

Problems with 4G/5G Wireless Infrastructure: Improving Tucson's Telecom Code

The "People's Wireless Telecom Ordinance"

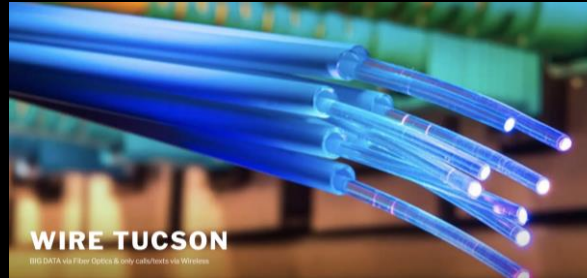
Catalinas



Oak Flower

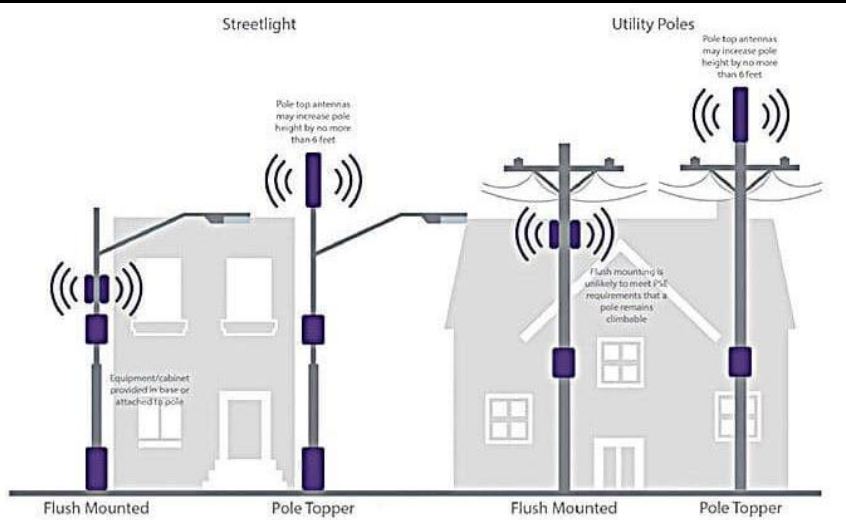


Mansfield Middle School



March 11, 2021
Ward 2 Presentation
action@wiredtucson.org

Small Cells Popping Up near Tucson Homes



Examples of 5G Small Cell Installations



Tucson Blvd/Speedway



<https://www.5gcrisis.com/identify?fbclid=IwAR1C8mXLFYHhpwb6cZ0hmc24W1ffzxp5xj0YkjhXlavgJE-VdxSIKEjVIA>



Tucson Blvd/Waverly



Tucson Blvd and Mabel

City has Duty to Regulate Cell Towers

47 U.S. Code § 332 – Mobile services

(a) **Factors which Commission must consider** in taking actions to manage the spectrum to be made available for use by the private mobile services, the Commission shall consider, consistent with section 151 of this title, whether such actions will—

(1) promote the safety of life and property

- City officials have a *duty* to regulate cell towers to **protect “safety of life and property,”** the stated purpose of the 1996 TCA
- By regulating **operations**, Tucson has authority to *legally* adopt much better telecom codes
- **Council has duty to provide public safety. Full stop.**

City has *legal authority* and *duty* to regulate **operations** of Cell Towers

- Local regulation of **operations** of WTFs was never preempted
- Local control of WTF **operations** is explicitly established by:
 1. The 1996 Telecom Act (“1996 Act”)
 2. U.S. Supreme Court
 3. U.S. House and Senate Conference Report

4 Ways to Regulate WTFs

1. Placement
2. Construction
3. Modification
4. **Operations**

"People's Wireless Telecom Ordinance"










- Collocate infrastructure on nearby towers
- Minimize effective radiated power (ERP) to a level providing 5-bar telecom service (-85 dBm = $0.002 \mu\text{W}/\text{m}^2$)
- Retrofit ~450 small cells to ensure minimum power necessary
- Require NEPA Review on all permit applications
- Require "sharing boxes" to enable fiber to premises (FTTP)
- Require compensation to homeowners for property value loss
- Earn revenue from fuse and policing fees

Did you know the Internet of Things (IoT)...



...requires pulse-modulated microwave radiation?

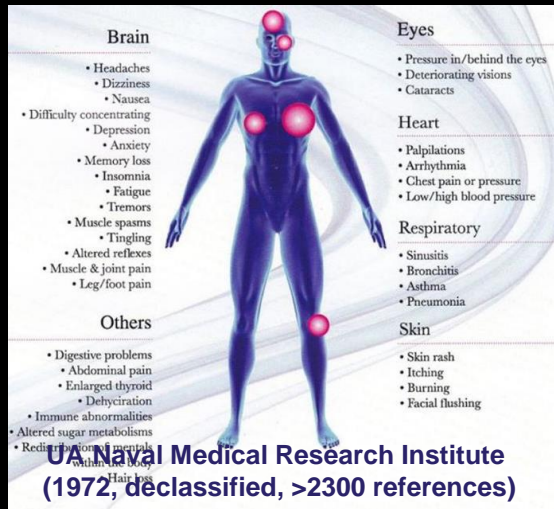
.... by means of Effective Radiated Power (ERP)

 <p>2008 4G</p>	 <p>2020? 5G</p> <p>CNN/MONEY</p>
  <p>Texting Internet access</p>  <p>Video</p>	  <p>Texting Internet access</p>   <p>Ultra HD & 3-D video Smart home</p>
<p>4G Frequencies</p>	<p>5G Frequencies</p>
<p>LTE 4G Upto 2.5 Ghz</p>	<p>IoT 5G Upto 95 Ghz</p>



Problems with Densely Placed 4G/5G Infrastructure

Public Safety



Privacy

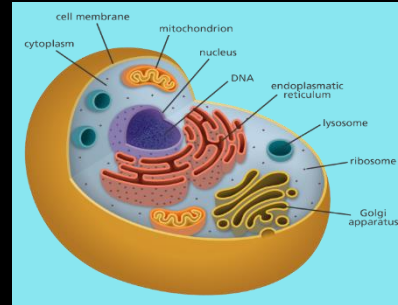
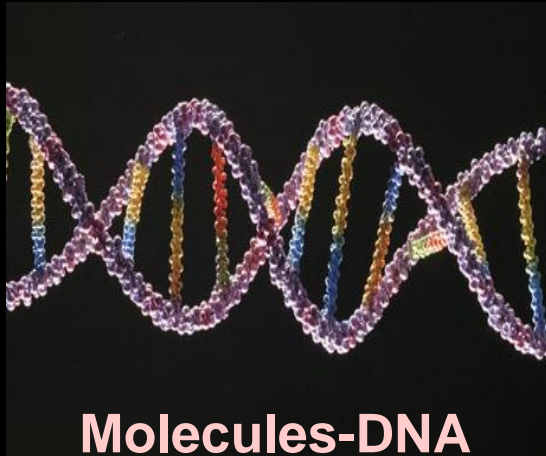


Property Value



- Public safety problem (physically harmful RF/MW radiation)
- Removes privacy & security, intercepts data, steals identities
- Reduces property values by >20%
- Major Liability for City of Tucson due to “Exclusion 32”

RF/MW Radiation Affects Living Bodies at All Scales



- **>20,000 peer-reviewed & govt. studies (searchable database)**
- **Living bodies most sensitive to microwave amplitude and pulsing**
- **Ongoing exposure produces cumulative effects**

RF/MW Radiation Harms People, Animals, Plants, and Insects, including Pollinators



- Selection of 123 peer-reviewed publications
- 2016 UNESCO and IUCN 15-year study (Report)

2300+ Review Paper by U.S. Navy in 1972 Reports Harm from RF/MW radiation

AD 750271

NMRI

NAVAL MEDICAL RESEARCH INSTITUTE



2300 Papers Cited

BIBLIOGRAPHY OF REPORTED BIOLOGICAL PHENOMENA ('EFFECTS') AND CLINICAL MANIFESTATIONS ATTRIBUTED TO MICROWAVE AND RADIO-FREQUENCY RADIATION

RESEARCH REPORT

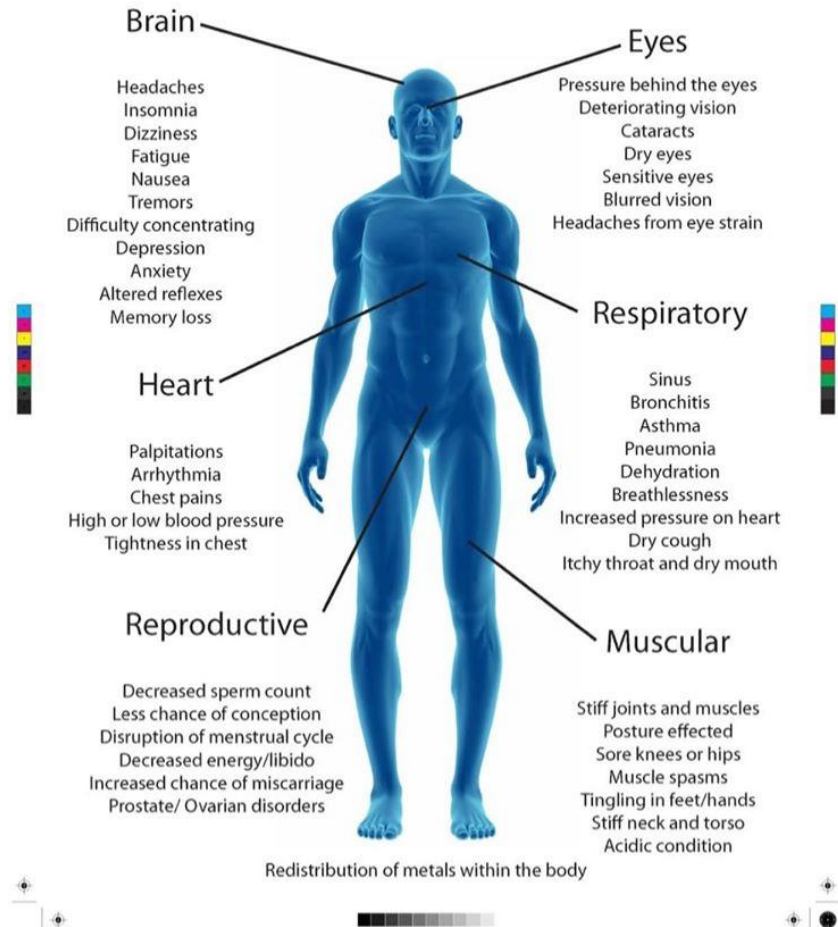
MF12.524.015-0004B

REPORT NO. 2
REVISED

Reproduced by
NATIONAL TECHNICAL
INFORMATION SERVICE
U.S. Department of Commerce
Springfield, VA 22151

Symptoms of Exposure to Radio Frequency Radiation - RF EMF

Some symptoms found by the
US Naval Medical Research Institute 1972 - declassified



Effects of RF/MW Radiation Exposure on the Immune System

Research on the Effects of Wireless Radiation Exposure on the Immune System

Joel M. Moskowitz, Ph.D., School of Public Health, University of California, Berkeley

[Electromagnetic Radiation Safety](#), March 18, 2020

This compilation of research on the effects on the immune system from exposure to radio frequency radiation consists of excerpts from a research review published in 2013 by Dr. Stanislaw Szmigielski in a peer-reviewed journal and a list of references to studies published since 2000.

Reaction of the immune system to low-level RF/MW exposures

Szmigielski S. Reaction of the immune system to low-level RF/MW exposures. *Science of the Total Environment*. 2013 Jun 1; 454-455:393-400. doi: 10.1016/j.scitotenv.2013.03.034.

- Cites dozens of peer-reviewed papers demonstrating *weak RF/MW radiation is an immune suppressor*
- *Public safety problem especially during a pandemic*

Symptoms vs. Cell Tower Distance

Rapid aging syndrome (RAS)
Electro-Hyper-Sensitivity (EHS)

1. Fatigue
2. Sleep disturbance
3. Headaches
4. Feeling of discomfort
5. Difficulty concentrating
6. Depression
7. Memory loss
8. Visual disruptions
9. Irritability
10. Hearing disruptions
11. Skin problems
12. Cardiovascular
13. Dizziness
14. Loss of appetite
15. Movement difficulties
16. Nausea

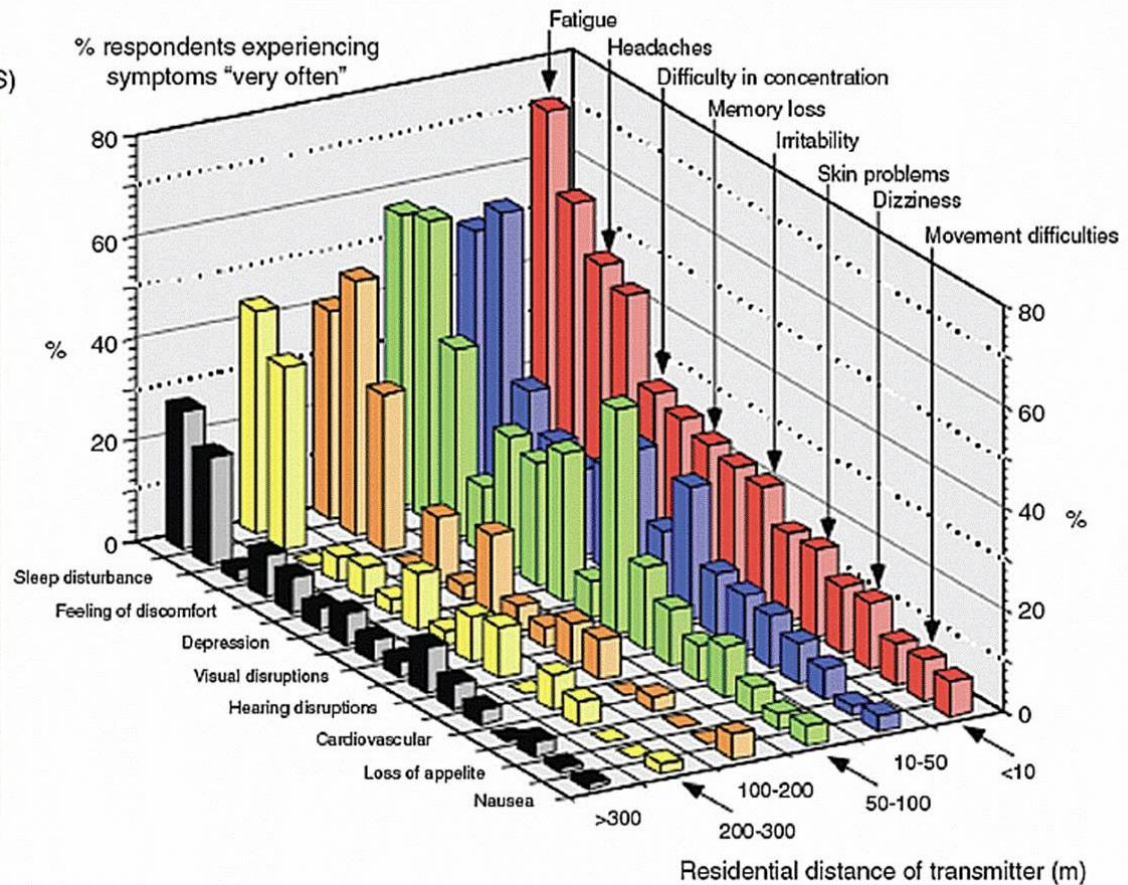
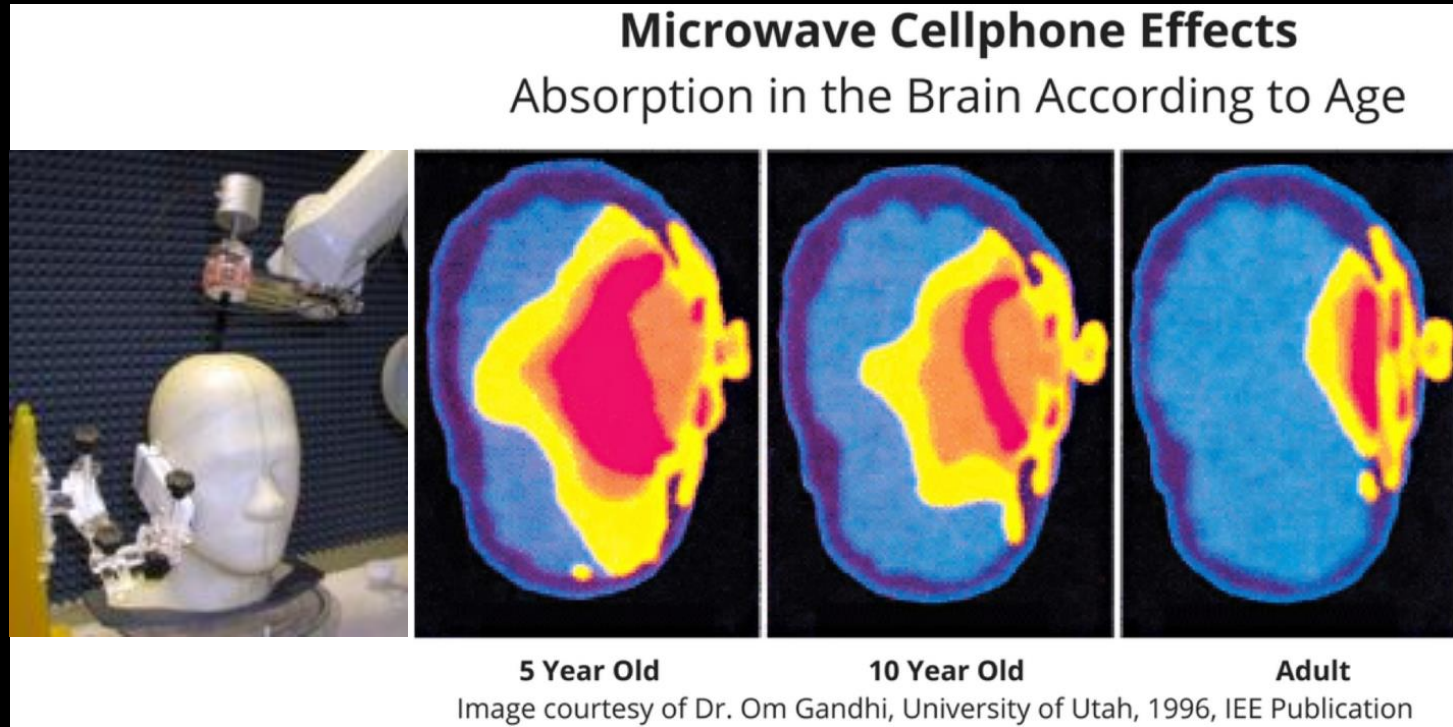


Figure 2. Symptoms experienced by people living near cellular phone base stations. Based on work by Santini et al. 2002, reproduced from Havas 2013.

Santini 2002 Havas 2013 Dode 2011

➤ Is Tucson insured for damage or injury caused by 4G/5G radiation?

Children Most Vulnerable to RF/MW Radiation



- Thinner skull and bone than adults
- ↑ absorption in brain (3X)
- ↑ absorption in bone marrow (10X)

Privacy is Gone in Front Yards and Homes

- Microwaves see through walls and clothes to track every move
- 24/7 surveillance, security flaws hack govt. and company data
- IMP4GT Attacks steal your identity to commit crimes
- 4G/5G RF/MW radiation produces noise (audible and inaudible), destroying resident's quiet enjoyment of streets



noisy streets



microwave hearing (Frey 1961, 1972)



mm-wave imaging

➤ **Council Has Duty to Protect Privacy**

Property values Plummet near Cell Towers



Tucson Blvd and Mabel



Oak Flower in Tucson “Ugly” 5G data boxes in Houston



- 20% price drop for properties near WTFs (Realtor Magazine)
- Sellers must disclose “neighborhood noise, nuisance or other problems from cell towers.”
- HUD refers to cell towers as “Hazard and Nuisance”

➤ **Council Has Responsibility to Preserve Property Value**

Did you know "Small" Cells send a powerful punch?



<https://ourtownourchoice.org/wewantit/>



San Francisco, CA

- Close proximity to residences creates major problem
- City may solve problem by *regulating operations*

"Small" Cell WTFs Transmit Too Much Power (Solvable!)

Cities may regulate
V-H-P

Macro WTF



5G "Small" WTF



<https://scientists4wiredtech.com/readinglaw/>

<u>Vertical</u> Distance off Ground:	200 ft.	35 ft.
<u>Horizontal</u> Distance Away:	2500 ft.	60 ft.
<u>Power</u> in 2 nd Story Bedroom:	0.002	50,000 <u>Too Much Power!</u>

5 Bars on Cell Phone
(-85 dBm)

25 million times more
powerful! (>-15 dBm)

Does Tucson have a “Liability Problem”?

- Small cells now placed on *public property*
- Insurance companies have *exemption for RF/MW radiation*
- *City responsible for injury/damage due to sWTFs*
- Without *liability insurance*, is City of Tucson vulnerable?

Insurance companies have *exclusion* for damage and injury caused by RF/MW radiation?

➤ **Lloyd's of London *excludes* any liability coverage for claims:**

“Directly or indirectly arising out of, resulting from or contributed to by electromagnetic fields, electromagnetic radiation, electromagnetism, radio waves or noise.” (Exclusion 32)

“The EMF Exclusion is applied across the market as standard. The purpose is to exclude cover for illnesses caused by continuous long-term non-ionising radiation exposure i.e. through mobile phone usage.”

CFC Underwriting LTD, UK agent for Lloyd's

Insurance companies have *exclusion* for damage and injury caused by RF/MW radiation?

➤ Lloyd's of London *excludes* any liability coverage for claims:

“Directly or indirectly arising out of, resulting from or contributed to by electromagnetic fields, electromagnetic radiation, electromagnetism, radio waves or noise.” (Exclusion 32)



To protect our great city from future lawsuits, we kindly ask for proof that Tucson is insured for damage or injury caused by microwave radiation.

Path Forward: Tucson Enforces Existing Laws!

Federal Mandate to U.S. Cities in 1996 Telecom Act

47 U.S. Code § 324 – Requirement to use of minimum power
In all circumstances, except in case of radio communications or signals relating to vessels in distress, **all radio** stations, including those owned and operated by the United States, **shall use the minimum amount of power necessary** to carry out the communication desired.

(June 19, 1934, ch. 652, title III, § 324, 48 Stat. 1091.)

- Council has duty to regulate **operations** and **protect public safety** by ensuring only *minimum power* is used to deliver communications (i.e., 5 bars on cell phone or -85 dBm)

Consequences of Too Much Microwave Power

Five Bars on Cell Phone = “Excellent” Signal)

Power Output Scale	Consequences on Human Health (based on thousands of published studies)	$\mu\text{W}/\text{m}^2$
0.0005x	EEG altered in humans; alters brain waves	0.000001
1	FIVE BARS ON CELL PHONE	0.002
15,000x	Sleep disorders, weakness, fatigue, pain	30
50,000x	Human sensation	100
500,000x	Decreased cell growth, humans	1,000
600,000x	Childhood leukemia	1,200
1,250,000x	Impaired motor function, reaction time, memory, attention	2,500
3,750,000x	Altered white blood cells, humans	7,500
5,000,000x	Headache, dizziness, fatigue, weakness, insomnia, humans	10,000
15,000,000x	Microwave hearing	30,000
25,000,000x	Leukemia, skin, melanoma, bladder cancer	50,000
50,000,000x	Impaired memory, visual reaction time, humans	100,000
5,000,000,000x	FCC Maximum Permissible RF-EMR Exposure Guidelines, General Pop.	10,000,000





→ City council must assume authority to *regulate* operations of WTFs by limiting Effective Radiating Power (ERP) to provide 5 bars on cell phone

1) [Legal remedies for Tucson:youtu.be/csnxTOcF3A8](https://youtu.be/csnxTOcF3A8)

2) <https://scientists4wiredtech.com/vhp/>

Retrofit Towers to Limit Maximum Power

- What the Federal Govt. Tells Cities: [47 U.S. Code § 324](#) – “In all circumstances . . . all [licensed] radio . . . shall use the minimum amount of power necessary to carry out the communication desired.”

SIGNAL STRENGTH	EXCELLENT 	GOOD 	FAIR 	POOR 	DEAD ZONE 
3G/1x	-70dBm	-71 to -85dBm	-86 to -100dBm	-101 to -109dBm	-110dBm
4G/LTE	-90dBm	-91 to -105dBm	-106 to -110dBm	-111 to -119dBm	-120dBm

- Council shall require carriers to insert ~\$5 fuse behind each small cell antenna to limit total ERP (~0.1 W) to level that provides 5 bars on cell phone (-85 dBm)

Require **NEPA Review on All Permit Applications**

- **Dec 2019/Oct 2020: FCC NEPA Attorney Erica Rosenberg:** Since Aug 9, 2019, every Wireless Telecommunications Facility (WTF) of any size and any “G” must undergo **NEPA review** ([link](#))

➤ **Permit applications missing NEPA reviews are incomplete and unlawfully permitted (*ultra vires*)**



➤ **Case law protects cities from being sued by telecom industry!**

Timely Access to Public Records is Crucial for Public Safety

Arizona Statute Title 39. Notices § 39-121. Inspection of public records

“Public records and other matter in the custody of any officer shall be open to inspection by any person at all times during office hours.”

Public Records

City of Tucson Request for Public Records

There are several ways to request to review public records and/or purchase copies.

You may request information in the following manner:

1. Complete the Public Records Request Form (link below) and email it as an attachment to: cityclerk@tucsonaz.gov
2. Email the City Clerk's Office requesting information on a subject: cityclerk@tucsonaz.gov.
3. Contact the City Clerk's Office by telephone at: (520) 791-4213.
4. Provide a letter to the City Clerk's Office requesting information on a subject.

Mail to:

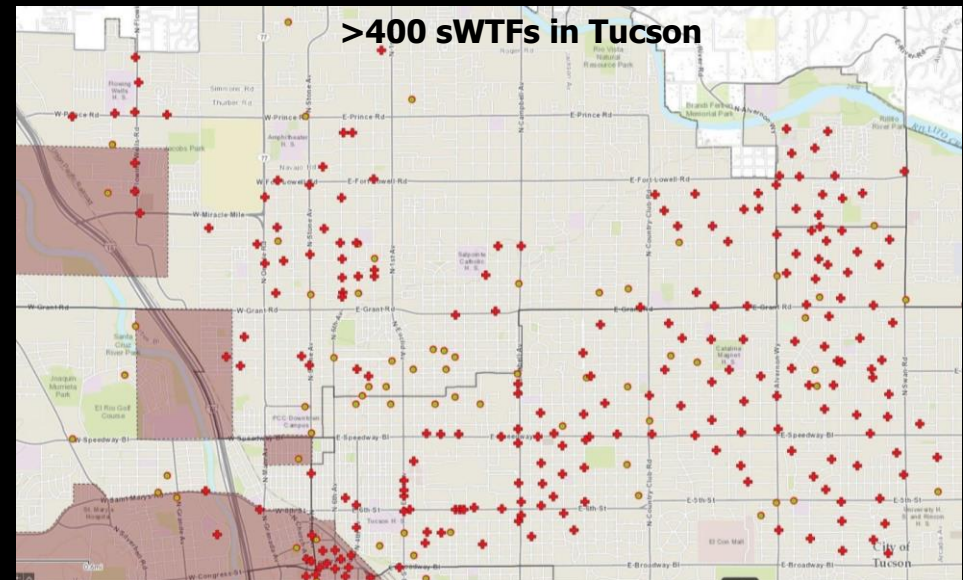
City Clerk's Office
Attn: Public Records
P.O. Box 27210
Tucson, Arizona 85726-7210
(520) 791-4213

Hand Carry to:

City Clerk's Office
City Hall, 9th Floor
255 W. Alameda St.
Tucson, Arizona 85701

Please include the date of the request, your name, address, contact information (i.e., email or phone number), the nature of your request, and the dates if known.

For any Public Records Request, please be specific about the information you are seeking. Avoid phrases such as “any and all information relating to...”, as this will only delay the response.

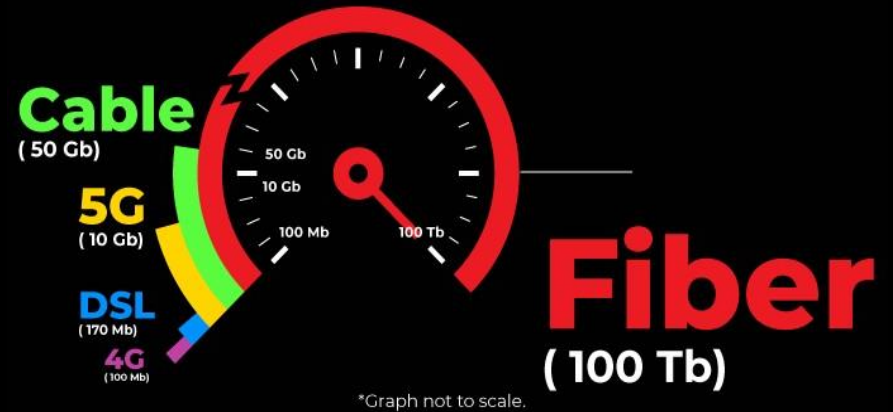


- By law, public has right to inspect/review all sWTF permit applications to obtain model/specs on **radio antennas**, evidence of **NEPA review**, etc. To date, Tucsonans have been denied access.

Support **Community Fiber to Premises (FTTP)**



Chattanooga, TN



Fiber to Premises (FTTP): Fast, Safe, Secure



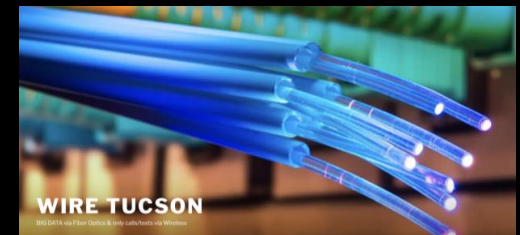
EPB's fiber optic network generated \$2.69 billion in economic benefits in the past decade, study shows

-- Chattanooga Times Free Press (Jan 22, 2021)

➤ **Who owns the Underground Fiber Optic Network in Tucson?**

“People’s Wireless Telecom Ordinance”

- Collocate infrastructure on nearby towers
- Minimize effective radiated power (ERP) to a level providing 5-bar telecom service (-85 dBm = 0.002 $\mu\text{W}/\text{m}^2$)
- Retrofit ~450 small cells to ensure minimum power necessary
- Require NEPA Review on all permit applications
- Require “sharing boxes” to enable fiber to premises (FTTP)
- Require compensation to homeowners for property value loss
- Earn revenue from fuse and policing fees



WIRE TUCSON

5G DATA via Fiber Optics & only cable-based wireless

action@wiretucson.org