

CITY OF BALTIMORE

STEPHANIE RAWLINGS-BLAKE, Mayor



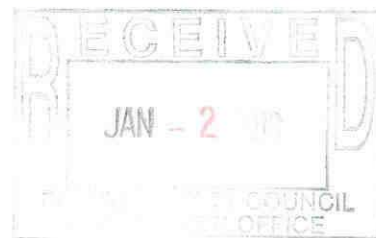
MAYOR'S OFFICE OF INFORMATION TECHNOLOGY

CHRIS TONJES
Chief Information Officer

401 E. Fayette Street, 3rd Floor Baltimore, MD 21202
Phone: 410-396-3902

December 20th, 2012

The Honorable President and Members
of the Baltimore City Council
Attn: Karen Randle, Executive Secretary
Room 400 – City Hall



Unfiled

City Council Bill 12-0170 Report

I am herein reporting on City Council Bill 12-0170, Wireless Telecommunications Antennae - Prohibited Contracts.

After thorough review of the legislation, the Mayor's Office of Information Technology (MOIT) has a number of serious concerns, outlined below.

MOIT believes that the language of the bill is too broad. The lack of specificity and clearly defined language could prohibit other wireless technology projects beyond the intention of the bill. As currently worded, this ordinance could disrupt a great deal of equipment in active use for mission-critical purposes. There is a potential impact on CitiWatch, which is a vital public safety tool, and as many as one-third (1/3) of all crime cameras could be rendered inoperable by the proposed ordinance. There would be major costs in removing, relocating, and reinstalling equipment effected by the ordinance.

By banning such equipment on City property there is significant risk of substantial additional costs for future projects that may no longer be able to leverage existing City assets. This ordinance would also preclude other very worthwhile projects. For example, wireless links to provide internet to public places, i.e. schools, public Wi-Fi, and many other related and in-demand services which would be exponentially more costly, if not impossible, with such an ordinance in place.

Furthermore, tower and antennae leases constitute an important source of revenue for the City and school system. This legislation will have unanticipated budgetary impacts as the City and school system would be forced to make necessary adjustments to account for this lost source of revenue. The legislation also fails to address the disposition of existing contracts and related agreements. Without thorough review of all such agreements and consideration of the impact this bill might cause, the City could face unforeseen liabilities relating to these contracts.

Finally, MOIT believes that the concerns about antennae emissions are misguided. The power density of an electromagnetic wave is proportional to the inverse of the square of the distance from a point source. Doubling the distance from the transmitter means that the power density of the wave is reduced to 1/4th of its previous power (see the inverse-square law). In other



words, a cell phone is much more dangerous, if such a danger exists, than a cell tower, even if the cell tower is on top of a near-by or occupied building. The Federal Communications

Commission notes that “there is no reason to believe that such towers could constitute a potential health hazard to nearby residents or studentsⁱ”.

The Federal Communications Commission’s Guidelines for Cellular and PCS Sites notes:

Although the FCC permits an effective radiated power (ERP) of up to 500 watts per channel (depending on the tower height), the majority of cellular or PCS cell sites in urban and suburban areas operate at an ERP of 100 watts per channel or less. An ERP of 100 watts corresponds to an actual radiated power of 5-10 watts, depending on the type of antenna used. In urban areas, cell sites commonly emit an ERP of 10 watts per channel or less. For PCS cell sites, even lower ERPs are typical. As with all forms of electromagnetic energy, the power density from a cellular or PCS transmitter rapidly decreases as distance from the antenna increases.

Consequently, normal ground-level exposure is much less than the exposure that might be encountered if one were very close to the antenna and in its main transmitted beam. Measurements made near typical cellular and PCS cell sites have shown that ground-level power densities are well below the exposure limits recommended by RF/microwave safety standards used by the FCC.

In the case of cellular and PCS cell site transmitters, the FCC’s RF exposure guidelines recommend a maximum permissible exposure level to the general public of approximately 580 microwatts per square centimeter. This limit is many times greater than RF levels which are typically found near the base of cellular or PCS cell site towers or in the vicinity of other, lower-powered cell site transmitters.

Calculations corresponding to a “worst-case” situation (all transmitters operating simultaneously and continuously at the maximum licensed power) show that, in order to be exposed to RF levels near the FCC’s guidelines, an individual would essentially have to remain in the main transmitting beam and within a few feet of the antenna for several minutes or longer. Thus, the possibility that a member of the general public could be exposed to RF levels in excess of the FCC guidelines is extremely remoteⁱⁱ.

Most of the radio-frequency (RF) emissions humans absorb from cell phone use, over ninety-nine (99) percent, come from the phone itself, not the tower and related equipment. Pursuant to the inverse square law, this is because the phone is much closer to the brain than the tower, and electromagnetic energy disperses exponentially with distance. In addition to the incontrovertible laws of physics necessarily at play when discussing this legislation, there have been numerous studies regarding the health effects of RF emissions which have shown



no negative effects due to the proximity of cell towers and wireless communications equipment.

The FCC's Office of Engineering and Technology, which is required to evaluate the effects of RF emissions, released its Interphone Study in May of 2010 which found no risk increase associated with mobile phone use. In addition, studies by the U.S. Food and Drug Administration and the World Health Organization concluded there is no scientific evidence of health risks from cell-phone RF emissions.

The FCC's safety standards include a fifty (50) fold safety factor and were developed in consultation with the Environmental Protection Agency (EPA), the Food and Drug Administration (FDA), the Occupational Safety and Health Administration (OSHA), and the National Institute of Occupational Safety and Health (NIOSH). By all accounts, these safety standards represent the best scientific thought and are sufficient to protect the public's health.

A 2008 study by the Mitsubishi Chemical Safety Institute in Japan reached similar conclusions:

A large-scale in vitro study focusing on low-level radiofrequency (RF) fields from mobile radio base stations employing the International Mobile Telecommunication 2000 (IMT-2000) cellular system was conducted to test the hypothesis that modulated RF fields affect malignant transformation or other cellular stress responses. Our group previously reported that DNA strand breaks were not induced in human cells exposed to 2.1425 GHz Wideband Code Division Multiple Access (W-CDMA) radiation up to 800 mW/kg from mobile radio base stations employing the IMT-2000 cellular system. In the current study, BALB/3T3 cells were continuously exposed to 2.1425 GHz W-CDMA RF fields at specific absorption rates (SARs) of 80 and 800 mW/kg for 6 weeks and malignant cell transformation was assessed. In addition, 3-methylcholanthrene (MCA)-treated cells were exposed to RF fields in a similar fashion, to assess for effects on tumor promotion. Finally, the effect of RF fields on tumor co-promotion was assessed in BALB/3T3 cells initiated with MCA and co-exposed to 12-O-tetradecanoylphorbol-13-acetate (TPA). At the end of the incubation period, transformation dishes were fixed, stained with Giemsa, and scored for morphologically transformed foci. No significant differences in transformation frequency were observed between the test groups exposed to RF signals and the sham-exposed negative controls in the non-, MCA-, or MCA plus TPA-treated cells. Our studies found no evidence to support the hypothesis that RF fields may affect malignant transformation. Our results suggest that exposure to low-level RF radiation of up to 800 mW/kg does not induce cell transformation, which causes tumor formationⁱⁱⁱ.



CITY OF BALTIMORE

STEPHANIE RAWLINGS-BLAKE, Mayor



MAYOR'S OFFICE OF INFORMATION TECHNOLOGY

CHRIS TONJES
Chief Information Officer

401 E. Fayette Street, 3rd Floor Baltimore, MD 21202
Phone: 410-396-3902

MOIT recommends that the Council consult heavily with physicians, radio frequency engineers, members of the technology community, and City technology and public safety staff in order to better understand the deleterious effects of such an ordinance.

Given the large amount of scientific evidence indicating no potential health and safety effects from wireless antennae on City owned buildings, the major disruption this ordinance would cause to existing mission-critical public safety infrastructure and the significant costs the City would be forced to incur, MOIT strongly objects to this legislation.

Sincerely,

Christopher D. Tonjes
Chief Information Officer
Mayor's Office of Information Technology

ⁱ Radio Frequency Safety, FAQ's. 2012. Federal Communications Commission. 12 Dec. 2012
<http://transition.fcc.gov/oet/rfsafety/rf-faqs.html>.

ⁱⁱ FCC Human Exposure to RF Fields Guidelines For Cellular and PCS Sites. 2011. Federal Communication Commission. 17 Dec. 2012. <http://www.fcc.gov/guides/human-exposure-rf-fields-guidelines-cellular-and-pcs-sites>.

ⁱⁱⁱ Mobile Phone Base Station Radiation Does Not Affect Neoplastic Transformation in BALB/3T3 Cells. 2008. Kaji, Hirose, et al. <http://www.ncbi.nlm.nih.gov/pubmed/17694516>.

