

TO: CITY MANAGER **DATE:** 2016 June 22

FROM: DIRECTOR PLANNING AND BUILDING **FILE:** 49500 20
Reference: Rez #15-16

SUBJECT: REZONING REFERENCE #15-16
INSTALLATION OF ROOFTOP ANTENNA FACILITY
2900 BAINBRIDGE AVENUE
RESPONSE TO PUBLIC HEARING ISSUES

PURPOSE: To respond to issues raised at the Public Hearing for Rezoning Reference #15-16.

RECOMMENDATION:

1. **THAT** a copy of this report be sent to the applicant and those who spoke at, or submitted correspondence to the Public Hearing for Rezoning Reference #15-16.

REPORT

1.0 BACKGROUND

On 2016 April 26, a Public Hearing was held for Rezoning Reference #15-16. The subject rezoning application proposes a rooftop antenna facility with surrounding parapet and an at-grade equipment compound. The subject site is located on the southeast corner of Lougheed Highway and Bainbridge Avenue (see *attached* Sketch #1).

At the Public Hearing, 13 written submissions were received from area residents – located to the south and east along Bainbridge Avenue, Coventry Place, and Collister Drive – expressing opposition to the rezoning application. Five individuals made verbal submissions at the Public Hearing, with four expressing opposition to the rezoning application and one – representing Telus, the wireless provider – providing a presentation on the application.

The 17 written and verbal submissions were generally related to: health and safety risks; reduced neighbourhood property values; and consistency with City policy. At the Public Hearing, Council requested that a staff report be submitted to respond to the issues raised at the Public Hearing and to provide further information on: Health Canada's Safety Code 6 regulations; ownership and future potential use of 7000 Lougheed Avenue (the location of Telus' existing temporary antenna installation); location of the past, present, and proposed Telus antenna facility; co-location with the existing Rogers antenna tower to the south; and a review of the information presented by the Telus representative at the Public Hearing. The following report addresses Council's request.

2.0 ISSUES RAISED

2.1 Health and Safety Risks

Concerns were raised regarding the potential health and safety impacts of the proposed antenna installation and further information on Health Canada's Safety Code 6 regulations was requested.

Safety of Antenna Installations

City staff undertook a general review of information on the health and safety related to antenna installations, including information from Health Canada and the World Health Organization (WHO), to provide the following staff summary (see *attached* Appendix 1 for a list of references). It is important to note that responsibility for health related regulations rests with Health Canada, the federal department responsible for protecting the health of Canadians.

Information gathered by staff indicates that tower or rooftop antenna installations, also known as base stations, receive and transmit RF waves, a form of energy on the electromagnetic spectrum between FM radio waves and microwaves. RF waves are examples of non-ionizing radiation and do not carry sufficient energy to break chemical bonds. RF energy produced by antenna installations decreases very quickly over distance, and at ground level and in publicly accessible places is very low, with surveys indicating that RF levels from such antenna installations range from .002 to 2% of international exposure guidelines.¹

While RF energy, at very high levels, can heat body tissue, WHO notes that the levels of RF energy from antenna installations "are so low that the temperature increases are insignificant and do not affect human health."¹ WHO notes that exposure to the RF fields emitted by cell phones is generally more than 1,000 times higher than from antenna installations.² WHO notes that based on scientific evidence, "no adverse short or long term effects have been shown to occur from the RF signals produced by base stations."¹

The International Agency for Research on Cancer (IARC), a specialized agency of WHO, with respect to RF energy from antenna installations, notes that "studies provide no indication that environmental exposure to RF radiation increases the risk of brain tumours."³ WHO also maintains that "there is no convincing scientific evidence that the weak RF signals from base stations and wireless networks cause adverse health effects."¹ Health Canada, the federal department responsible for protecting the health of Canadians, also notes that the "vast majority of research to date does not support a link between RF energy exposure and cancers in humans."⁴

1 <http://www.who.int/peh-emf/publications/facts/fs304/en>

2 <http://www.who.int/features/qa/30/en>

3 <http://monographs.iarc.fr/ENG/Monographs/vol102/mono102.pdf>

4 http://www.hc-sc.gc.ca/ewh-semt/pubs/radiation/radio_guide-lignes_direct/safety_code_6_fs-code_securite_6_fr-eng.php

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The Canadian Cancer Society reiterates WHO's position that current scientific evidence does not show any health effects from the RF signals produced by antenna installations.⁵ Similarly, the American Cancer Society notes that most scientists agree that cell phone towers are unlikely to cause cancer.⁶

Health Canada's mandate regarding human exposure to RF energy is to research possible health effects (including thermal, non-thermal, and biological effects), monitor scientific research related to such effects, and develop exposure guidelines. Health Canada maintains that the "consensus of the scientific community is that RF energy from cell phone towers is too low to cause adverse health effects in humans," that "no adverse health effects will occur from exposure to RF energy at the levels permitted by Health Canada's Safety Code 6 [Health Canada's exposure standards, discussed below]," and that "RF exposures from cell phone towers are typically well below Health Canada's exposure standards."^{7,8} The latest version of Health Canada's exposure guidelines, published in 2015, is outlined in *Limits to Human Exposure to Radiofrequency Electromagnetic Energy in the Frequency Range from 3kHz to 300 GHz – Safety Code 6 (2015)*.⁹

Safety Code 6 is made up of two main sections. The first section is an introduction to the Code's purpose and a synopsis of the scientific literature with respect to health impacts. The second section provides details on RF field exposure limits, which are stated as "basic restrictions" (exposure limits measured within the body) and "reference levels" (exposure limits measured outside the body).

Information gathered by staff indicates that the limits in Safety Code 6 provide protection against all known adverse health effects from RF energy and are set 50 times lower than the threshold for potentially adverse health effects.¹⁰ The limits take into account the total exposure from all sources of RF energy, apply to all Canadians, regardless of age, and are designed to provide protection on a continuous basis. The limits in Safety Code 6 are consistent with the science-based standards used internationally, including in the United States, the European Union, Japan, Australia, and New Zealand. The scientific approach used by Health Canada to establish the guidelines is comparable to that used by other international health agencies and standards bodies, such as the International Committee on Non-Ionizing Radiation Protection, which provides scientific advice and guidance on the health and environmental effects of non-ionizing radiation and which also notes that studies undertaken on effects from RF exposure typical of antenna installations provide no conclusive evidence of any related adverse health effects.¹¹

While Health Canada recommends limits for safe exposure to RF energy, Industry Canada is the federal agency responsible for regulating radio communication in Canada and for authorizing

5 <http://www.cancer.ca/en/prevention-and-screening/be-aware/harmful-substances-and-environmental-risks/cell-phones/?region=on>

6 <http://www.cancer.org/cancer/cancercauses/othercarcinogens/athome/cellular-phone-towers>

7 http://www.hc-sc.gc.ca/ewh-semt/pubs/radiation/radio_guide-lignes_direct/safety_code_6_fs-code_securite_6_fr-eng.php

8 <http://www.hc-sc.gc.ca/ewh-semt/radiation/cons/stations/index-eng.php>

9 http://www.hc-sc.gc.ca/ewh-semt/consult/_2014/safety_code_6-code_securite_6/final_finale-eng.php

10 <http://healthycanadians.gc.ca/security-securite/radiation/devices-dispositifs/consumer-consommateur/cell-eng.php>

11 <http://www.icnirp.org/en/applications/base-stations/index.html>

radio communication facilities, including antenna installations. Industry Canada requires all antenna installations to comply with Safety Code 6 at all times, including the consideration of the combined effects of other nearby installations. It also requires that updates to Safety Code 6 are respected.¹²

As noted, health and safety matters related to the proposed installation are appropriately regulated by Health Canada's Safety Code 6 recommendations, and the applicant is required to meet these standards.

Safety of Tower Addition

With respect to the structural safety of the tower addition, it is noted that the proposed antenna installation includes the construction of a 3.5 m (11.48 ft.) high extension to the existing architectural building element, via the construction of an architecturally integrated parapet, on the northwest corner of the one-storey commercial building. The resulting architectural tower height of the building would increase from 7.6 m (25 ft.) to 10.7 m (35 ft.). It is noted that the top rail of the SkyTrain guideway is approximately 9.2 m (30.2 ft.) high and the tower extension will be approximately 1.5 m (4.9 ft.) higher than the guideway. However, given that the tower is located approximately 6 m (19.7 ft.) to the south of the guideway, the proposed addition could not topple onto the guideway. Furthermore, a Building Permit for the proposed addition would be required to ensure that the addition meets all Provincial Building Code requirements.

2.2 Reduced Neighbourhood Property Values

Concerns were raised regarding the reduction in neighbourhood property values due to health, safety, and aesthetic concerns.

With respect to property values, staff do not have any basis or information to indicate whether the installation would affect the value of properties in the area. Staff note that the installation of antennas is common across Burnaby, and that the subject installation is appropriately screened and integrated into the design of the commercial building.

With respect to aesthetic concerns, the proposed installation includes the construction of a 3.5 m (11.48 ft.) high extension to the existing architectural tower element on the northwest corner of the one-storey commercial building. While the resulting architectural tower height would increase from 7.6 m (25 ft.) to 10.7 m (35 ft.), the remainder of the building would remain 5.6 m (18.4 ft.) high. The architectural tower element, at 10.7 m (35 ft.) high, is above the maximum 9 m (30 ft.) height permitted in the C1 District; however, the site is zoned to the Comprehensive Development (CD) District which can permit variances in height requirements.

It is also noted that Section 6.4 (4) of the Zoning Bylaw exempts structures such as elevator and ventilating machinery and penthouses from height requirements, but that such structures can't cover more than 10% of the roof area of the building. The additional tower element, which measures approximately 3 m (9.84 ft.) wide by 3 m (9.84 ft.) deep, occupies only about 2.5% of the roof area of the existing building.

2.3 Consistency with City Policy

Concerns were raised that the proposed rezoning does not comply with the Burnaby Official Community Plan (OCP).

The Commercial Policy Framework of the OCP indicates that the subject site is intended for local commercial uses. Apart from the OCP, which does not specifically address zoning designations or antenna installations, Burnaby's Zoning Bylaw regulates the installation of antennas in two separate sections: Section 6.21 of the Zoning Bylaw and the P2 Administration and Assembly District. Section 6.21 permits antenna developments in any zoning district other than the R Districts, if it receives Preliminary Plan Approval (PPA) and meets certain requirements, including that it is attached to a building, is at least 5 m (16.4 ft.) above the ground, and does not extend more than 1 m (3.2 ft.) above the highest point of the building face. The P2 District permits antenna developments that are not included in Section 6.21, subject to the condition that such use is included as part of a comprehensive development plan to which the provisions of the CD District apply.

In the case of the subject antenna installation, the subject proposal meets the qualifications of Section 6.21 of the Zoning Bylaw, and therefore does not require rezoning to the P2 District. However, rezoning is required in order to amend the previously approved CD plans for the property, which specified an architectural form which is proposed to be amended in this application. It is noted that if the property was not zoned to the CD District, only Preliminary Plan Approval and Building Permits would be required for the proposed antenna installation.

3.0 REQUESTS FOR FURTHER INFORMATION

In addition to responding to concerns raised at the Public Hearing, Council requested further information on: ownership and future potential use of 7000 Lougheed Avenue (the existing antenna location); location of the past, present, and proposed antenna facility; further information on the co-location and/or rebuilding of the existing Rogers antenna tower to the south; and a review of information presented by Telus at the Public Hearing.

3.1 Ownership and future potential use of 7000 Lougheed Avenue

Council requested information regarding the ownership and future potential property uses of the past and current location of the antenna installations at 7000 Lougheed Avenue.

Land Title Office and City records indicate that 7000 Lougheed Avenue has been owned by BCMP Real Estate Corporation No. 1, a Telus pension fund, since at least the 1980s. 7000 Lougheed Avenue is zoned to the CD District (based on C1 Neighbourhood Commercial District, C2h Community Commercial District, M5 Light Industrial District, and P2 Administration and Assembly District as guidelines) and R2 Residential District (the latter District is confined to a buffer strip along Lougheed Highway). It contains commercial development on the east side of the property, and, until recently, also contained the former Telus industrial complex, which was home to Telus' previous rooftop antenna installation. The

applicant advises that the Telus industrial complex was demolished in 2015 in order to allow BCMP to complete an environmental assessment of the soil and groundwater below the building slabs. The applicant advises that the assessment was required in order to establish a remediation plan required by the Ministry of Environment and in order to support future redevelopment of the property that would be consistent with City land use directions.

Since the Telus industrial complex was to be demolished, the antenna installation needed to be relocated to maintain Telus wireless service. The applicant advises that TM Mobile Inc. attempted to work with BCMP to find a long term solution for an antenna installation at 7000 Lougheed, however, a long term Statutory Right-of-Way could not be secured and TM Mobile was required to find an alternative location for an antenna installation in the area due to the redevelopment potential of the property once the remediation is complete. The property was rezoned under Rezoning Reference #15-17 to permit a temporary Cell-on-Wheels (COW) antenna installation, and the subject rezoning application, across the street, was initiated to establish a permanent installation location.

With respect to future development potential, 7000 Lougheed Highway, which is zoned CD Comprehensive Development District (based on C1 Neighbourhood Commercial District, C2h Community Commercial District, M5 Light Industrial District and P2 Administration and Assembly District as guidelines) and R2 Residential District, is located within the proposed Bainbridge Urban Village as identified in the Official Community Plan. At present, the prevailing zoning for the property continues to apply. No applications for redevelopment or Community Plan amendments have been made by the owner to the City. Staff inquired as to Telus' plans for the site and were not advised of specific plans other than that indicated by the applicant above – that the environmental assessment will be used to help establish a remediation plan to support longer term future redevelopment of the property.

3.2 Location of past, present, and proposed antenna facility

Council requested information on the distance of the past, present, and proposed antenna facility from the nearest residential area.

As indicated in the *attached* Sketch #2, the previous rooftop antenna installation at 7000 Lougheed Avenue was located approximately 120 m (394 ft.) west of the nearest residential property to the east, while the existing antenna installation, approved as a temporary COW installation, is located approximately 90 m (295 ft.) west from the nearest residential property to the east. The proposed antenna installation is located approximately 128 m (420 ft.) northeast of the existing COW antenna installation; it is approximately 31 m (102 ft.) from the neighbouring single family residential property to the south, and 23.4 m (77 ft.) from the neighbouring single family residential property to the east.

3.3 Co-location

At the Public Hearing, two speakers suggested that Telus consider co-locating on the existing antenna tower located to the south, and Council requested further information on the co-location

and/or rebuilding of the Rogers antenna tower and on the compatibility of the Rogers and Telus networks.

The applicant indicates that there is an existing Rogers antenna tower located at 6990 Greenwood Street (see *attached* Sketch #2). The site is zoned to the M5 Light Industrial District and is located directly north and west of a single family residential neighbourhood, with the pole sited approximately 30 m (98 ft.) north of the nearest residential property, and approximately 360 m (1,181 ft.) from the residential area nearest the proposed antenna installation. The applicant indicates that the pole is 15 m in height, with Rogers' antennas on the top 5 m of the pole. The applicant has indicated that there is insufficient space on the pole for Telus equipment and that the pole is too far and at too low of an elevation to service Telus' intended area. The applicant also notes that the Rogers and Telus networks are not compatible because they operate on different frequencies, have differing customer usage patterns, and have a different configuration of network installations. As such, co-location on the Rogers tower was not a feasible option for the applicant.

3.4 Review of information presented by Telus at the Public Hearing

Council requested staff review the information presented by Telus at the Public Hearing.

The applicant's presentation to Council included information on the following:

- *Wireless trends* – Information presented was consistent with that provided by the Government of Canada's handbook on Wireless Communication and Health, for example, that most Canadians want wireless communication, the use of wireless technology is widespread and increasing, and the majority of 911 calls are made on a cell phone.¹⁵ It is understood that as wireless use increases, service can deteriorate, and that the increasing consumption of higher bandwidth content on devices such as smartphones and tablets result in the growth of mobile data traffic.
- *Proposed installation and site attributes* – Information presented was consistent with that presented in the report to Council on 2016 March 21.
- *Health and safety issues* – Information presented was consistent with information outlined in Section 2.1, for example with respect to the scientific consensus on the health impacts of RF energy, levels of RF energy at ground level, and Health Canada Safety Code 6 regulations.
- *Existing Telus wireless service in the area and service coverage maps indicating improved service* – The maps presented by Telus illustrate that the proposed antenna installation will provide better service to some areas – for example, the local areas closer to the installation – but less quality service to some other areas than both the previous and existing (COW) antenna installations. The applicant advises that an installation at a higher elevation on the subject building was wanted but that the proposed height of the installation was more appropriate given the scale of the building.

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- *Summary of the consultation process* – Information presented was consistent with the rezoning process thus far.
- *Photo rendering of the proposed antenna installation* – The rendering presented was consistent with the Public Hearing drawings provided by the applicant.

4.0 CONCLUSION

The development proposal for the subject rezoning application (Rezoning Reference #15-16) is for a rooftop antenna facility with surrounding parapet and an at-grade equipment compound. The subject site is located on the southeast corner of Lougheed Highway and Bainbridge Avenue (see *attached* Sketch #1). The proposal provides for its integration with the building's existing architecture and is located on the northwest corner of the building furthest from the residential properties.

This report provides information responding to concerns raised at the Public Hearing related to health and safety risks, reduced neighbourhood property values, and consistency with City policy. The report also provides further information to Council on: health concerns and Health Canada's Safety Code 6 regulations; ownership and future potential use of 7000 Lougheed Avenue (the existing antenna location); location of the past, present, and proposed Telus antenna facility; co-location with the existing Rogers antenna tower to the south; and a review of the information presented by Telus at the Public Hearing.

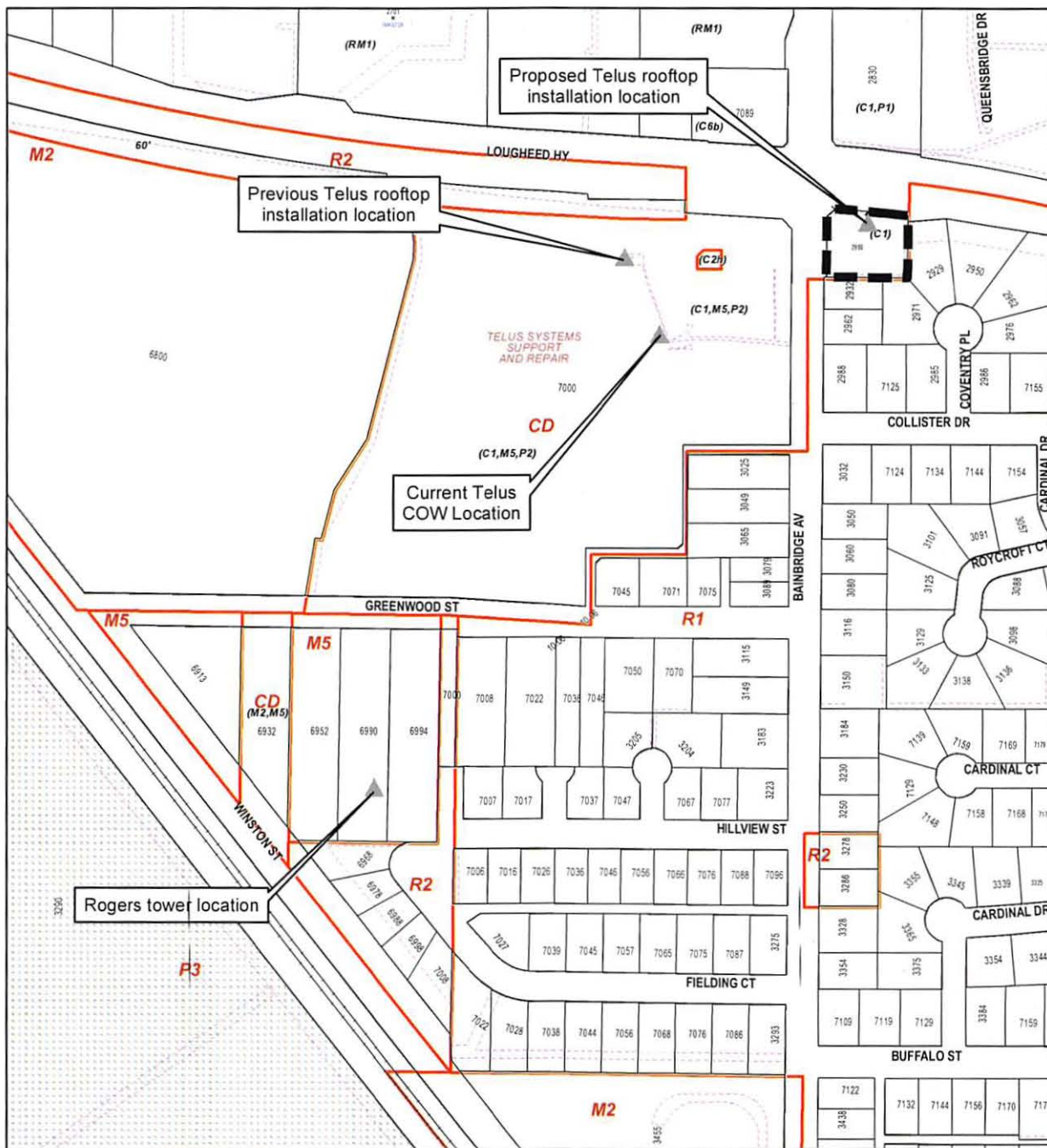
As outlined in this report, the proposed antenna facility is consistent with the approval of similar installations across Burnaby.

It is recommended that a copy of this report be sent to the applicant and those who spoke at, or submitted correspondence to the Public Hearing for Rezoning Reference #15-16.


Lou Pelletier, Director
PLANNING AND BUILDING

LS:spf
Attachments

cc: Director Engineering
Chief Building Inspector
City Clerk



PLANNING & BUILDING DEPARTMENT

DATE:

JUN 21 2016

SCALE:

1:3,984

DRAWN BY:

AY

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2900 BAINBRIDGE AVENUE



Subject Site

Sketch #2

Appendix #1

REFERENCES

American Cancer Society. (2014 December 02). Cellular Phone Towers. Retrieved from <http://www.cancer.org/cancer/cancercauses/othercarcinogens/athome/cellular-phone-towers>

Canadian Cancer Society. (n.d.). Cell phones and radiofrequency fields. Retrieved from <http://www.cancer.ca/en/prevention-and-screening/be-aware/harmful-substances-and-environmental-risks/cell-phones/?region=on>

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