



5G in Franklin Lakes

Presented by Peter J. Lupo Esq. of Hoplite Communications, LLC
A SOLE MEMBER VETERAN OWNED SMALL BUSINESS



Personal Introduction

Attorney

- Licensed in New York and New Jersey
- Practicing law since 2000
- 20 years experience

Wireless

- 15 years experience in the wireless industry
- Personal acquaintance with decision makers
- Lease negotiations
- Zoning hearings
- Site compliance reviews

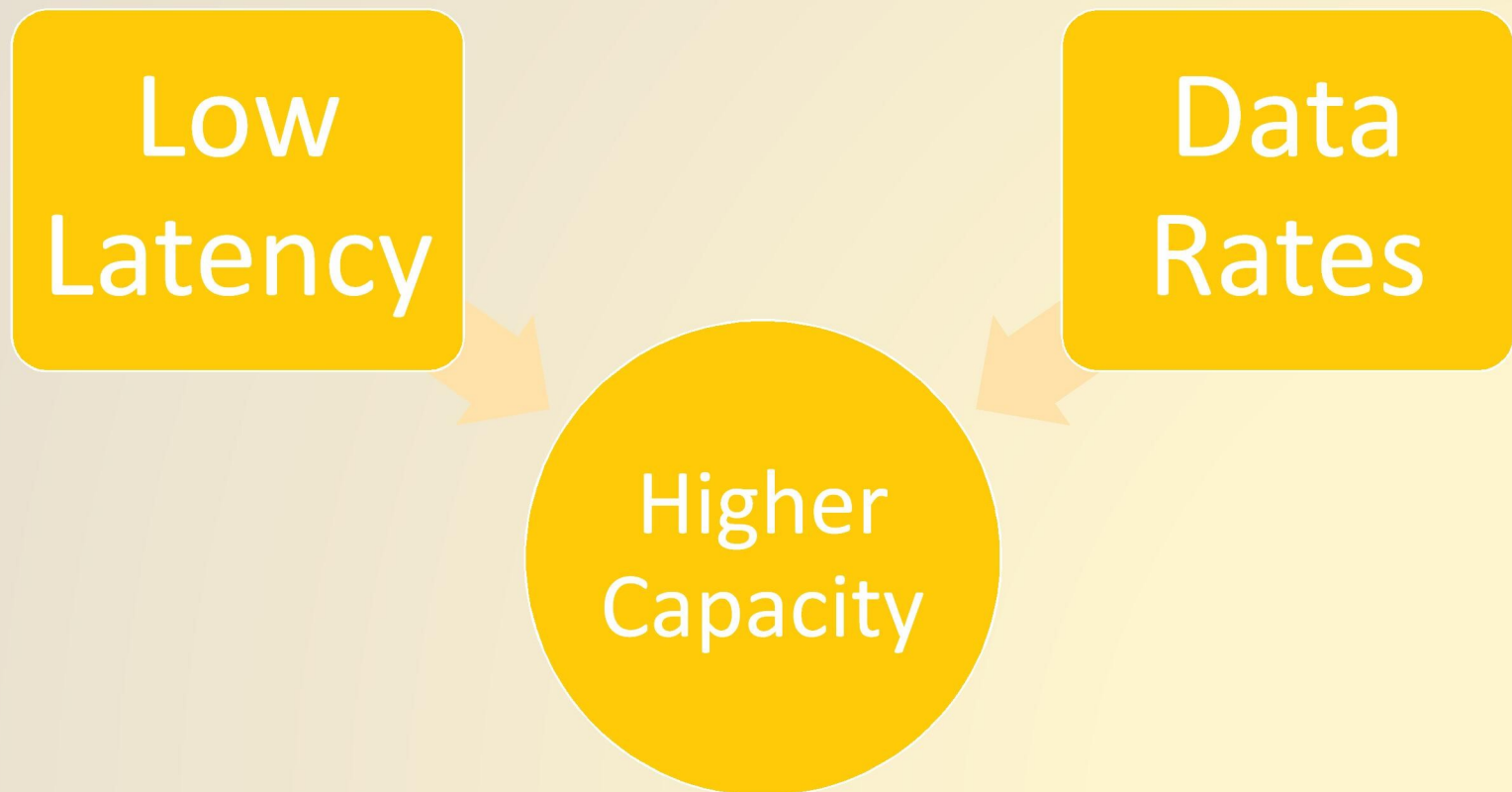
Hoplite Mission Statement

- To provide consultation and guidance to municipalities throughout the entire 5G deployment and maintenance lifecycle.
- Hoplite will ensure the following:
 - FCC health and safety compliance
 - Draft and maintain updated 5G ordinance
 - Public order and safety
 - Revenue maximization

The Impending 5G Telecommunications Revolution

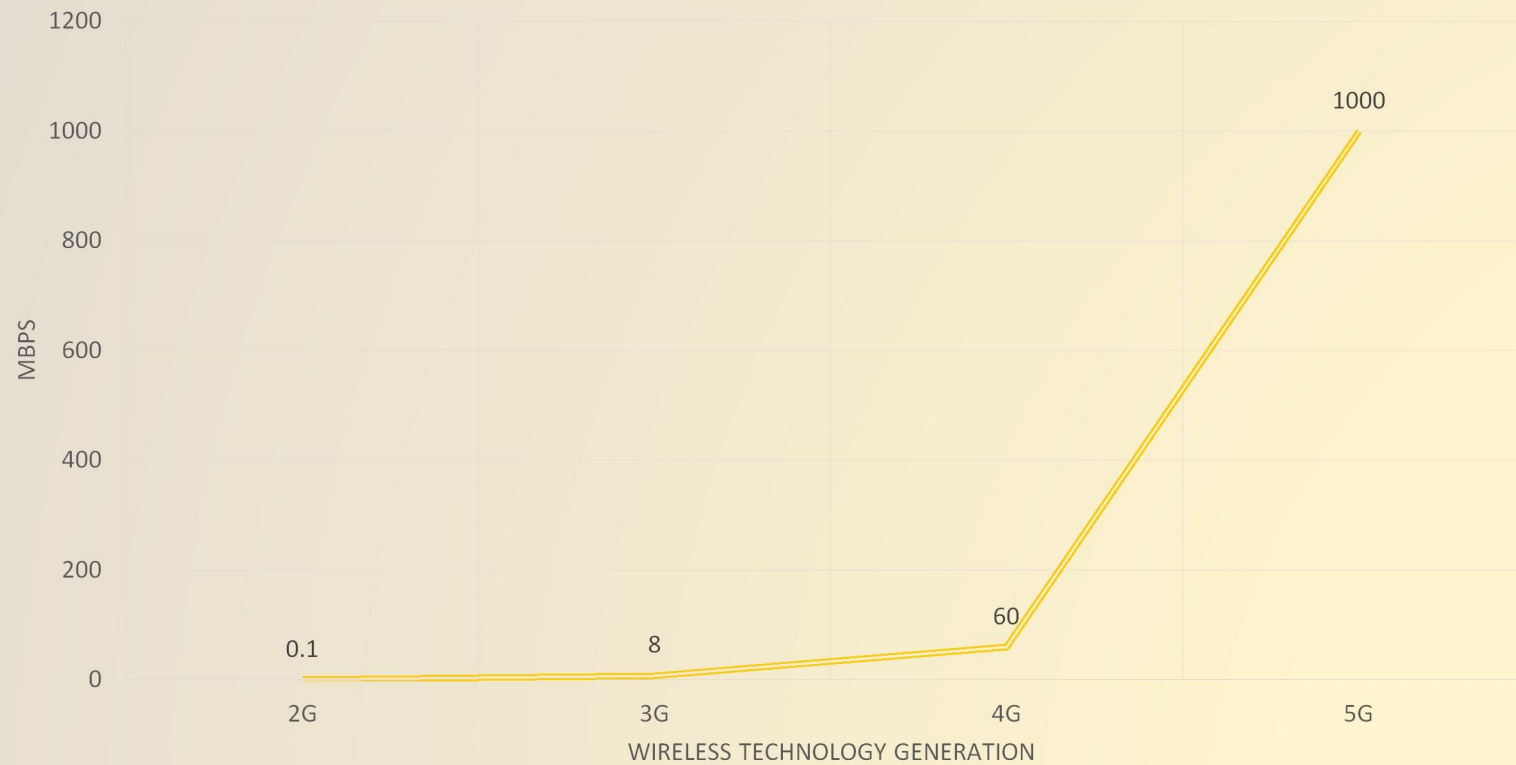


What 5G Will Bring



Evolution of Wireless Technology

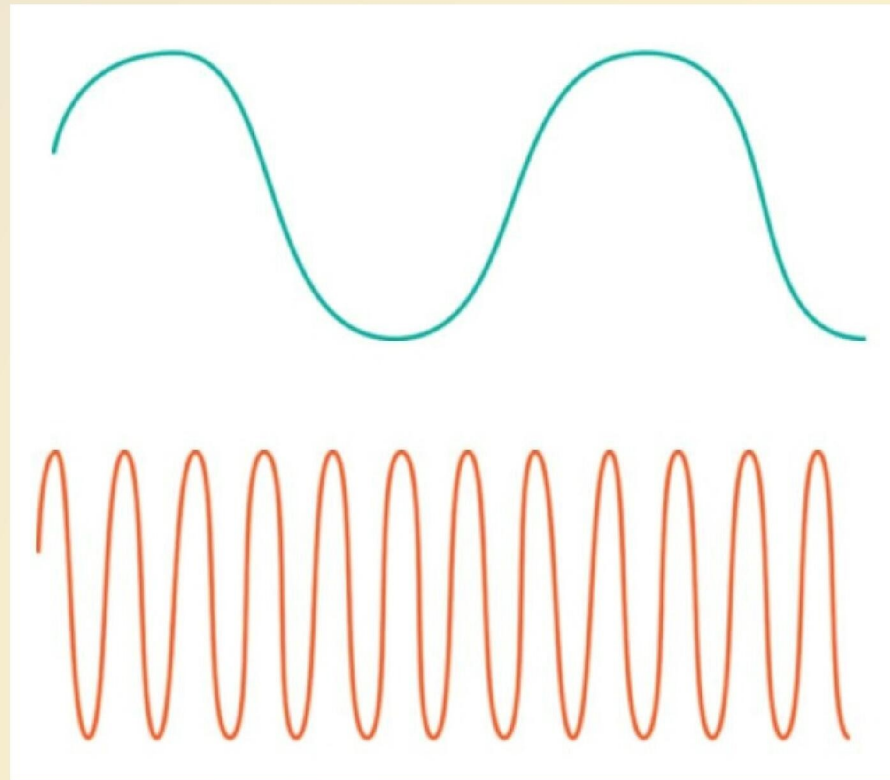
DATA RATES



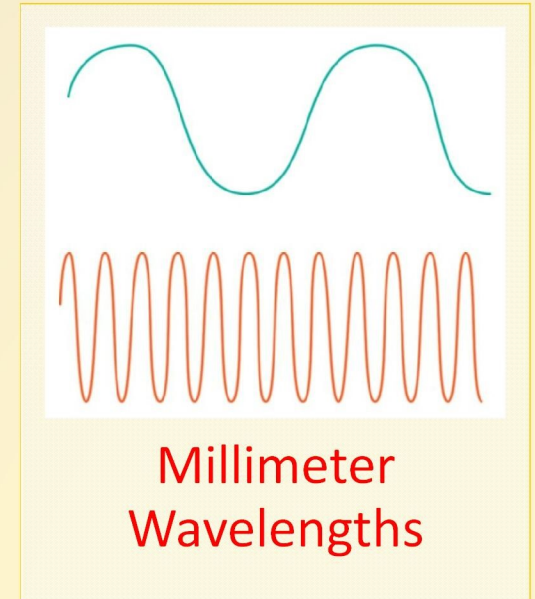
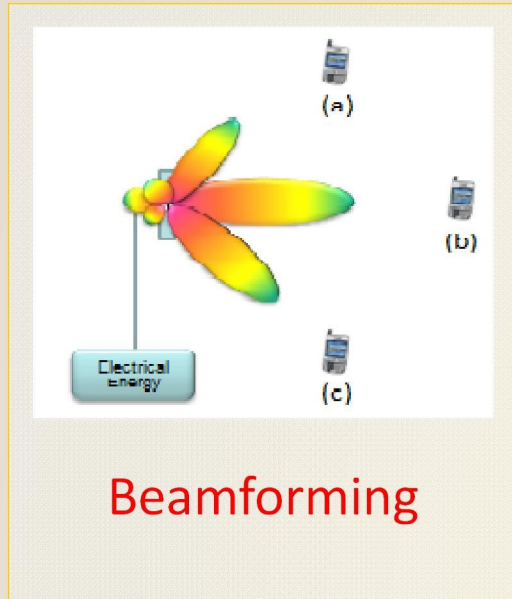
How Will Carriers Achieve Such High Data Rates

LTE Frequencies
Between 600MHz and 3 GHz

5G Frequency up to 30 GHz



5G Characteristics



What This Means from A Technological Perspective

Ability to connect many more sensors and devices

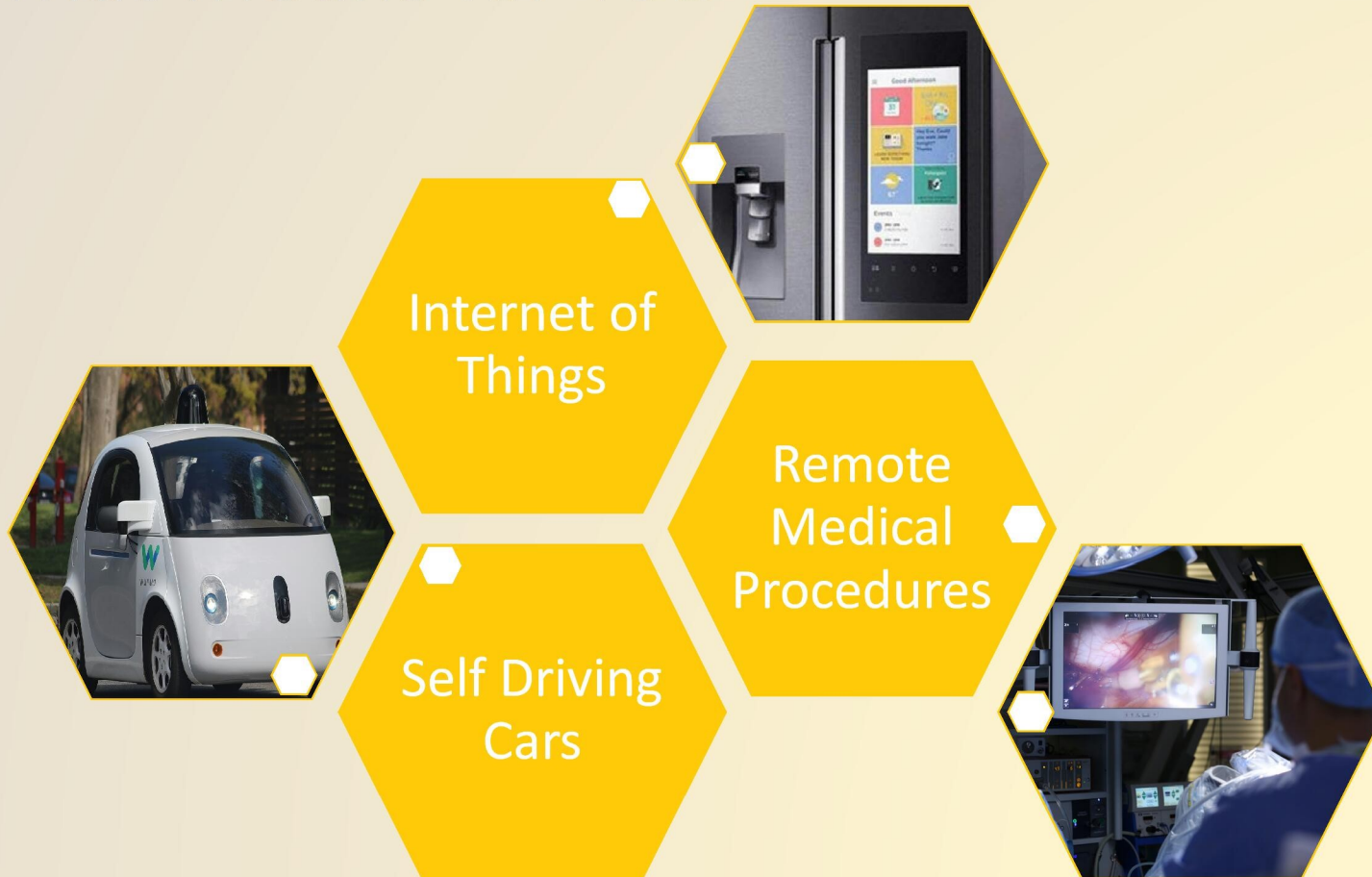
High-speed ubiquitous connectivity

Greater reliability and redundancy

Ultra-low power consumption

5G Will Transform Daily Life for
Consumer and Municipality

What That Means for You



What That Means for Franklin Lakes

Traffic Improvement

Public Safety

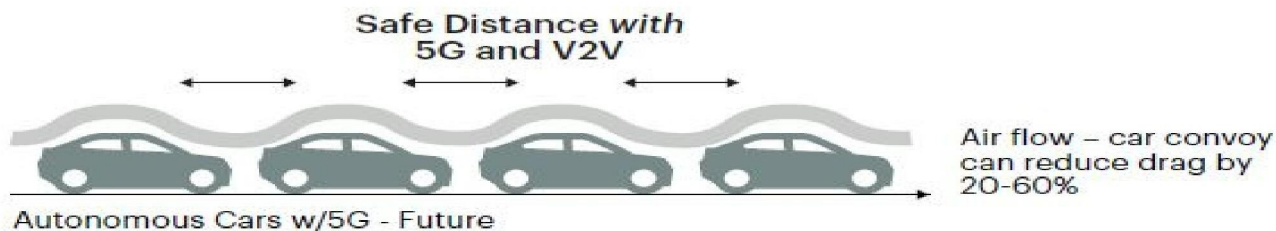
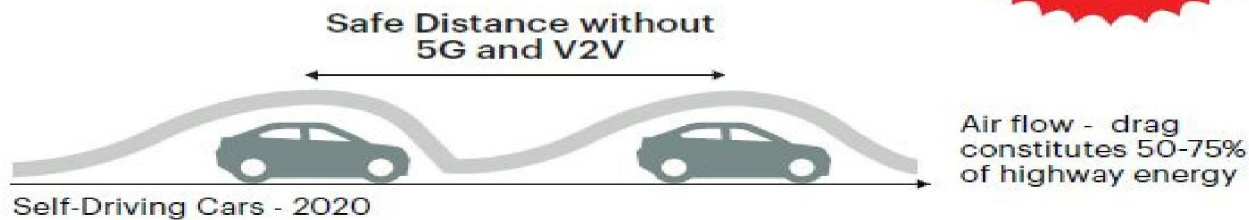
Energy Savings

Jobs Creation – Local Investment

Traffic Flow Improvement

Smart Car Convoys

Fuel Savings of
25%⁹



5G vehicle-to-vehicle communications (V2V) could allow lead cars to communicate hazards to following cars, increasing reaction time and safely allowing car convoys.

*Data from Texas A&M Transportation Institute, <https://tti.tamu.edu>

Public Safety – Crime Reduction

Gun Shot Detection

Reducing Gun
Crime By Up To
50%*



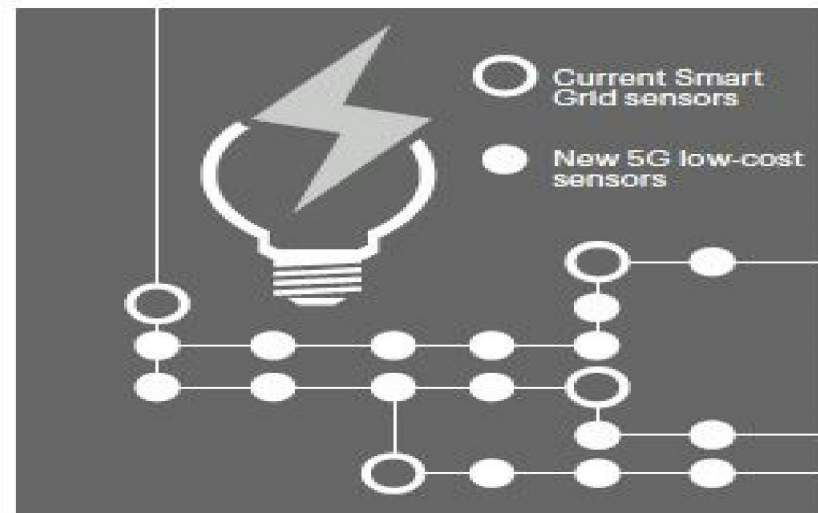
Real-time monitoring of gunshots provides police and first responders with exact location, speeding up response time.

*Smart street lights shine spotlight on violent crimes”, Smart Cities Council, October 2, 2015

Energy Savings

Smart
Energy
Grid

\$1.4*
Million Savings



5G enables additional low-cost connections to provide comprehensive coverage of the energy grid.

*Electric Power Research Institute, "Estimating the Costs and Benefits of the Smart Grid", March 2011

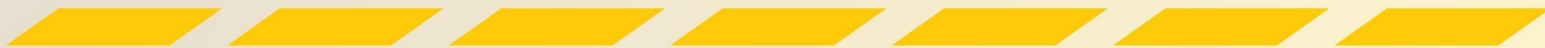
Jobs Creation – Local Investment

	Franklin Lakes, NJ 11,096 Pop., 9.88 Sq. Mi.	Saratoga, CA 29,900 Pop., 12.45 Sq. Mi.	Beaumont, TX 118,000 Pop. 85.8 Sq. Mi.	Metro Chicago Area 9,472,000 Pop.
Jobs Created	150	300	1000	90,000
GDP Growth	\$25M	\$50M	\$180M	\$14B
Network Investment	\$15M	\$20M	\$100M	\$8B
Smart Grid + Transportation Benefits	\$5M	\$10M	\$70M	\$5B

*Calculated using figures from Oxford Economics based on IMPLAN data, and 2010 Census data.

5G Will Affect You in 4 Significant Areas

Physical Deployment



RF Emission Levels



Legal Framework



Monetization



Physical Deployment



Fundamental Shift in Wireless Industry

- Towers
- Rooftops
- Wide Spacing
- Background

4G

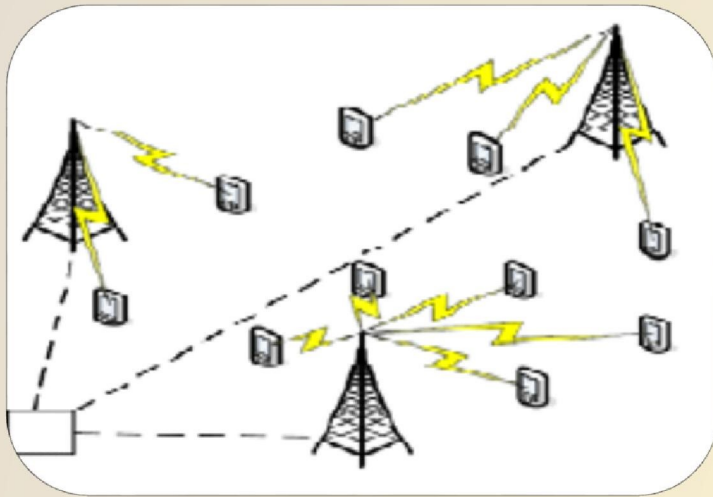


- Public ROW
- Telephone poles
- 10X number of current sites

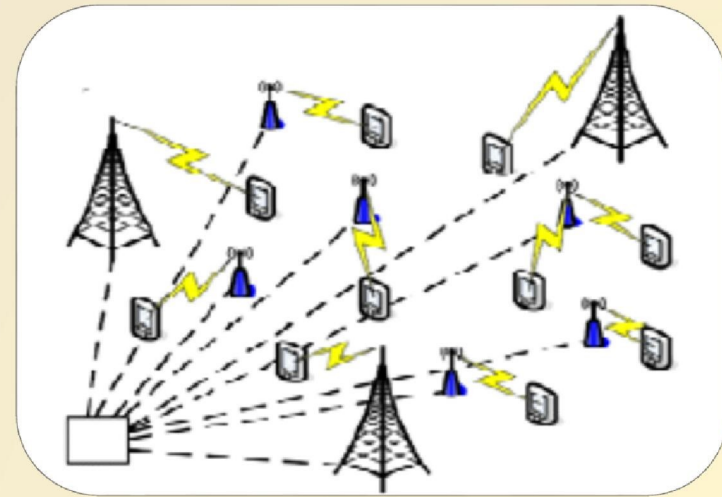
5G



Network Densification



4G

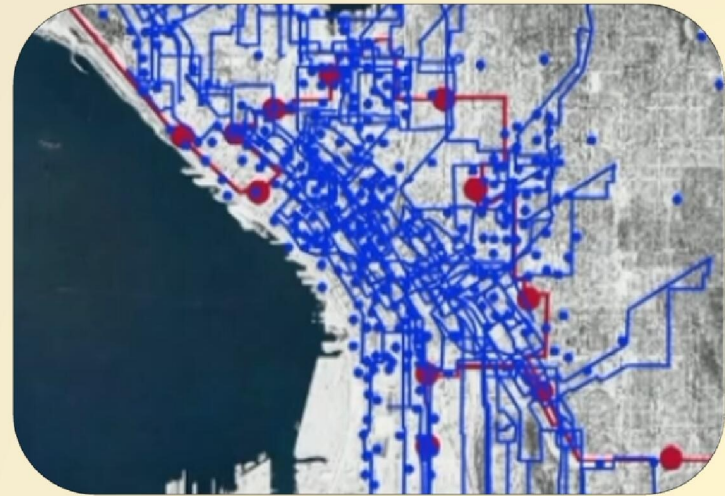


5G

Network Densification



4G



5G

New Deployment Patterns

5G Installation on a Public Roadway



Bucket trucks

Road shoulder

Lane closures

Street closures

Typical 5G Small Cell Node in ROW



Rooftop Small Cell Site

Site:

- Jennifer Furniture

Location:

- Livingston Avenue
in North Brunswick



The Carrier Perspective

Why They Cut Corners

- Deployment goals
- Upper management pressure
- Delayed Inventory
- FCC mandated deadlines
- Competition with rivals

Outcome

- Careless, rushed work
- Failing to pull permits
- Work does not match plans

Solutions

- Bulk and single carrier application and permit reviews
- Coordinate with municipal personnel for street closures
- Restrict 5G site upgrades timeframes
- Ensure neat and orderly workmanship
- Prioritization on safety
- Annual reports

RF Emission Levels



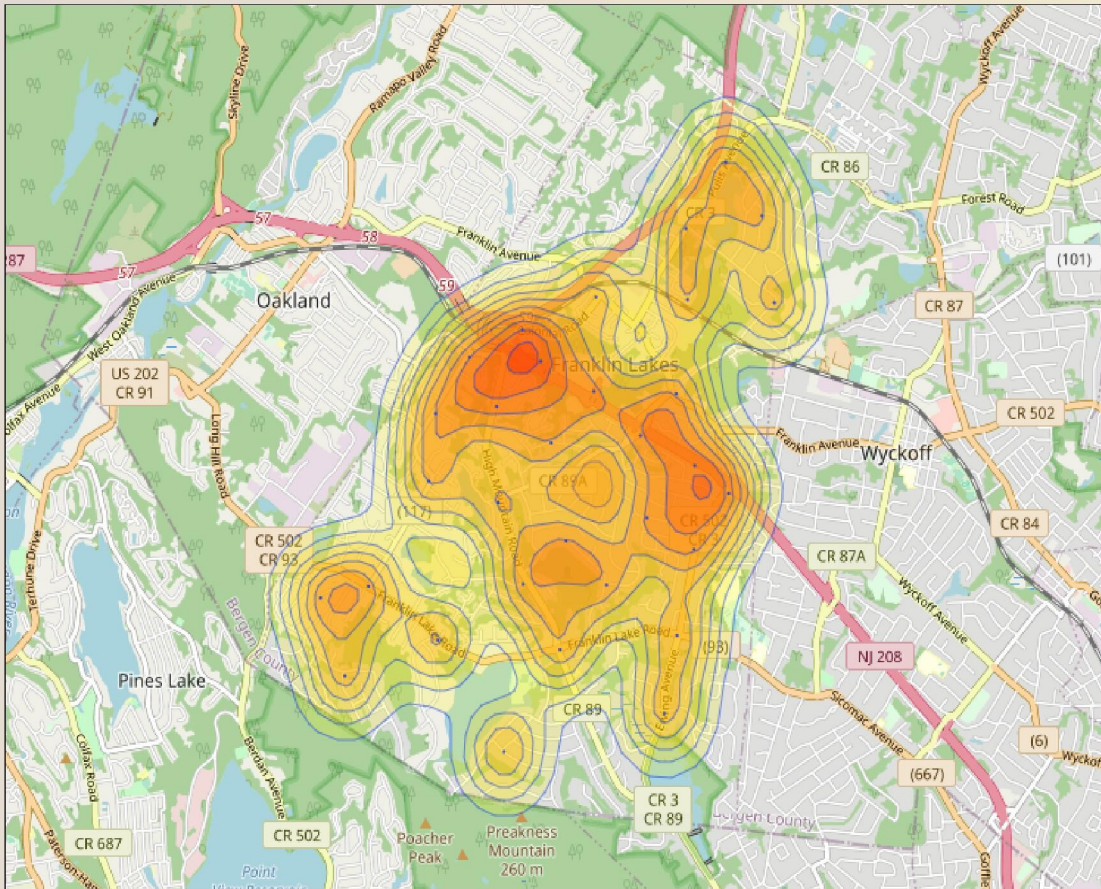
5G RF Emissions Levels

More antennas

Antennas closer to the public

New electromagnetic emissions profile

5G in Franklin Lakes - Coverage Projection



- Roughly 30 5G nodes projected per carrier.
- The Borough is situated beyond the dense urbanization prevalent in southern and eastern Bergen County.
- As a result, it has a more spread out suburban topography
- Interstate 287 and State Highway 208 run through the Borough
- The unique geography of Franklin Lakes, such as distributed parks and preserves, will result in a customized deployment by each carrier.

Solutions

- EME Emissions
- Provide RF Safety Reports for each upgrade
- Compliance with FCC emissions standards

Legal Framework



Complex Legal Framework

Evolving Federal Law

A yellow downward-pointing arrow indicating a flow from the top box to the middle box.

Frequently updated state laws and regulations

A yellow downward-pointing arrow indicating a flow from the middle box to the bottom box.

Municipal code does not adequately cover 5G deployment

Current Legal Environment

Federal Level

- 1996 TCA – Prohibits towns from preventing or materially inhibiting wireless cell site deployments
- 2013 TRA
- 2018 FCC Declaratory Ruling
- 2020 Ninth Circuit Court Decision
- Congressional bills under consideration
- FAA, OSHA

State Level

- 2019 New Jersey Bill AB-5560
- 2018 New Jersey Bill AB-4422
- P.L. 1940 c. 5 (54:30A-49 et seq.)
– Pertains to taxation on utilities

Hoplite Solutions



Draft 5G ordinance and revise existing ordinances

Monitor updates and report to municipal agencies

Maintain compliance with federal and state laws

Monetization



Monetization



Carriers will spend \$250 billion to deploy 5G across the country

Carriers are projected to earn \$2 trillion over the next 10 years

Enormous return on capital investment

Municipal governments perform vital services for these carriers

Wireless carriers are not considered utilities

Solutions

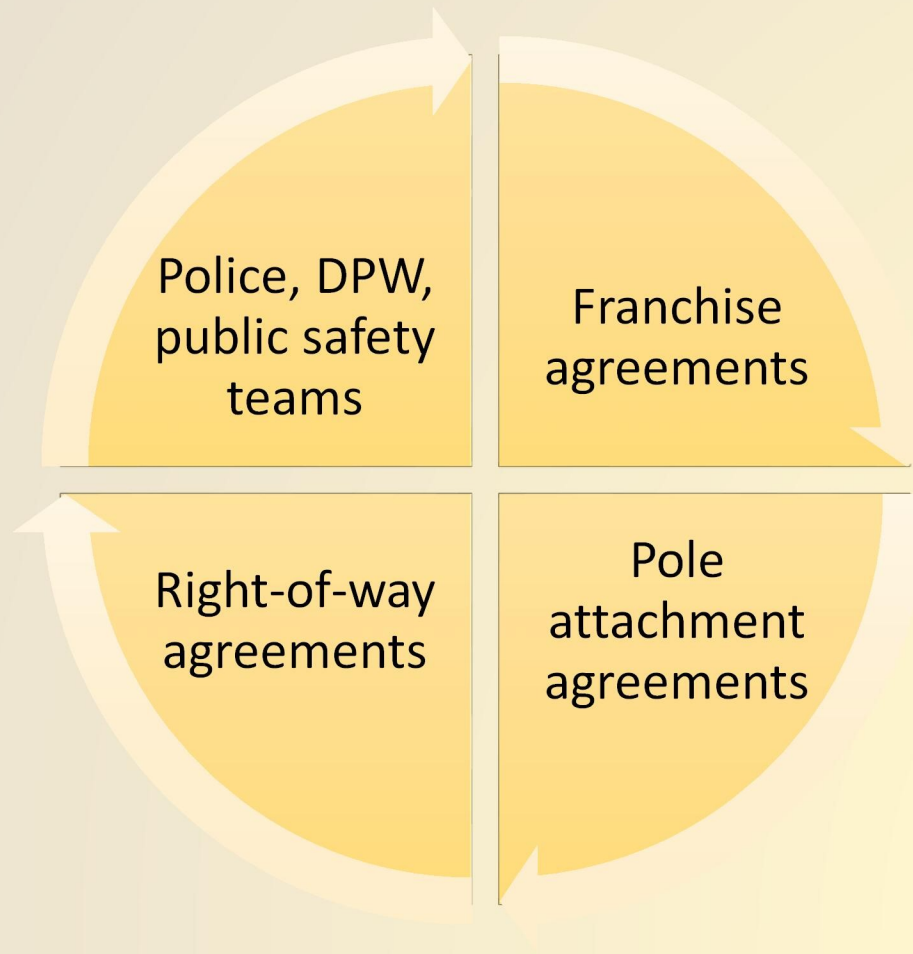


Optimize revenue: Carriers will pay to use ROW, to a point

Expertise - Knowing that sweet spot of how far to go with each carrier

Compensation for street closures, police presence and orange cones

Monetization Opportunities



The Municipality Keeps the Revenue



Municipality keeps all monthly and annual revenue from 5G small cells

Hoplite only keeps application fees which are paid by the carrier

Hoplite Advantage

Little cost to
municipality

Carriers
principally
responsible
for fees.
MLUL
permits

Won't
prevent 5G.

Balance of
municipal
and carrier
interests

Hoplite Services



Hoplite Model Ensures Safety, Monetization and Compliance

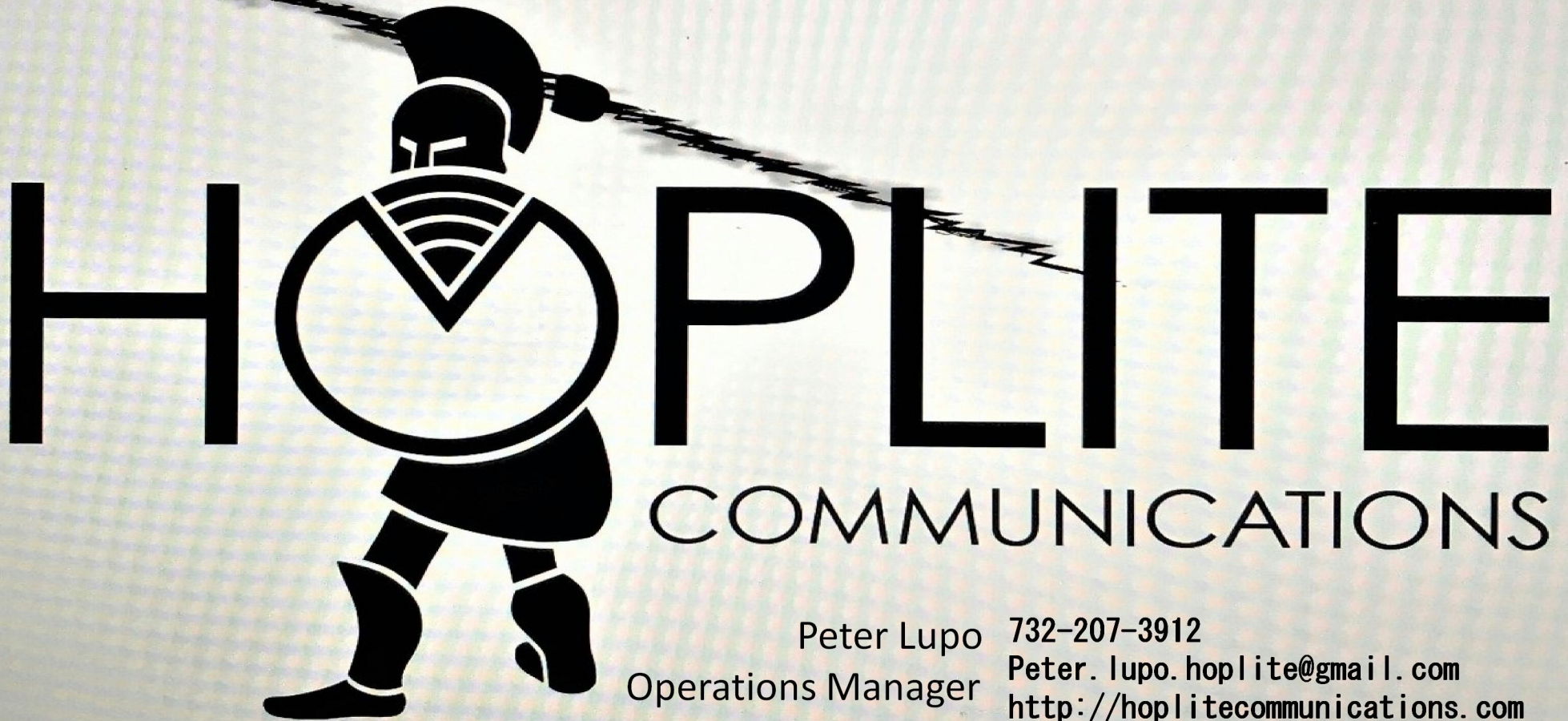


Operation Resolute Support

Just over one year ago, I was in the mountains of Afghanistan

Today, I am back home, resuming my private practice





HOPPLITE

COMMUNICATIONS

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