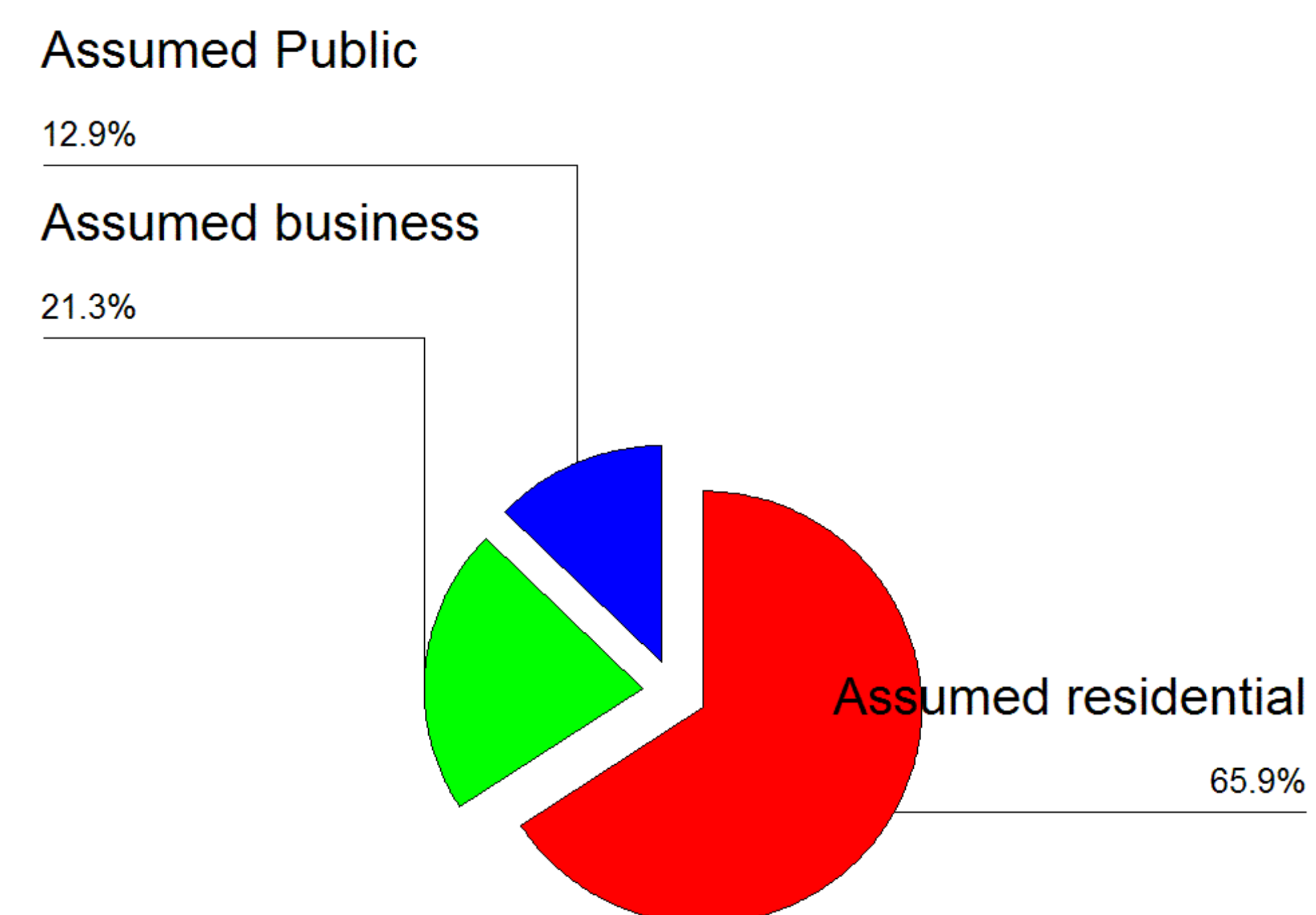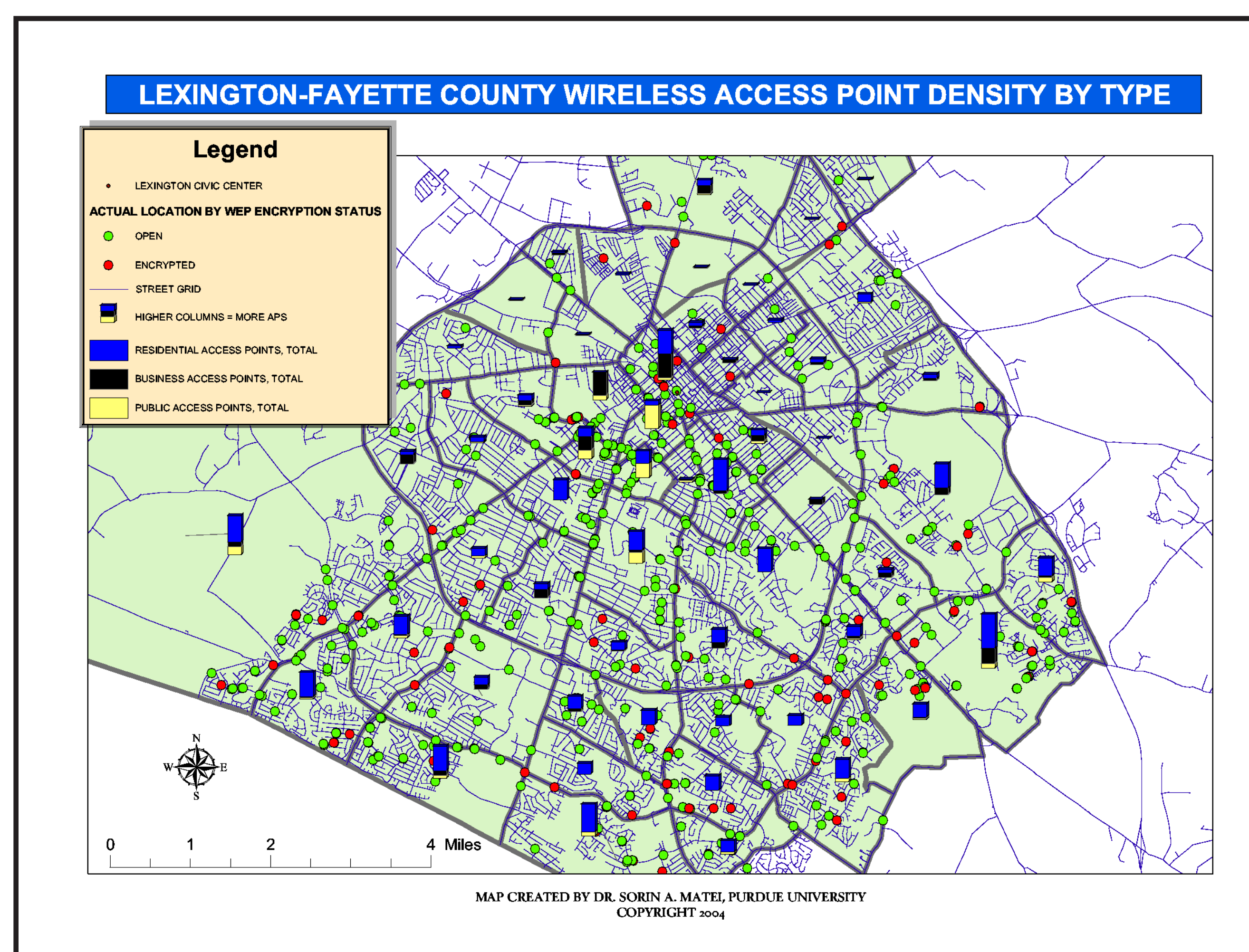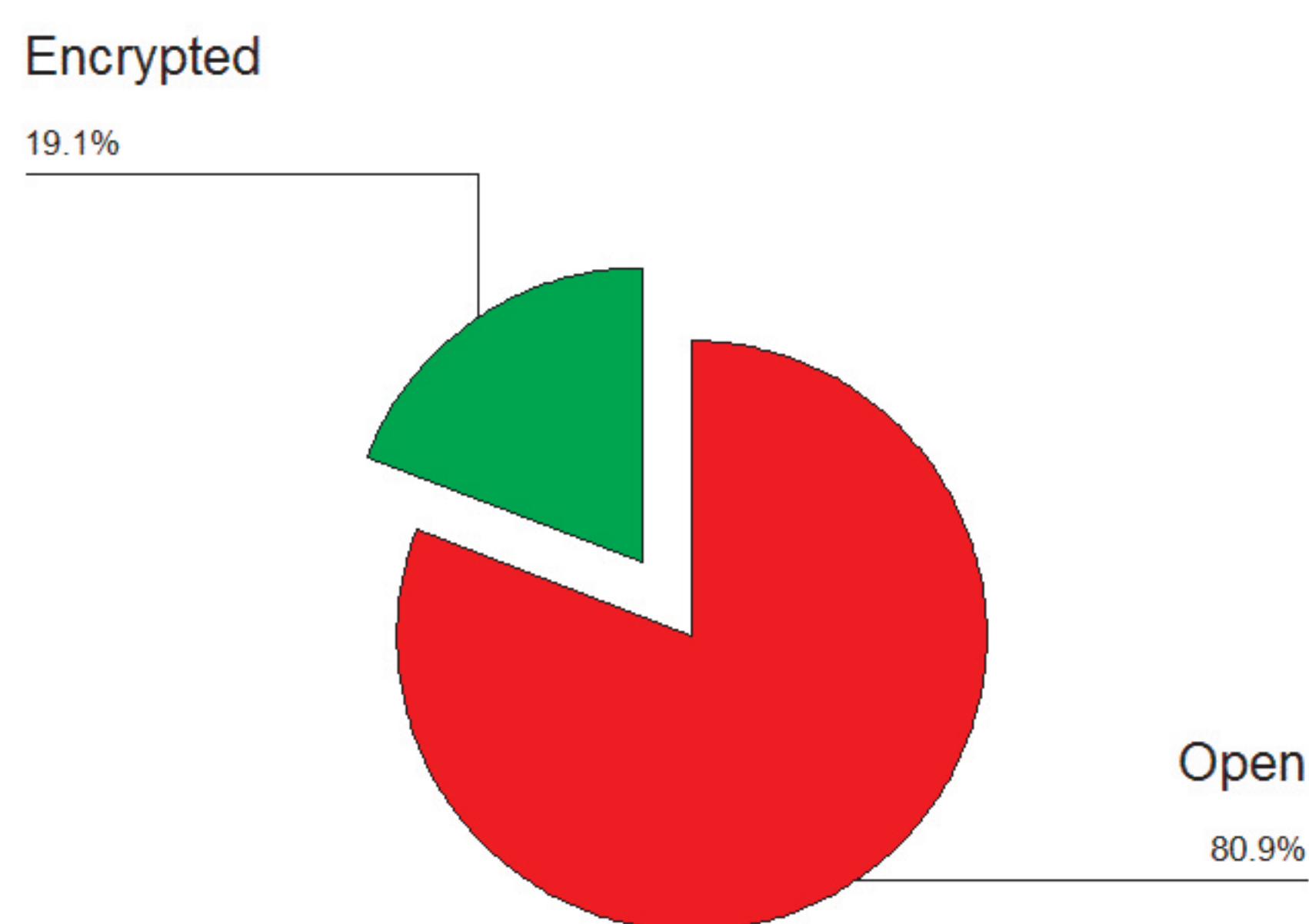# CERIAS

Social use and encryption practices on wireless (802.11) networks in Lexington, Kentucky. A GIS/GPS research methodology.

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LEXINGTON-FAYETTE COUNTY WIRELESS ACCESS POINT DENSITY BY TYPE

Legend
- LEXINGTON CIVIC CENTER

ACTUAL LOCATION BY WEP ENCRYPTION STATUS
- OPEN
- ENCRYPTED
- STREET GRID
- HIGHER COLUMNS = MORE APS
- RESIDENTIAL ACCESS POINTS, TOTAL
- BUSINESS ACCESS POINTS, TOTAL
- PUBLIC ACCESS POINTS, TOTAL

MAP CREATED BY DR. SORIN A. MATEI PURDUE UNIVERSITY
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Encrypted
19.1%

Open
80.9%

Assumed Public
12.9%

Assumed business
21.3%

Assumed residential
65.9%

STUDY GOALS
Estimate relative proportion of residential vs. business networks & patterns of geographic diffusion

Identify neighborhood level socio-demographic factors that can explain the emergence of such networks.

METHODOLOGY
268 random points selected in 60 neighborhoods.
One point for every 1000 residents.
400 mile optimal route all points

Monitoring set up:
  GPS enabled laptop with booster antenna
  Netstumbler driven around town 5-10 PM

Collection methodology:
  location at point last time AP was seen
  MAC address, WAP status, SNR, BSSID

Imputed use by GIS location of nearest land parcel
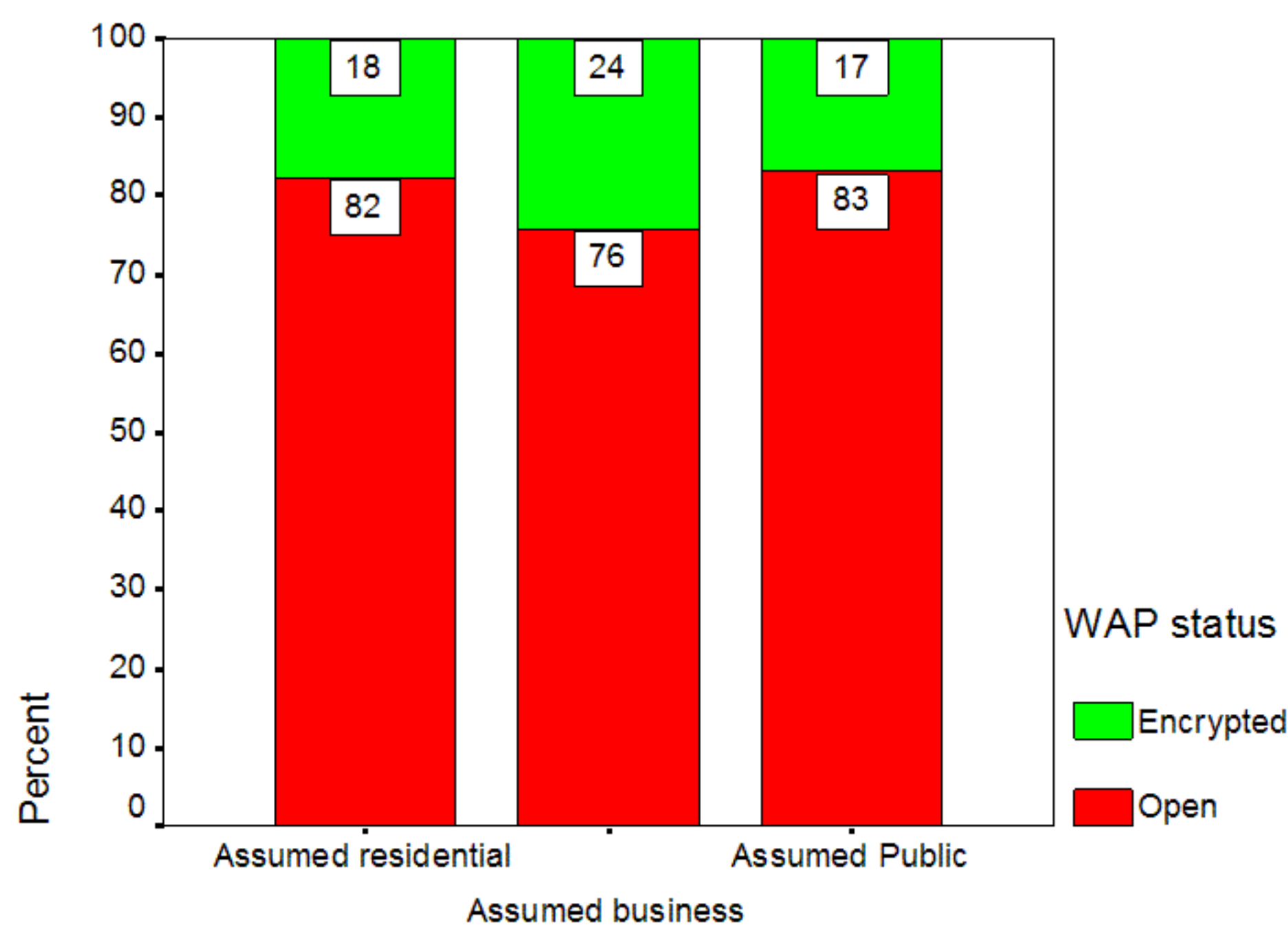
Encryption by assumed use

WAP status
- Encrypted
- Open

MAJOR FINDINGS:

o PREFERRED LOCATION: CENTRAL BUSINESS DISTRICT

o 3/4 NOT ENCRYPTED

o BUSINESS ACCESS POINTS NOT MORE OR LESS LIKELY TO BE ENCRYPTED

o LOCATION IN THE BUSINESS DISTRICT IS, HOWEVER, MORE LIKELY TO LEAD TO ENCRYPTION

o NEIGHOBRHOODS WITH SINGLE HOUSEHOLDS MORE LIKELY TO HAVE RESIDENTIAL NETWORKS

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CERIAS

Discovery Park
e-Enterprise Center