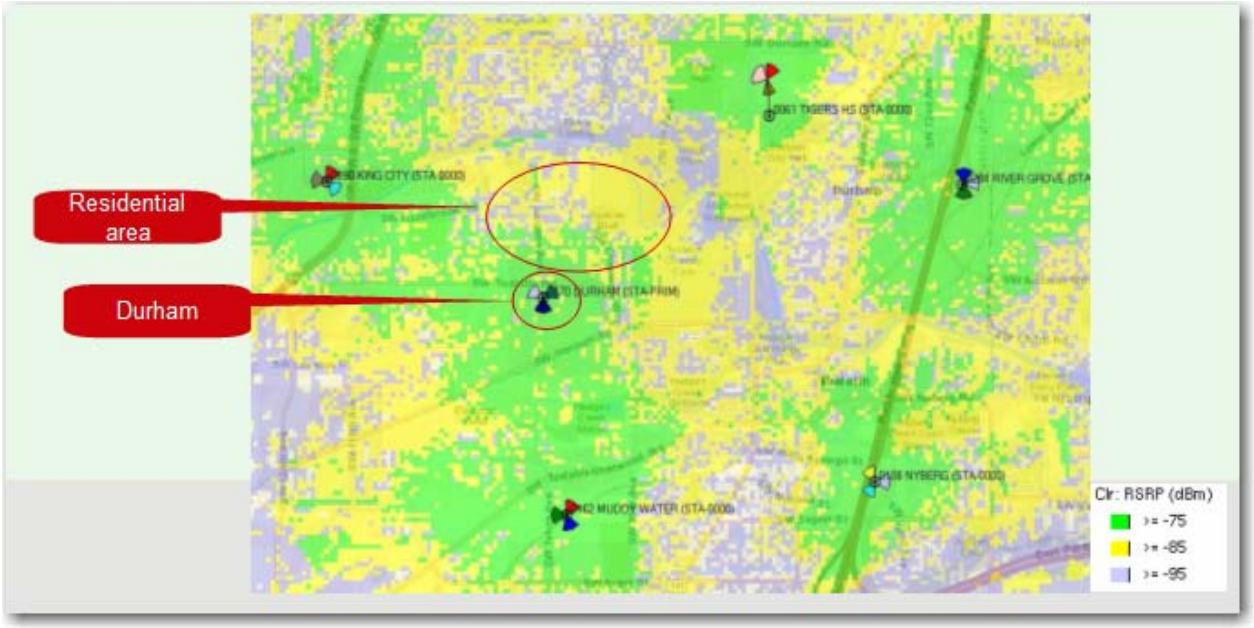


Figure 3: Predicted propagation model showing the RSRP for the residential area of interest with the proposed antenna location.

Qualifications

I am a member of the IEEE, the Institute of Electrical and Electronics Engineers as well as a member of the Health Physics Society. I am a board certified health physicist with a masters in health physics from the Georgia Institute of Technology. I have over 29 years of experience in the evaluation of both ionizing and non ionizing radiation sources. I am a consultant to the ACGIH Threshold Limit Values for Physical Agents Committee as well as a non ionizing subject matter editor for the Health Physics Journal.

Regards,

Andrew H. Thatcher, MSHP, CHP

T-Mobile

September 12, 2017

RE: PI Tower Development Project OR-Tualatin-Durham / 10290 SW Tualatin Road

To Whom It May Concern:

T-Mobile West LLC has been seeking to address a significant gap in network coverage in and around the subject vicinity. After assessing the viability of the existing infrastructure in the area, we have identified the proposed PI Tower Development wireless telecommunications facility to be located at 10290 SW Tualatin Rd in Tualatin, Oregon, as the only candidate that will address and eliminate this network gap in coverage. As a result, once the site is completed, T-Mobile intends to proceed with entering into a lease agreement with PI Tower Development and ultimately install equipment on site.

Best regards,

Julio Brown
Sr. RF Engineer
T-Mobile West LLC
Portland, Oregon

T-Mobile USA, Inc.
Fax: (503) 736-3014
1500 NE Irving St., Suite 530
Portland, OR 97232

POR DURHAM WIRELESS COMMUNICATION FACILITY (WCF)

VARIANCE APPLICATION (VAR-17-0001)

ATTACHMENT C: ANALYSIS AND FINDINGS

The issue before the Tualatin Planning Commission (TPC) is consideration of a Variance (VAR) request for Wireless Communication Facility (WCF) separation that would allow the construction of a new 100-foot-tall monopole with antennas mounted at the top and opportunities for ancillary ground equipment within 1,500 feet of an existing WCF located at 10699 SW Herman Road approximately 800 feet southwest of the proposed WCF location. The proposed WCF would be located at 10290 SW Tualatin Road (Tax Map/Lot: 2S1 23B 000800) on a property owned by Tote 'N Stow and operates as a storage facility for recreational vehicles.

In order to grant the proposed variance, the request must meet the approval criteria of Tualatin Development Code (TDC) Section 33.025(1). The applicant prepared a narrative that addresses the criteria, which is included within the application materials (Attachment B), and staff has reviewed this and other application materials and included pertinent excerpts below.

The following materials and descriptions are based largely on the applicant's narrative; staff has made some minor edits. Staff comments, findings, and conditions of approval are in Italic font.

Section 33.025 – Criteria for Granting a Variance for a Wireless Communication Facility.

No variance to the separation or height requirements for wireless communication facilities shall be granted by the Planning Commission unless it can be shown that the following criteria are met. The criteria for granting a variance to the separation or height requirements for wireless communication facilities shall be limited to this section, and shall not include the standard variance criteria of Section 33.020, Conditions for Granting a Variance that is not for a Sign or a Wireless Communication Facility.

(1) The City may grant a variance from the provisions of TDC 73.470(9), which requires a 1500-foot separation between WCFs, providing the applicant demonstrates compliance with (a) or (b) below.

(a) coverage and capacity.

(i) It is technically not practicable to provide the needed capacity or coverage the tower is intended to provide and locate the proposed tower on available sites more than 1,500 feet from an existing wireless communication facility or from the proposed location of a wireless communication facility for which an application has been filed and not denied. The needed capacity or coverage shall be documented with a Radio Frequency report;

Applicant Response: Verizon Wireless, the co-applicant, has done extensive research looking at opportunities in the area to collocate on existing towers or buildings, as that is always a preferred option when available. If an existing tower or structure is not available at the specified height or not attainable because of space constraints or unreliable structural design, then Verizon Wireless will propose a new tower. In this instance, there is one existing tower, the ATC tower, which is located outside of the search area designated as usable by Verizon Wireless' RF department, but within the 1,500-foot radius of the

proposed facility. This tower is not viable as a solution to meet their coverage and capacity objectives due to the existing trees that would cause interference. There are no other existing towers available to collocate on within the area of interest thus a new tower is being proposed, which will in turn be available for other providers to collocate on in the future.

In order to meet the Verizon's coverage and capacity objectives, it is necessary to site a tower within the search ring provided by Verizon's RF department as shown below. Moving outside this search ring is technically not practicable and has adverse effects on providing the needed coverage and capacity objectives the tower is intended to provide, which include nearby high-traffic residential areas to the North. Siting outside the search ring can also create interference with other nearby network sites where coverage may overlap.

The Applicant is requesting a variance to the 1,500-foot tower separation requirement. There is an existing 146-foot ATC monopole support structure outside of the search ring, approximately 750 feet to the SW of the proposed support tower, located at 10699 SW Herman Road. Per the tower owner, there is currently available space on the tower at the 100-foot level, however this is not high enough to avoid interference from multiple trees surrounding the tower and still meet coverage and capacity objectives to the North, as detailed in the attached RF Usage and Facility Justification Report and RF Engineer Interference Letter.

Locating the tower within the search ring and outside the 1,500-foot radius of the nearby existing ATC tower is also not a desirable alternative as it would mean locating in another part of the ML zone without existing screening or in the RML or RMH zone, where a conditional use permit would be required and where it would be very visible to nearby residential areas. In addition, T-Mobile has also indicated that they intend on co-locating on the proposed WCF, if approved, as the existing ATC tower to the SW will not meet their coverage and capacity requirements either as noted in the attached Letter from T-Mobile RF.

Staff notes that the search ring is defined by the service provider based on their coverage and capacity objectives. As highlighted in the "RF Usage and Facility Justification" report, the proposed WCF is intended to improve service to the residential areas immediately adjacent to and on both sides of the Tualatin River (see Figures C-1 and C-2). Areas within the search ring but outside of the 1,500-foot radius of the existing WCF at 10699 SW Herman Road are either within or closer to residential planning districts which either prohibit completely or restrict heights of WCFs (see Figure C-3).

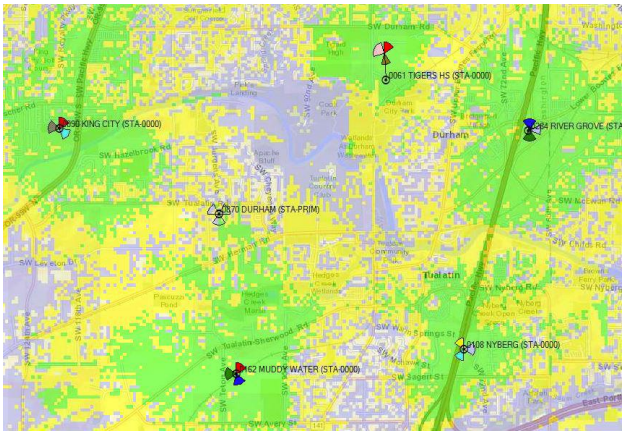


Figure C-1: Existing Coverage

Figure C-2: Proposed Coverage

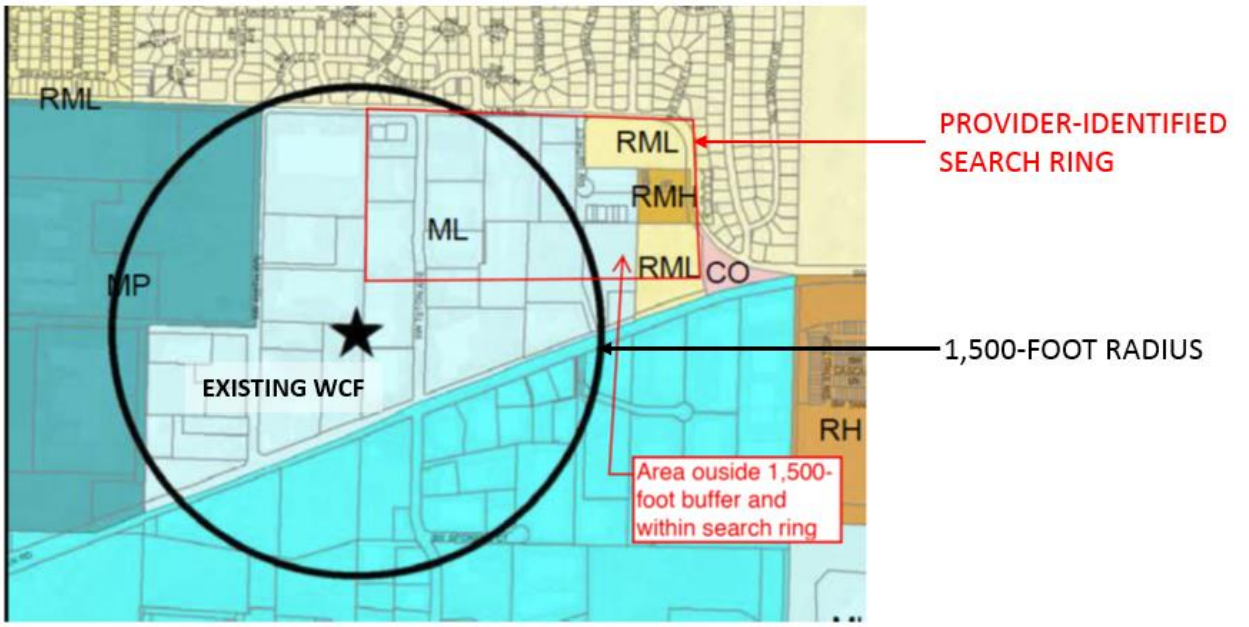


Figure C-3: Search Ring and 1,500-Foot Separate Overlap Map

Staff finds that this criteria is met.

(ii) The collocation report, required as part of the Architectural Review submittal, shall document that the existing WCFs within 1500 feet of the proposed WCF, or a WCF within 1500 feet of the proposed WCF for which application has been filed and not denied, cannot be modified to accommodate another provider; and

Applicant Response: The only existing monopole tower located within 1,500 feet of the proposed location cannot be modified as it is not designed to be extended to the necessary height required to avoid interference from the tall trees currently surrounding the tower. The existing tower would need to be removed and replaced with a new tower at least 20-30 feet taller to avoid interference unless the trees were to be removed or reduced in height to approximately the 100-foot level or lower.

Topping the trees would create undesirable visual impacts to nearby residential areas, whereas the proposed location is well screened to nearby residential areas to the North and does not require the removal or trimming of any existing trees. The topped trees would also create a negative visual impact on their own, as over a third of the height would need to be removed to avoid interference.

Based on the conditions at 10699 SW Herman Road, modifying the existing WCF to attach functioning antennas would require either an additional height variance for the existing WCF (which already received one to permit its construction in 2000) or a forced height reduction in the trees adjacent to the existing monopole. In the analysis and findings for the variance (VAR-99-02) that allowed the construction of the existing 146-foot-tall WCF, it was noted that one of the reasons for the granting of that variance was to preserve the grove of approximately 50 tall conifers at heights of 100 to 120 feet (the construction of the existing WCF resulted in the removal of 6 trees). VAR-99-02 included the following:

> *"The City as the landowner desires to retain the large conifer trees on the subject portion of the Operations Center property and requires that development such as the proposed communications facility disturb as few conifer trees on the site as possible. The applicant states that wireless RF*

signals must travel in an unobstructed path from the facility to the user. Because the tower and antennae are proposed to be located in the grove of 100'-120' tall conifers and the City as the property owner does not wish to have the obstructing trees removed, the antennae must be at a height greater than the height of the neighboring trees (with consideration of the future growth of the trees)."

As such, barring a reversal in the City's preference to not remove trees on its Operations Center site, the options for locating a new WCF in this area include either further increasing the height of the existing 146-foot-tall WCF (the maximum allowed WCF height in the Light Manufacturing [ML] Planning District is 100 feet) or constructing a new structure. The applicant is making the case that a new 100-foot-tall structure would result in less impacts than extending the height of the existing WCF at 10699 SW Herman Road.

Staff finds that this criteria is met.

(iii) There are no available buildings, light or utility poles, or water towers on which antennas may be located and still provide the approximate coverage the tower is intended to provide.

Applicant Response: No available buildings, light or utility poles, or water towers with adequate height to meet coverage objectives are located in the geographical search ring necessary to provide coverage. See Search Ring and ½ mile radius maps.

Staff notes that—through field visits—the applicant is correct in their assertion that there are no other structures of suitable height to attach antennas that would provide approximate coverage as the proposed WCF, also noting the maximum structure height (outside of flagpoles and WCFs) of 50 feet in the Light Manufacturing (ML) Planning District.

Staff finds that this criteria is met.

(b) site characteristics. The proposed monopole location includes tall, dense evergreen trees that will screen at least 50% of the proposed monopole from the RL District or from a small lot subdivision in the RML District.

Applicant Response: Application has demonstrated compliance with Section 33.025(1)(a) above, however proposed location also meets this requirement and includes tall, dense evergreens trees that will screen at least 50% of the proposed monopole from adjacent residential areas. The proposed support tower is sited in the least intrusive location possible to cover the gap in coverage and capacity.

Staff notes that the applicant has chosen to demonstrate compliance with TDC Sections 33.025(1)(a)(i) through (iii) above; therefore, a compliance determination with TDC Section 33.025(1)(b) is not required and the standards in this section do not apply.

SUMMARY OF ANALYSIS AND FINDINGS

Based on the application materials and the analysis and findings presented above, staff finds that VAR-17-0001 meets all criteria of TDC 32.025(1)(a), "Criteria for Granting a Variance for a Wireless Communication Facility."

VAR-17-0001
POR DURHAM
WIRELESS COMMUNICATION FACILITY (WCF)

PURPOSE OF HEARING

- Consideration of a variance to allow a new wireless communication facility (WCF) within 1,500-feet of an existing WCF

- Planning Commission must find that applicant demonstrates compliance with Tualatin Development Code (TDC) 33.025(1)(a) or 33.025(1)(b)

HEARING AGENDA

- Staff Presentation
- Applicant Presentation
- Public Comment
- Commission Deliberation and Decision

VAR-17-0001
POR DURHAM WCF

TUALATIN PLANNING COMMISSION
NOVEMBER 16, 2017

VAR-17-0001
POR DURHAM WCF

TUALATIN PLANNING COMMISSION
NOVEMBER 16, 2017

APPLICANT PROPOSAL

- Applicant proposes to locate a monopole/WCF on the Tote ‘N Stow property at 10290 SW Tualatin Road within 1,500 feet of an existing WCF

VARIANCE APPROVAL CRITERIA

TDC 33.025(1)(a)

The City may grant a variance from the provisions of TDC 73.470(9), which requires a 1500-foot separation between WCFs, providing the applicant demonstrates compliance with (a) or (b) below:

(a) Coverage and capacity; or

(b) Site characteristics.

VARIANCE APPROVAL CRITERIA

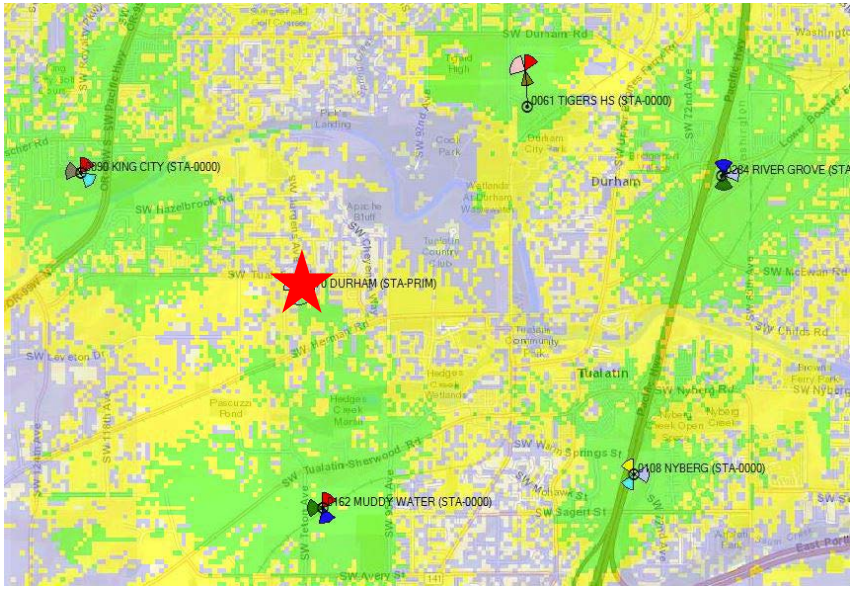
TDC 33.025(1)(a)(i)

It is technically not practicable to provide the needed capacity or coverage the tower is intended to provide and locate the proposed tower on available sites more than 1,500 feet from an existing wireless communication facility.

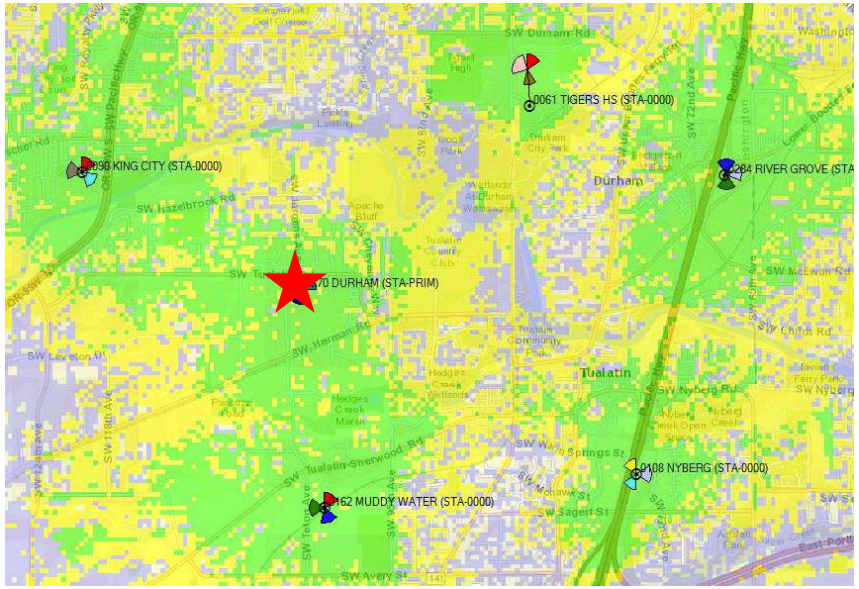
- *Staff finds this criterion is met.*

VARIANCE APPROVAL CRITERIA

TDC 33.025(1)(a)(i)



Existing Coverage



Proposed Coverage

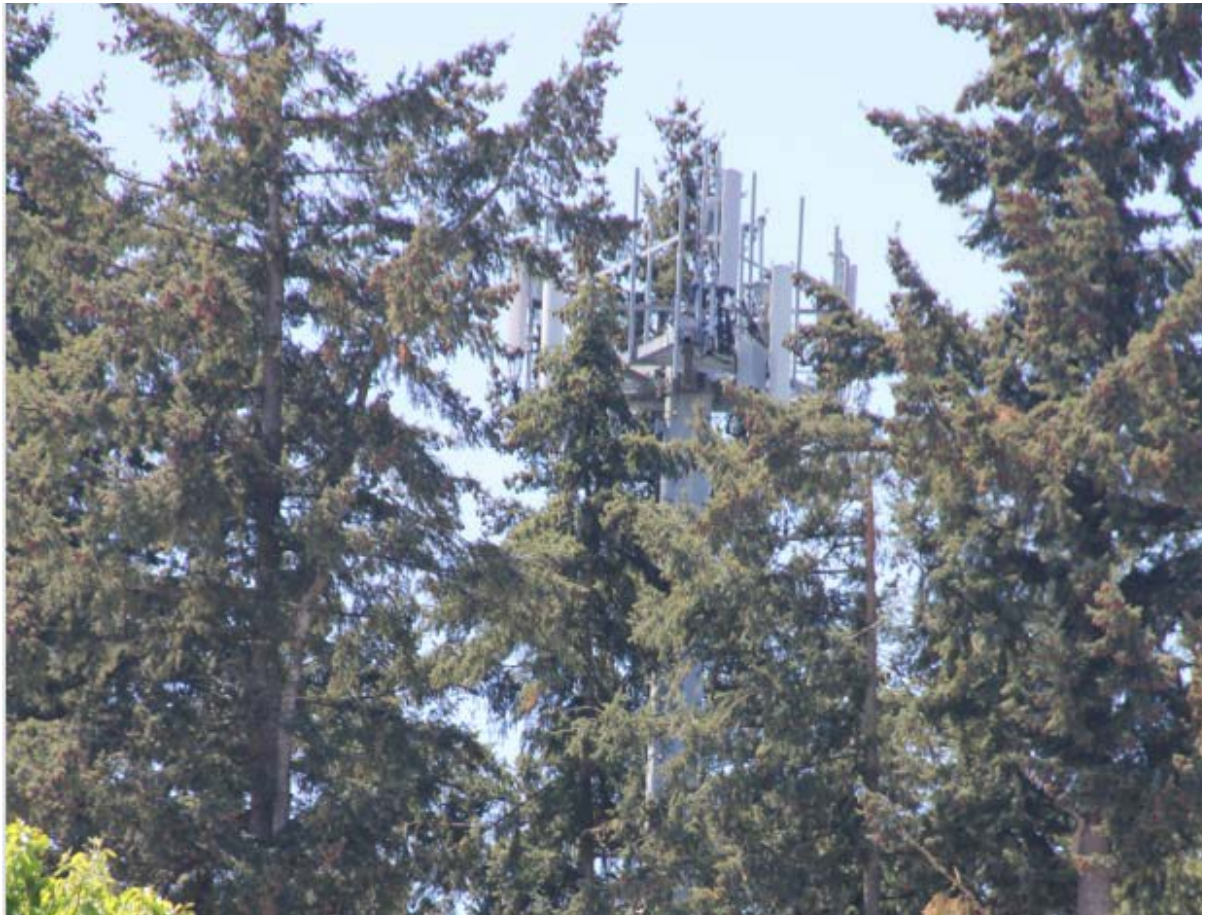
VARIANCE APPROVAL CRITERIA

TDC 33.025(1)(a)(ii)

The collocation report shall document that the existing WCFs within 1,500 feet of the proposed WCF cannot be modified to accommodate another provider.

- *Staff finds this criterion is met.*

VARIANCE APPROVAL CRITERIA



TDC 33.025(1)(a)(ii)

Existing 146-foot-tall WCF at 10699 SW Herman Road

VARIANCE APPROVAL CRITERIA

TDC 33.025(1)(a)(iii)

There are no available buildings, light or utility poles, or water towers on which antennas may be located and still provide the approximate coverage the tower is intended to provide.

- *Staff finds this criterion is met.*

NEXT STEPS (IF APPROVED)

- Architectural Review (AR) of the physical elements of the proposed WCF

PLANNING COMMISSION OPTIONS

1. Approve VAR-17-0001 as drafted;
2. Deny VAR-17-0001 and cite which criteria applicant fails to meet; or
3. Continue discussion to a later date.


QUESTIONS
DISCUSSION
RECOMMENDATIONS

From:	Jason Rogers
To:	Charles Benson
Subject:	AR17-0010 POR Durham
Date:	Thursday, November 02, 2017 1:59:37 PM

Charles –

In response to the notice from the City of Tualatin, I wanted to send my comments as a property owner. Myself and another homeowner from my neighborhood plan to attend the meeting that is planned for 11/16/17 at the Juanita Pohl Center. In the event that something may eliminate attendance between now and 11/16/17, I'm sending so these are part of the record and discussion:

In reviewing the original notice dated 4/17/17 I became concerned about not only the facility but also the monopole. My first concern relates to the facility and equipment that has been described. More specifically the concern is for any increased commercial and truck / vehicle traffic at and around a largely residential area with a predominance of children. The second concern relates to the 100' monopole. As mentioned, this is a largely residential and low-rise industrial area so my concern as a property owner is any negative effect on property values with the construction of the tower which could become an eye-sore. Many of the marketing documents on the project have described the location consideration to include the aesthetic component and that the first priority would be a location that can be shielded by existing trees. Considering the aforementioned demographic of the area I find it hard to visualize where, around the Tote-N-Stow property one could "hide" what equates to a 9+ story building. Finally the last document I received outlined this as a Verizon project. I am not nor do I anticipate being a Verizon customer so if this facility or pole have any negative, aesthetic result (as I understand it) I would see no benefit.

Regards,

Jason Rogers
Agency Principal - AOA West Insurance, Inc.
(503) 245-1960 ph.
(503) 245-2049 fax
www.aoawest.com