New Analytics for Market Planning

Michigan Society for Healthcare
Marketing and Planning

2015 Spring Conference

MACK CONSULTING SERVICES, LTD.
Strategic Planning & Decision Support

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Consulting Services, Inc.

Learning Objectives

- Identify and obtain new and additional data (internal and external) for market analysis and decision-making.
- Recognize opportunities to use new tools and techniques, including mapping, for market analysis.

Presentation Outline

1. Market Challenges & Analysis: *Past & Future*
2. More Data & Analytic Techniques
3. Example: Enhanced Mapping
4. Application
5. Your Next Steps

1. Market Challenges & Analysis – *Past & Future*

New Analytics for Market Planning

1. Market Challenges & Analysis: Past & Future

Changing Needs & Data

Analysis Needs	
Past	*Future*
• Growth Areas • New Location Selection • Service Expansion / discontinuation • Target Marketing • Needs Assessment • Service Segmentation (fair high level) • Physician Location • Payer Mix Variations	• Identification of In-Network Market, Needs • Identification of Out-of-Network Opportunities • Identification of Sub-Markets (Communities) • Proximity to Work (and Home) • Health Status • Optimal locations for disease management • Epidemiology
Source Data	
Past	*Future*
• Market share • Demographics (Census, Enhanced) • Internal Utilization • Use Rates, Applied	• Surveys • Disease Incidence & Prevalence • Consumer Behavior • Internal Utilization (Referral and Attending Sources)

1. Market Challenges & Analysis: Past & Future

Hospital ➔ Continuum ➔ Network

Macro Level - Hospital-wide

Historical Interests

- ☑ Hospital & Facility Locations
- ☑ Service Area Definitions by Zip (Primary and Secondary)
- ☑ Competitor Overlays & Market Share Comps
- ☑ Demographic Overlays

Evolving Interests

- ☑ Hospital & Facility Markets
- ☑ Service Area Definitions by Core and Spoke(s)
- ☑ Competitor Analysis & Market Share Comps by Region
- ☑ Core Metric Overlays (Demographic and Other Metrics)

1. Market Challenges & Analysis: Past & Future

Hospital ➔ Continuum ➔ Network

Micro Level – Continuum Locations

Historical Interests

- ☑ Site Locations
- ☑ Circle perimeters with Zip Code Overlays
- ☑ Competitor Overlays
- ☑ Demographic Pop

Evolving Interests

- ☑ Single Site Location
- ☑ Drive Time Overlays with captured metrics
- ☑ Internal – Patient Location (Whole or by Segments)
- ☑ External:
  - Demographic & Survey Data
  - Competitor Location Analysis

2. More Data & Analytic Techniques

New Analytics for Market Planning

2. More Data & Analytic Techniques

Internal & External Data

- ☑ Internal Data – *More and Better!*
  - New ways to look at it
  - Greatly improved accessibility
  - Greater levels of detail
  - Expanded scope with vertical & horizontal integration
- ☑ External Data - *New or Underutilized*
  - Demographic, Sociographic, Psychographic, and Economic
  - BHRF and Other Health Surveys
  - Facility Surveys (MI)
  - Opinion and Satisfaction Surveys
  - Provider Data (e.g. Networks)
  - Payer Reports and Data (e.g. CMS)

TRUVEN HEALTH ANALYTICS
More Than Data. Answers.

NATIONAL RESEARCH Corporation

2. More Data & Analytic Techniques

Old and New Sources

What new metrics will social media and mobile technology bring?

"…In the old days, an associate specializing in events for clients might answer to a manager in the marketing department who would be tasked with thinking about why a company should be throwing events in the first place. But now, says Mr. Montgomery, the Chubbies co-CEO, his lone event planner can use an array of dashboards she has built to determine exactly how many Facebook likes, Instagram posts and sales arose from a particular event, since all these data are geo-coded and she can watch them change in the wake of an event. It's entirely up to her to decide where, when or whether to hold future events. If anyone were to question her decision, she can simply back it up with data."

Data Is the New Middle Manager, By Christopher Mims,

April 19, 2015 5:13 p.m. ET, WSJ D

2. More Data and Analytic Techniques

What's new in the world of analysis?*

- Predictive Analytics
  - Predictive Modeling News
  - Advanced Analytics & Predictive Modeling Forum, July 16, Institute for Health and Business Insight (IHBI), CMU
- Multi Variable Analysis (> 3 or 4)
- More Cloud-Based Aps & Data
- Big Data…or Accessible Data?
- Geo Coding / Enhanced Mapping
- Clinical Data Evolution (Health Status)
- *Other?*

* At least in the health care industry.

2. More Data and Analytic Techniques

Geocoding & Enhanced Mapping

- Mapping: Beyond Illustration to Interpretation
  - A. Macro Examples:
    - Resident Density for Entire Population or Segments
    - Resident Access to Services
  - B. Micro Examples – Site Locations
    - Resident access to area Urgent Care Services/Primary Care Specialists
- More detailed vulnerability & opportunity analysis. Forces audience to interpret and "bucketize" the information they are seeing to answer the question. Easier to comprehend the composite and see patterns or lack thereof (after having seen each individually).

3. Example: Enhanced Mapping

New Analytics for Market Planning

3. Example: Enhanced Mapping

Mapping Platform Tools

PCensus (Tetrad)

- A desktop data management software tool, designed to manage and link internal business data and other external data with GIS mapping software and to produce a variety of custom business analytics, like site location analysis.

MapInfo Professional (Pitney Bowes)

- A desktop Geographical Information System (GIS) software product that is used primarily for general mapping but, more importantly other spatial data applications.

3. Example: Enhanced Mapping

Varying Geo Boundaries

Proxy Hospital:

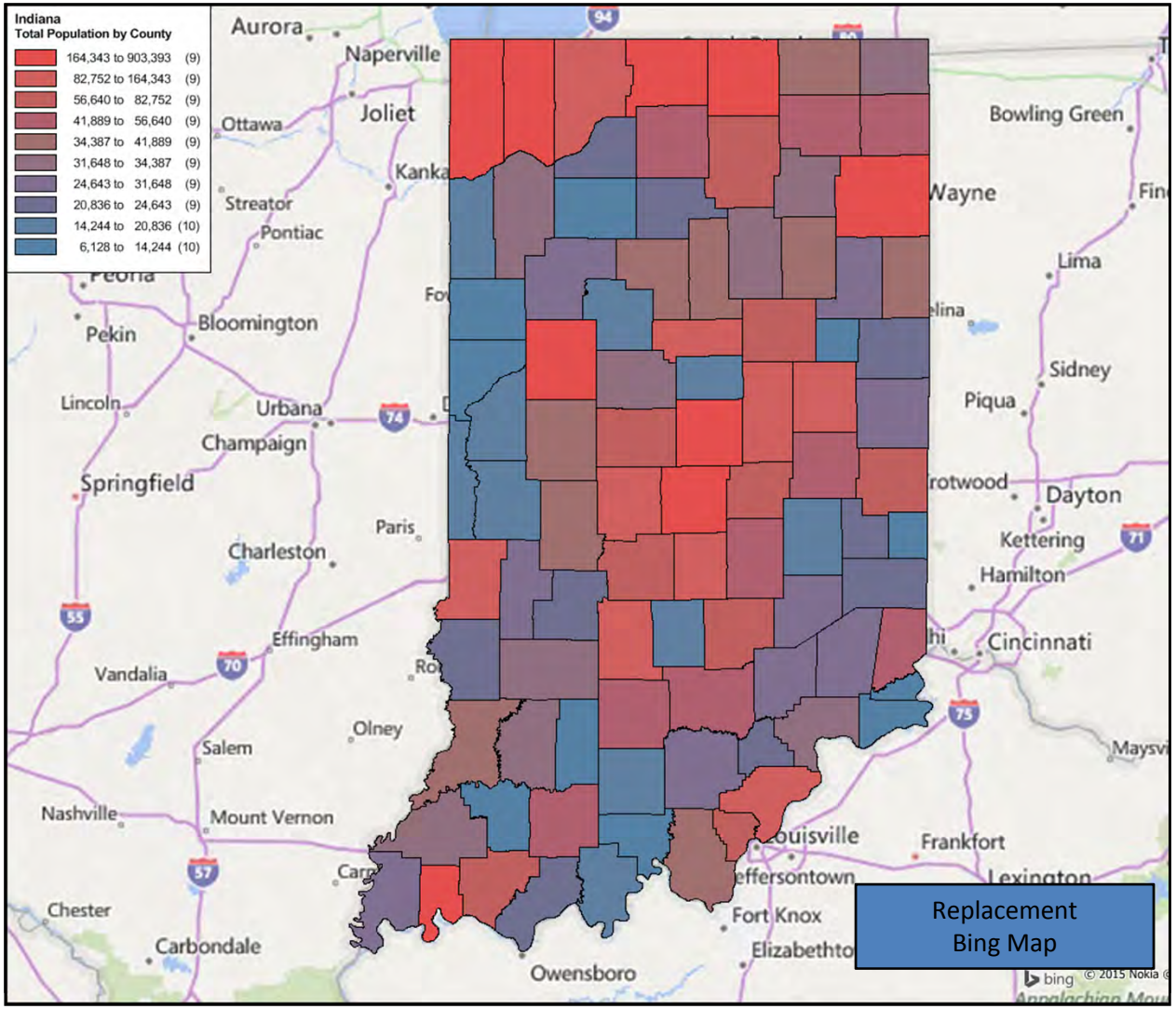
- Hospital Site

Geo Boundary:

By County

Data / Source:

Pop-All / 2010 Census



3. Example: Enhanced Mapping

Varying Geo Boundaries

Proxy Hospital:

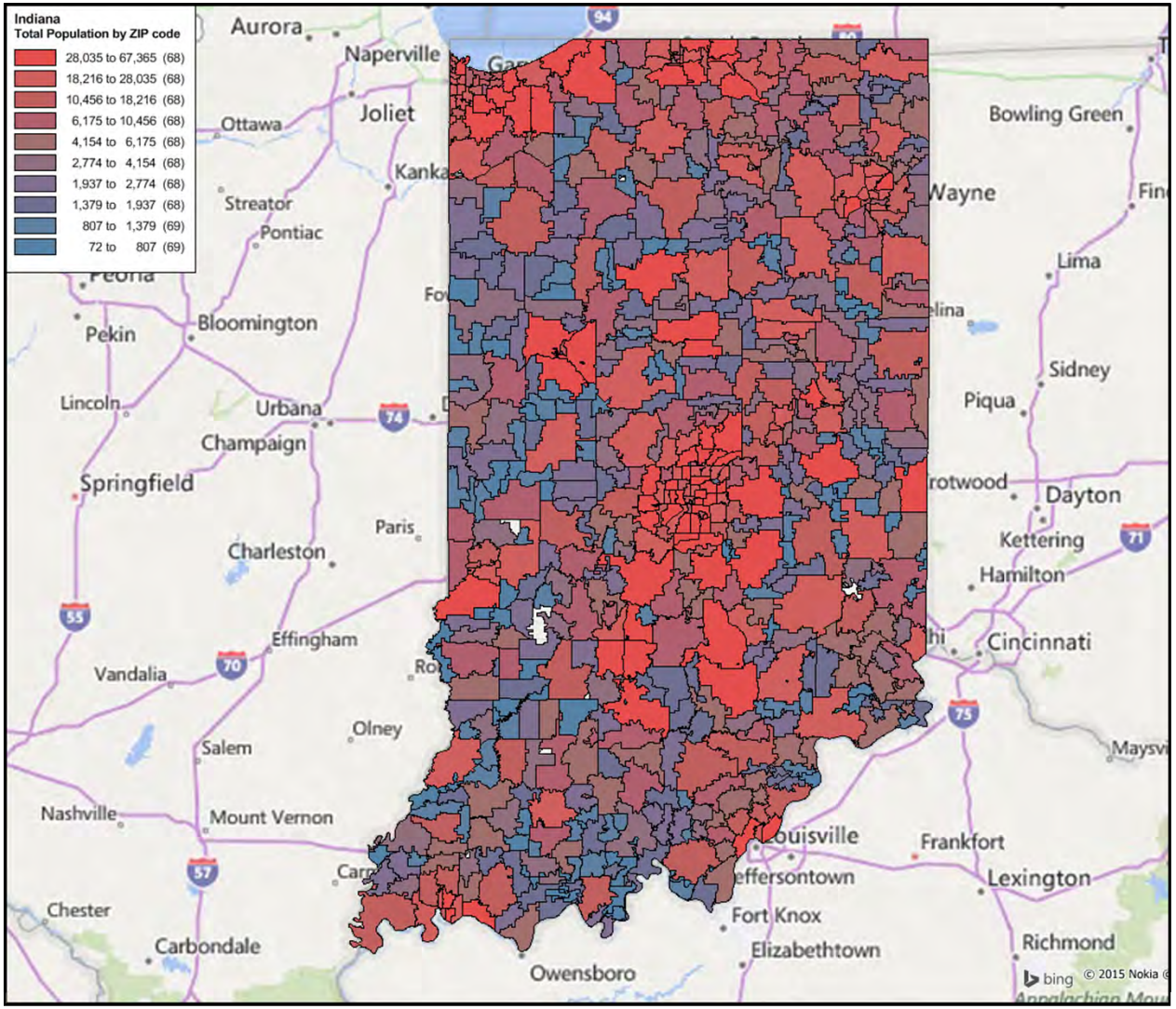
- Hospital Site

Geo Boundary:

By Zip

Data / Source:

Pop-All / 2010 Census



3. Example: Enhanced Mapping

Varying Geo Boundaries

Proxy Hospital:

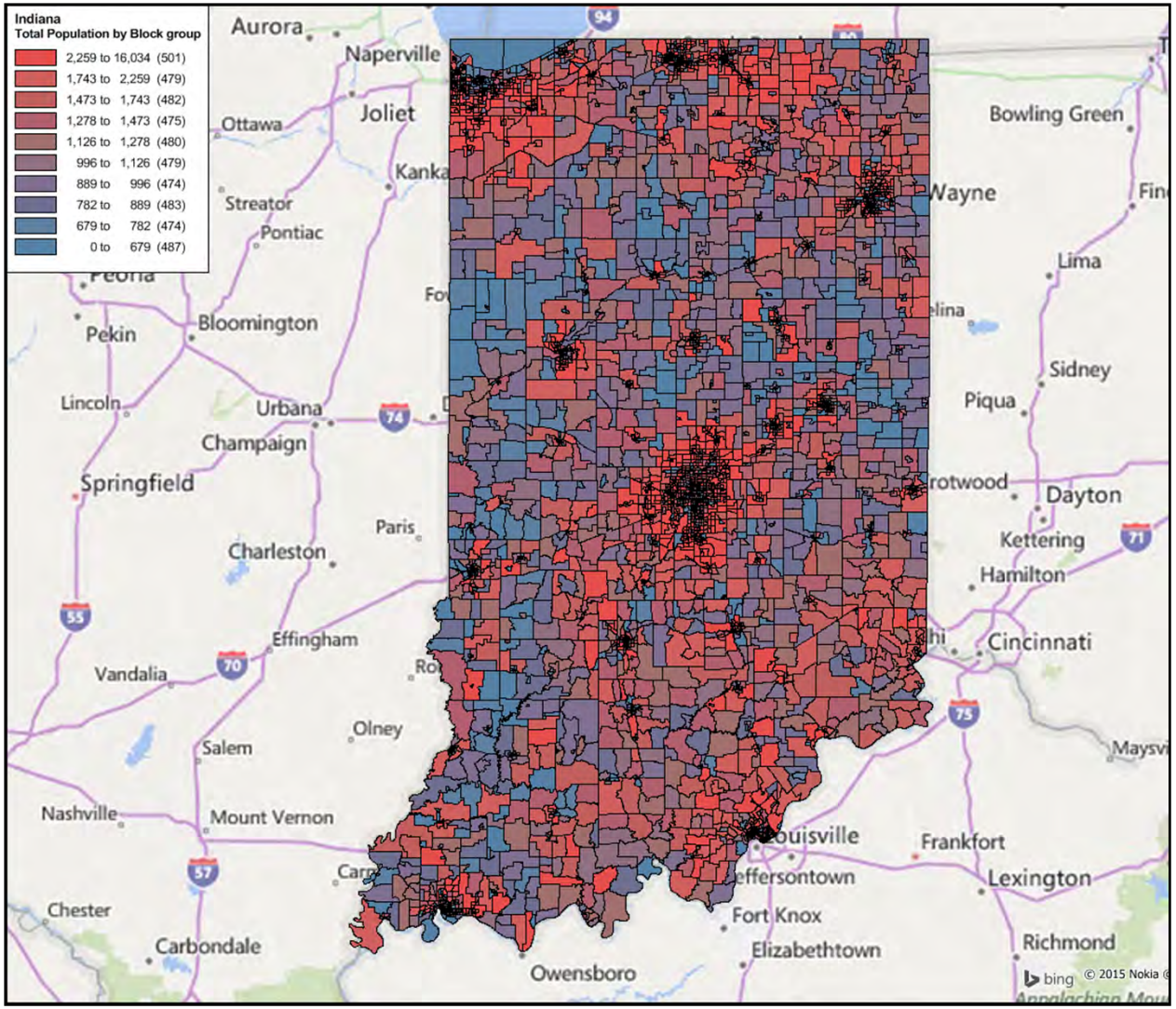
- Hospital Site

Geo Boundary:

By Census Blocks

Data / Source:

Pop-All / 2010 Census



3. Example: Enhanced Mapping

Varying Geo Boundaries

Proxy Hospital:

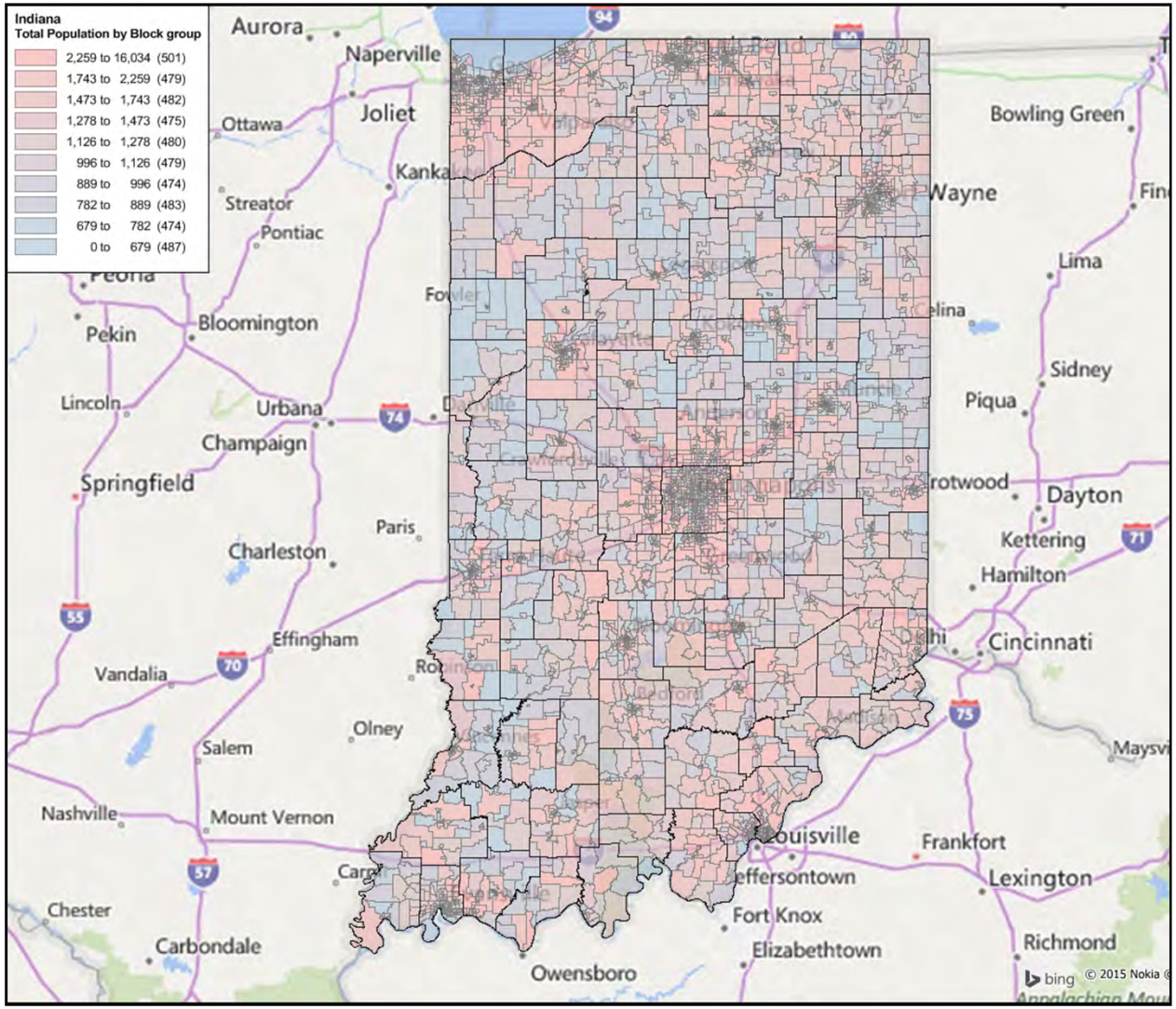
- Hospital Site

Geo Boundary (Nested):

By County
By Census Blocks

Data / Source:

Pop-All / 2010 Census



3. Example: Enhanced Mapping

Available Data Sources

- **US Census & Proprietary Data Products**
  - Census 2010, available for the entire US and as baseline data for PCensus
  - Demographics, more detailed population and social demographic information depicting current, estimated and projected counts, available as standalone data products for sale and use with PCensus.
  - Population Profile Services – Claritas, STI, etc.

3. Example: Enhanced Mapping

Available Data Sources

- **Internal & External Business Source Data (with a hospital focus)**
  - Patient Centric Data
    - Patients' Address Location
    - Patient Segments (Service, Facility and Specialty Types)
  - Professional Site Locations
    - Hospital Network - Medical Staff & Other Allied Health Office Locations by Address and GPS
    - Non Hospital Network – listings of other professional site locations by Address and GPS
  - Health Industry Services
    - MIDB – Discharge data segmented by facility and service and linked by Zip
    - AHA /AHD– Area Hospital Address and Service Profile
    - Specialty Sources (Tumor and other Patient Registries) linked by Zip & County
  - Any other available that a business can access or compile by suitable links.
    - (address, city, state, zip, county, census block or block group)

3. Example: Enhanced Mapping

For this demonstration…

- US Census 2010
- Compiled Data Sets
  - Hospital Address – sourced and compiled from CMS Hospital Profile data
  - Physician Address by Specialty – sourced and compiled from CMS Physician Profile data
  - Proxy Patient GPS list created as a mock up demo for this presentation

3. Example: Enhanced Mapping

Provider Locations

Proxy Hospital:

- Hospital Site

Geo Boundary (Nested):

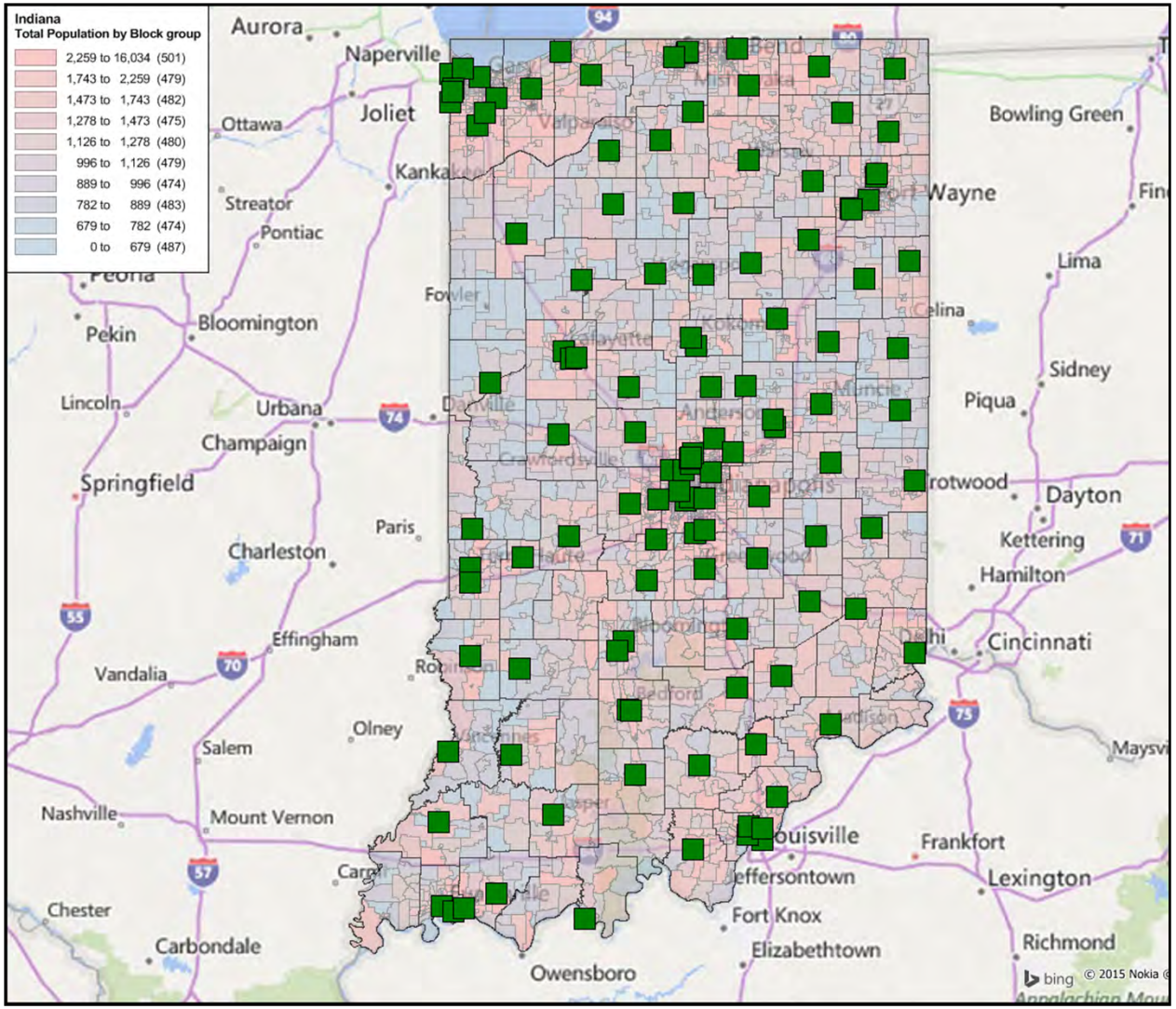
By County
By Census Blocks

Data / Source:

Pop-All / 2010 Census

Additional Data/Links:

Hospitals/GPS Site



3. Example: Enhanced Mapping

Patient Locations

Proxy Hospital:

- Hospital Site

Geo Boundary (Nested):

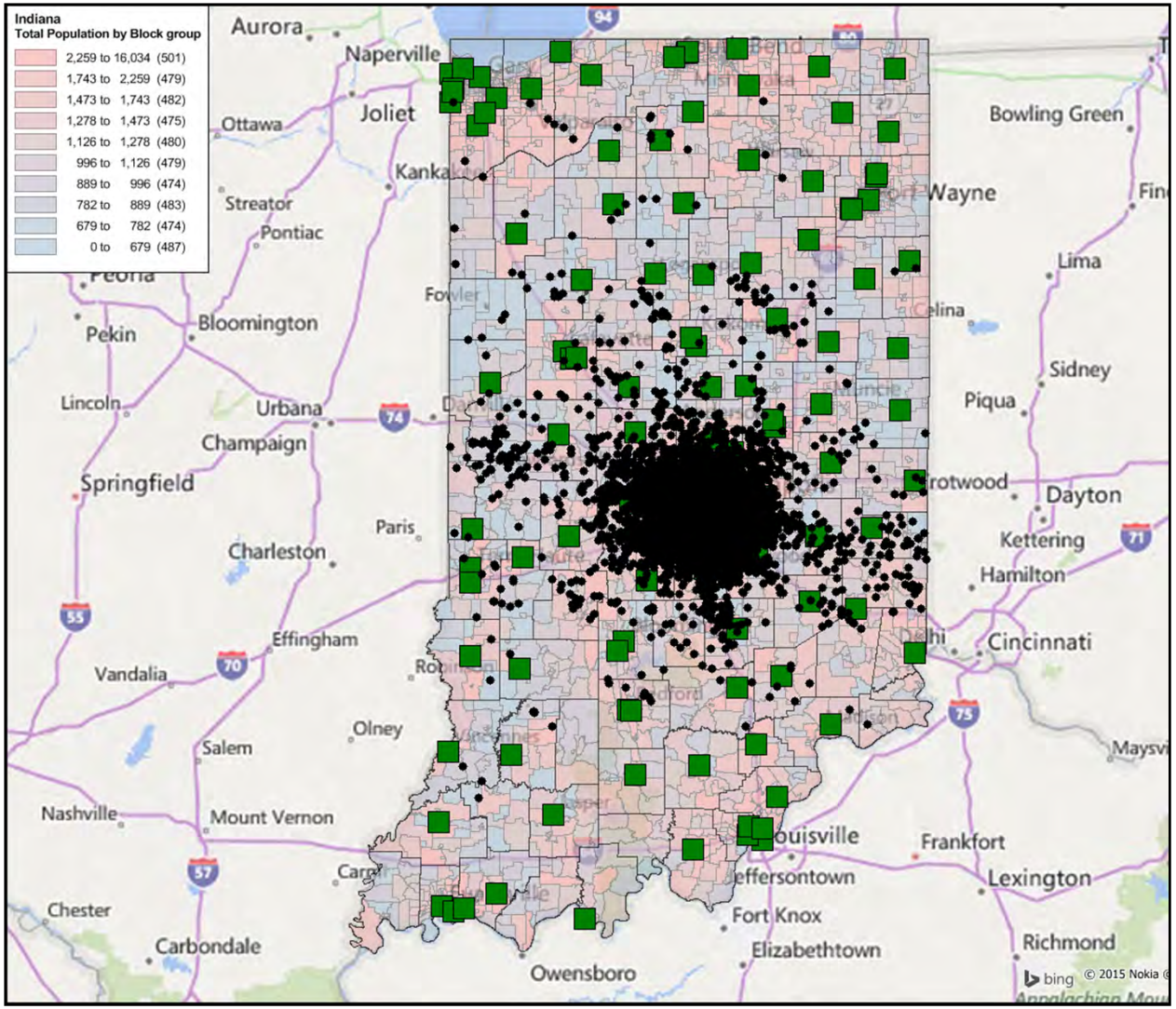
By County
By Census Blocks

Data / Source:

Pop-All / 2010 Census

Additional Data/Links:

Hospitals/GPS Site
Proxy Patient Locations



3. Example: Enhanced Mapping

Geocoding

"Geocoding" is the process for converting street addresses or other locations to latitude and longitude and other FIPS code descriptions covering census tract, census block and block group identifiers.

“Geocoding’ services are readily available on the internet and through PC standalone applications. Geocoding can be acquired quickly, easily and with minimal out of pocket expense.

“Geocoding” is the simplest way for linking internal data sources with external data.

If you haven’t started using Geocoded data, time to get going…

3. Example: Enhanced Mapping

Drive Time Analysis

Proxy Hospital:

- Hospital Site

Geo Boundary (Nested):

By County
By Census Blocks

Data / Source:

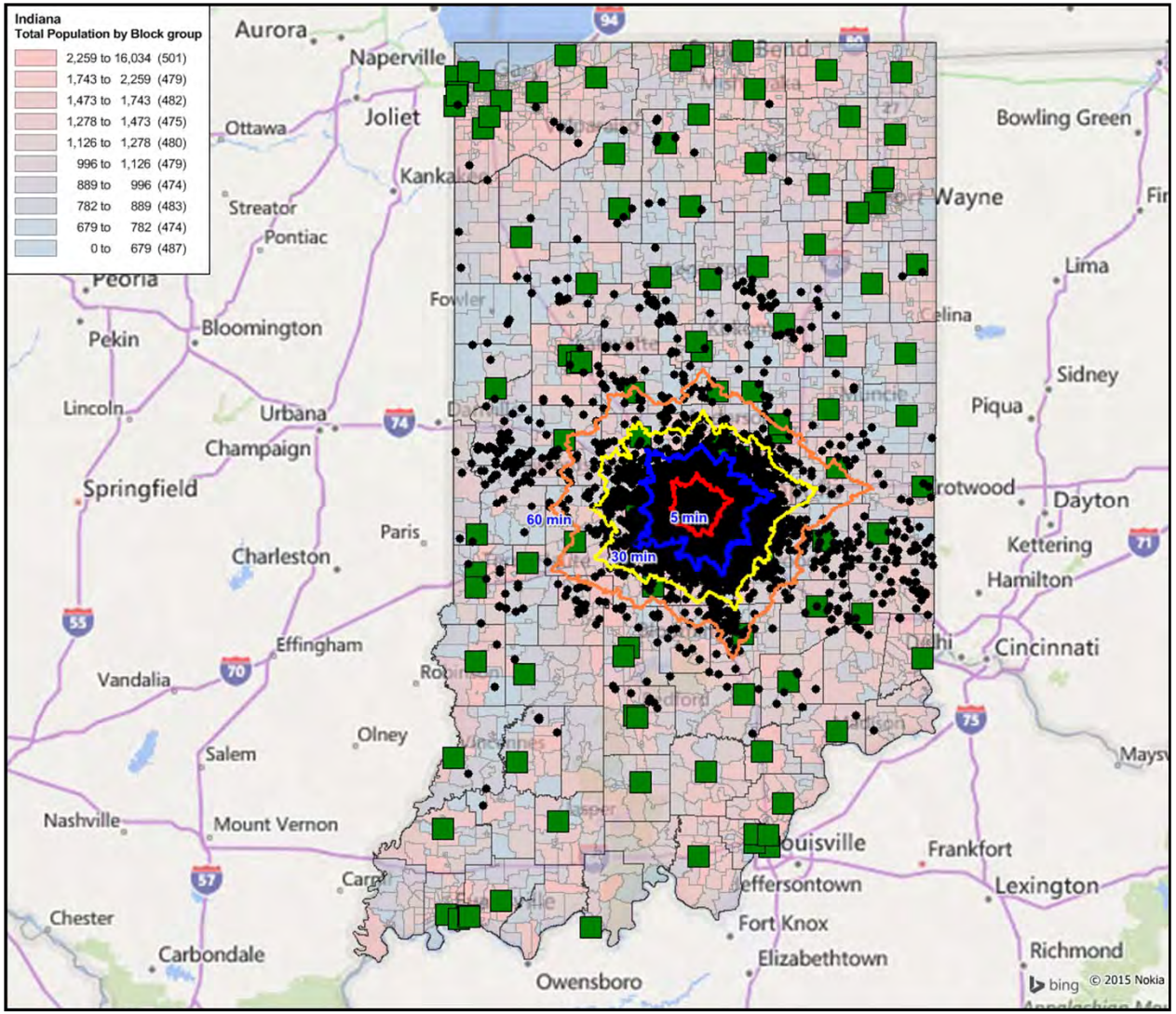
Pop-All / 2010 Census

Additional Data/Links:

Hospitals/GPS Site
Proxy Patient Locations

Drive Time SA Analysis:

15/30/45/60 min cuts



3. Example: Enhanced Mapping

Drive Time Analysis

Proxy Hospital:

- Hospital Site

Geo Boundary (Nested):

By County
By Census Blocks

Data / Source:

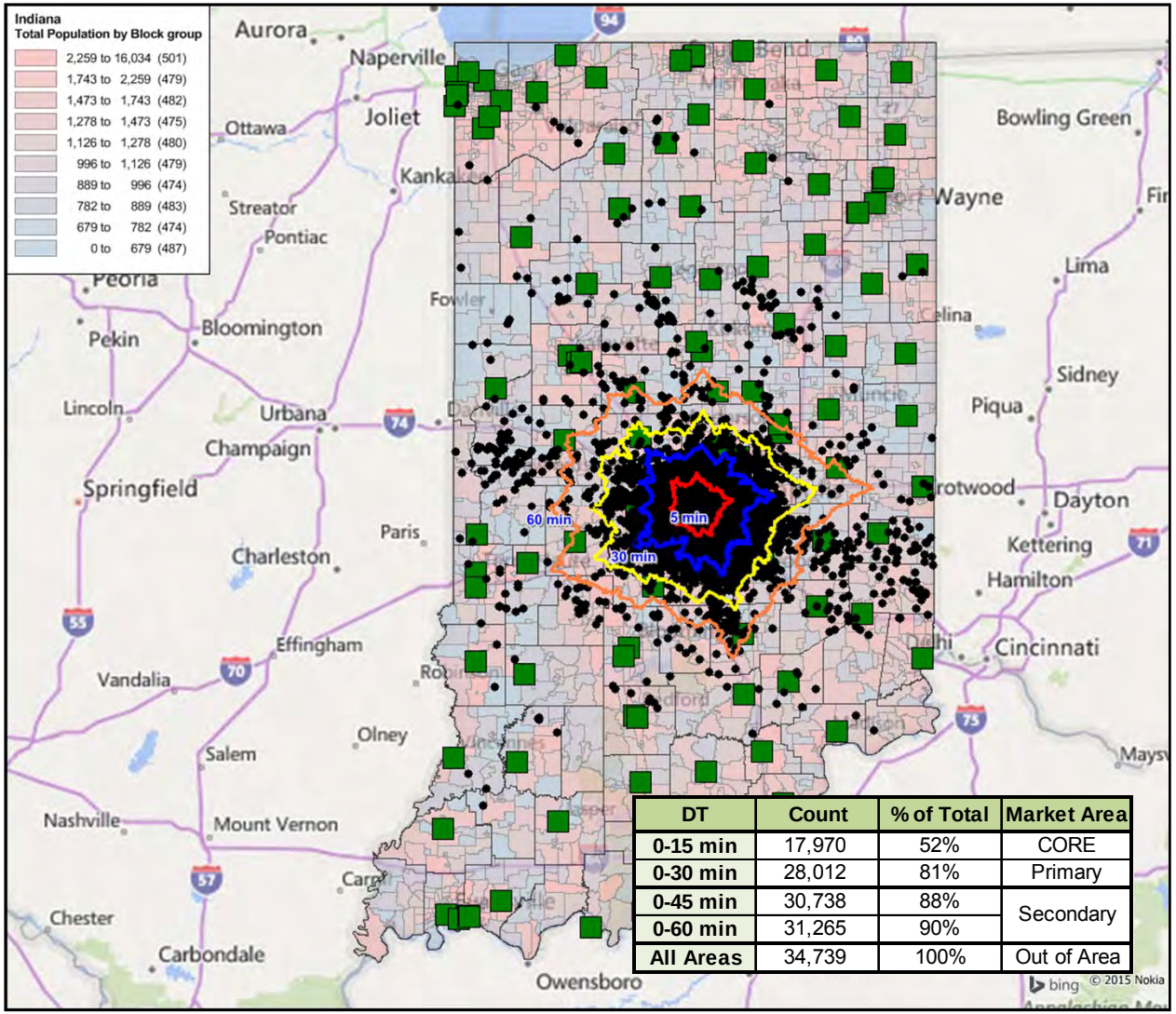
Pop-All / 2010 Census

Additional Data/Links:

Hospitals/GPS Site
Proxy Patient Locations

Drive Time SA Analysis:

15/30/45/60 min cuts



DT	Count	% of Total	Market Area
0-15 min	17,970	52%	CORE
0-30 min	28,012	81%	Primary
0-45 min	30,738	88%	Secondary
0-60 min	31,265	90%	
All Areas	34,739	100%	Out of Area

3. Example: Enhanced Mapping

Drive Time Analysis: SA

Proxy Hospital:
- Hospital Site

Geo Boundary (Nested):
By County
By Census Blocks

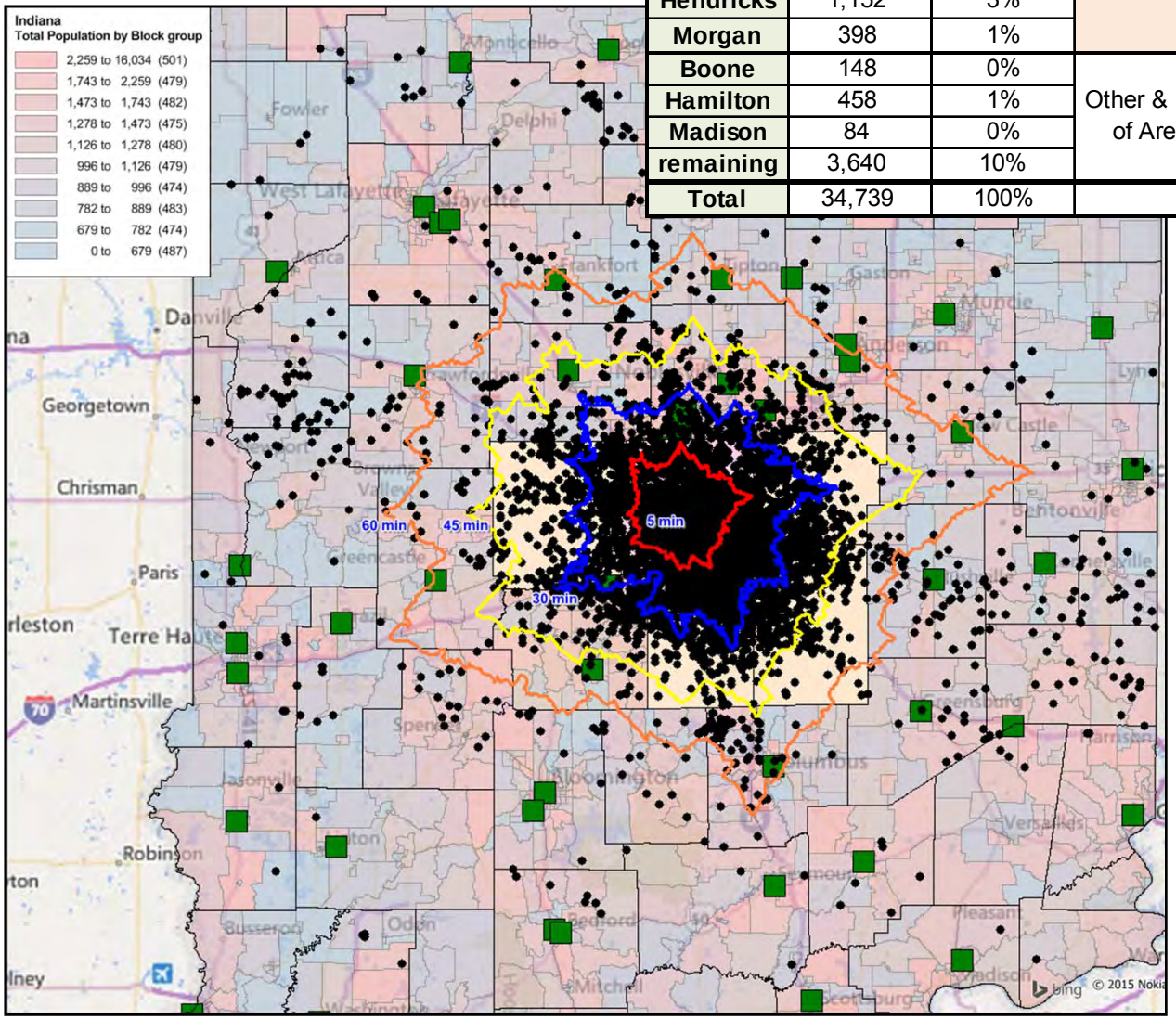
Data / Source:
Pop-All / 2010 Census

Additional Data/Links:
Hospitals/GPS Site
Proxy Patient Locations

Drive Time SA Analysis:
15/30/45/60 min cuts

Market Service Area:
Five Counties

County	Count	% of Total	Market Area
Marion	23,137	67%	CORE
Hancock	2,352	7%	Primary
Shelby	1,510	4%	Secondary
Johnson	1,860	5%	
Hendricks	1,152	3%	
Morgan	398	1%	
Boone	148	0%	Other & Out of Area
Hamilton	458	1%	
Madison	84	0%	
remaining	3,640	10%	
Total	34,739	100%	



3. Example: Enhanced Mapping

Drive Time Analysis: SA

Proxy Hospital:
- Hospital Site

Geo Boundary (Nested):
By County
By Census Blocks

Data / Source:
Pop-All / 2010 Census

Additional Data/Links:
Hospitals/GPS Site
Wo/Proxy Patients…

Drive Time SA Analysis:
15/30/45/60 min cuts

Market Service Area:
One + Four Counties

County	Count	% of Total	Market Area
Marion	23,137	67%	CORE
Hancock	2,352	7%	Primary
Shelby	1,510	4%	Secondary
Johnson	1,860	5%	
Hendricks	1,152	3%	
Morgan	398	1%	
Boone	148	0%	Other & Out of Area
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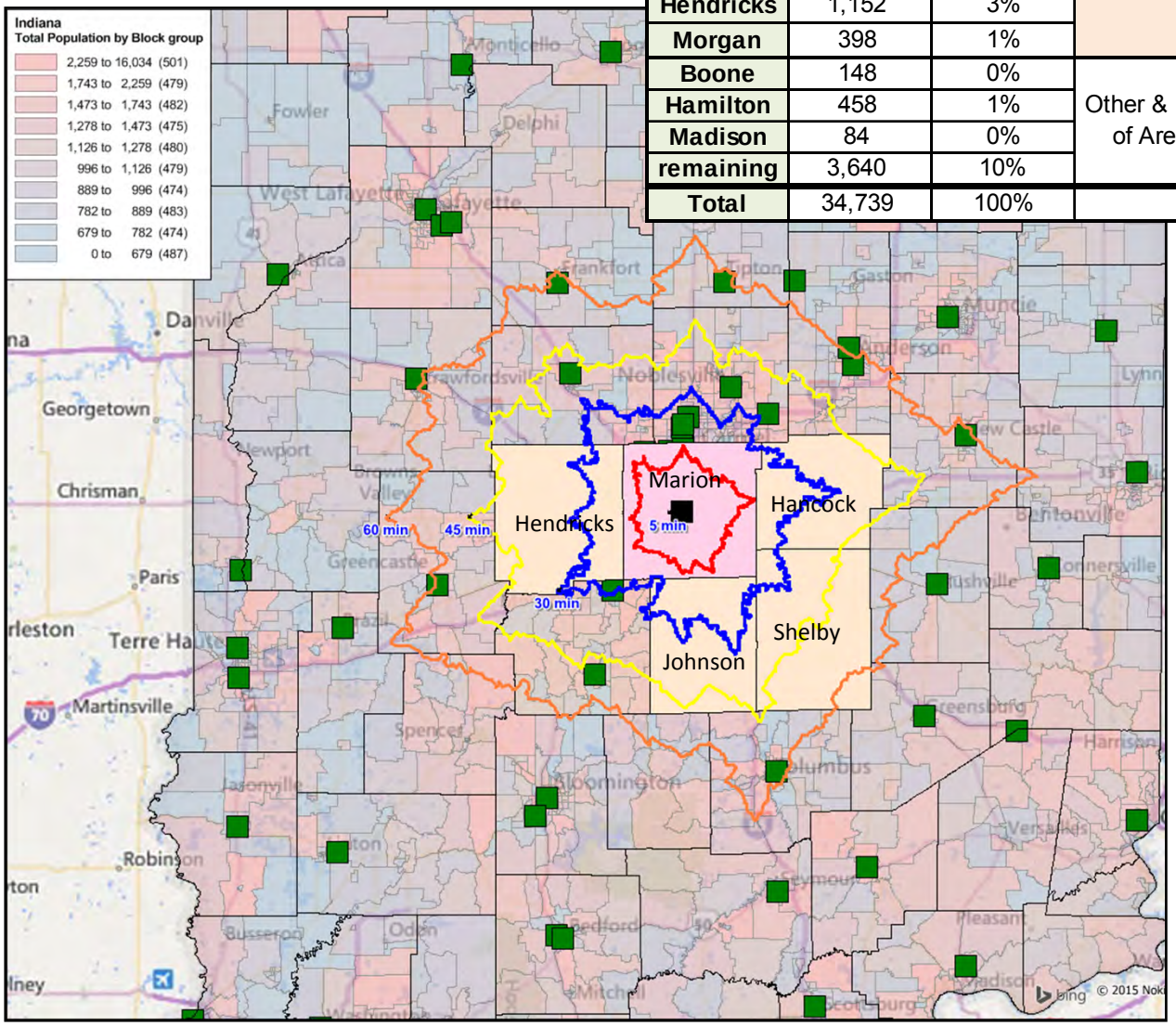


3. Example: Enhanced Mapping

Drive Time Analysis: SA

Proxy Hospital:

- Hospital Site

Geo Boundary (Nested):

By County
By Census Blocks

Data / Source:

Pop-All / 2010 Census

Additional Data/Links:

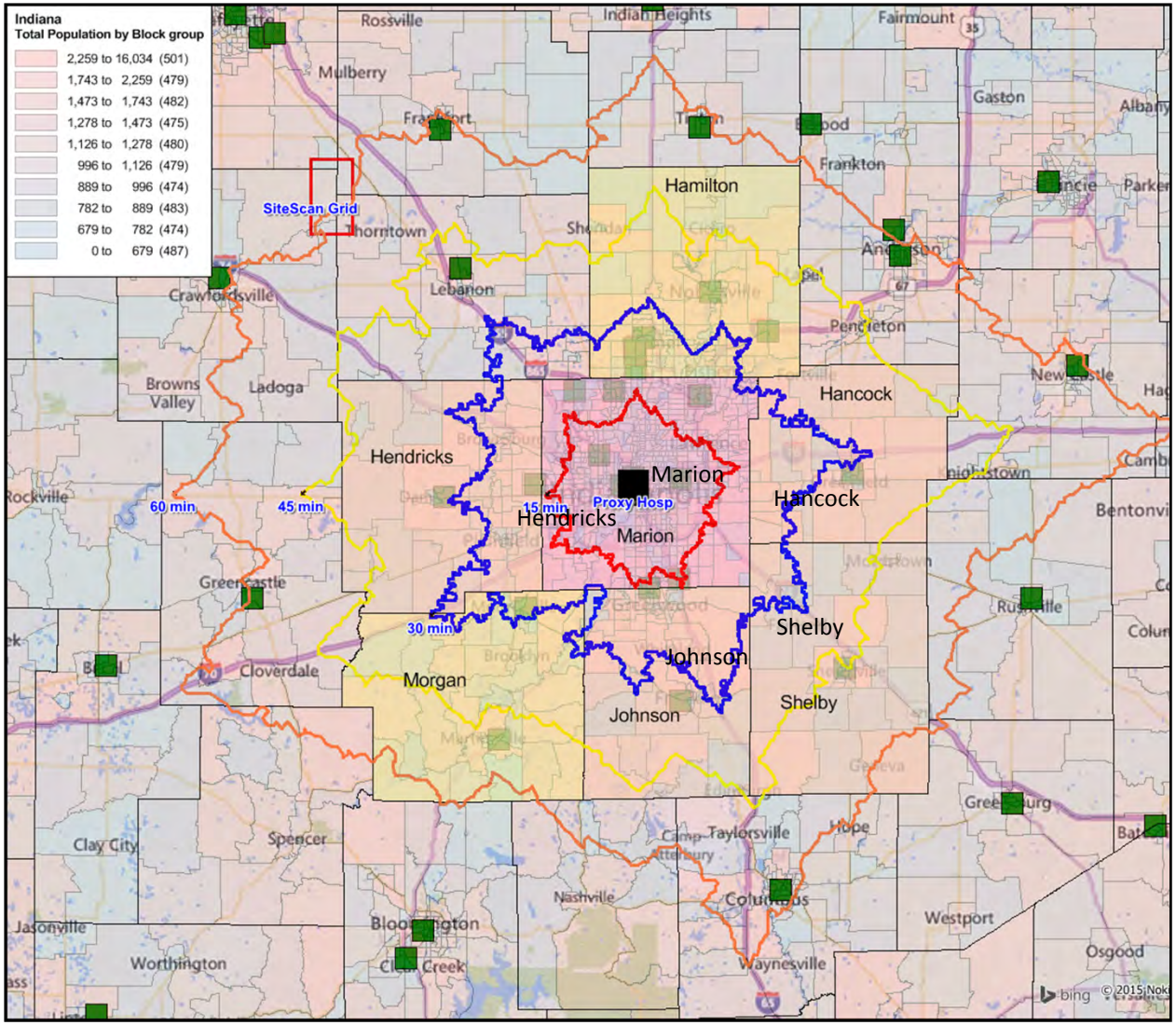
Hospitals/GPS Site
Wo/Proxy Patients…

Drive Time SA Analysis:

15/30/45/60 min cuts

Market Service Area:

One + Six Counties



3. Example: Enhanced Mapping

Key Hospital Metrics

Key Hospital Metrics	Sub SA- 1		Sub SA- 2		Sub SA- 3		Sub SA- 4	
		%		%		%		%
DEMOGRAPHIC ESTIMATES and PROJECTIONS								
Population								
2000 Census	9,503		66,897		1,336,966		517,924	
2010 Census	8,490		69,122		1,400,790		512,689	
2014 Estimate	8,321		68,626		1,420,161		510,661	
2019 Projection	8,255		67,817		1,437,763		495,624	
Pop Gain/(loss) over 2014E	-67		-809		17,603		-15,037	
2024 Forecast	8,163		67,070		1,452,784		480,397	
Pop Gain/(Loss) over 2014E	-158		-1,556		32,624		-30,264	
Pop Distribution - 2019P	8,255		67,817		1,437,763		495,624	
Children (Aged 0-4)	341	4%	3,533	5%	80,637	6%	29,671	6%
Children (Aged 5-17)	961	12%	10,435	15%	214,753	15%	80,182	16%
Adults (Aged 18-64)	4,681	57%	40,154	59%	907,234	63%	303,881	61%
Adults (Aged 65-74)	1,327	16%	8,250	12%	147,470	10%	49,090	10%
Seniors (Aged 75+)	944	11%	5,445	8%	87,669	6%	32,800	7%
Children (Aged 0-4) - 2019P	341		3,533		80,637		29,671	
Children (Aged 0-4) - 2014E	360		3,830		82,887		31,456	
Pop Gain/(Loss) over 2014E	-19	-5%	-297	-8%	-2,250	-3%	-1,784	-6%
Children (Aged 5-17) - 2019P	961		10,435		214,753		80,182	
Children (Aged 5-17) - 2014E	1,073		11,473		231,667		88,981	
Pop Gain/(Loss) over 2014E	-111	-10%	-1,038	-9%	-16,915	-7%	-8,799	-10%
Adults (Aged 18-64) - 2019P	4,681		40,154		907,234		303,881	
Adults (Aged 18-64) - 2014E	4,900		41,203		908,619		315,299	
Pop Gain/(Loss) over 2014E	-218	-4%	-1,049	-3%	-1,385	0%	-11,418	-4%

3. Example: Enhanced Mapping

Selecting the Right Data – *One Approach*

Phase	Focus	Examples
1. Defining the Customer	What data will identify former, current, or potential customers?	• Former Patients • Age Group (demographics) • Responses to Ad / Info
2. Key Quality Characteristics	What do customers want the most?	• Proximity • Ease of Access • One Stop Service
3. Differentiators *(Value Curve Analysis)*	How might you distinguish your service from others?	• Cost (Coverage, Out of Pocket) • Follow-up
4. Opportunities	What strategic goal(s) are you pursuing?	• Growth • Cross Marketing • Prospecting

3. Example: Enhanced Mapping

Site Scans

Site Scans create the capability for analyzing large market areas to determine the best location or fit for a defined strategy. Market areas can be any size, big or small.

- The user defines:
  - the market area to be examined;
  - the "distance" between points to establish the row / column grid;
  - the specific metric or metrics to be examined; and
  - the method of measurement [square, radius (miles), or drive time (min)]
- Once keyed, PCensus creates a grid of rows & columns and computes and compares the appropriate values for the metric and method of measurement.
- The values returned can be raw numbers, products of formulas referencing multiple metrics, or any one of a number of statistical applications.

3. Example: Enhanced Mapping

Site Scans

The Site Scans that follow are simple scans for demo purposes which examine and compare total population counts, total pseudo patient locations and total household w/homes owned free and clear of mortgages.

The ‘distance between points’ is 3 miles and the method of measurement is a 15 minute drive time. Total points in the scan > 530.

3. Example: Enhanced Mapping

Establishing the Site Scan Perimeter

Proxy Hospital:

- Hospital Site

Geo Boundary (Nested):

By County
By Census Blocks

Data / Source:

Pop-All / 2010 Census

Additional Data/Links:

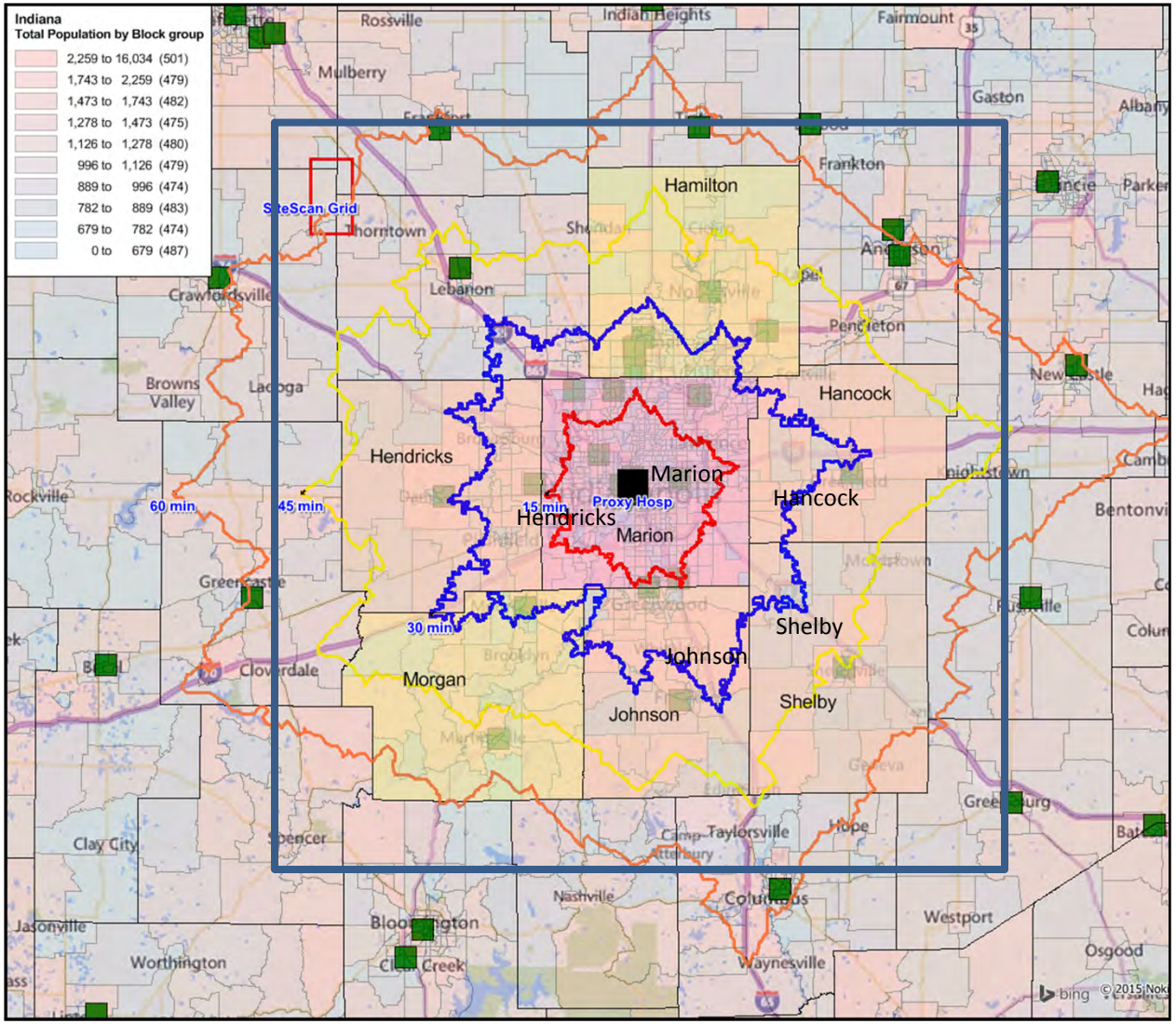
Hospitals/GPS Site
Wo/Proxy Patients…

Drive Time SA Analysis:

15/30/45/60 min cuts

Market Service Area:

One + Six Counties



3. Example: Enhanced Mapping

Site Scan

Proxy Hospital:

- Hospital Site

Geo Boundary (Nested):

By County
By Census Blocks

Data / Source:

Pop-All / 2010 Census

Additional Data/Links:

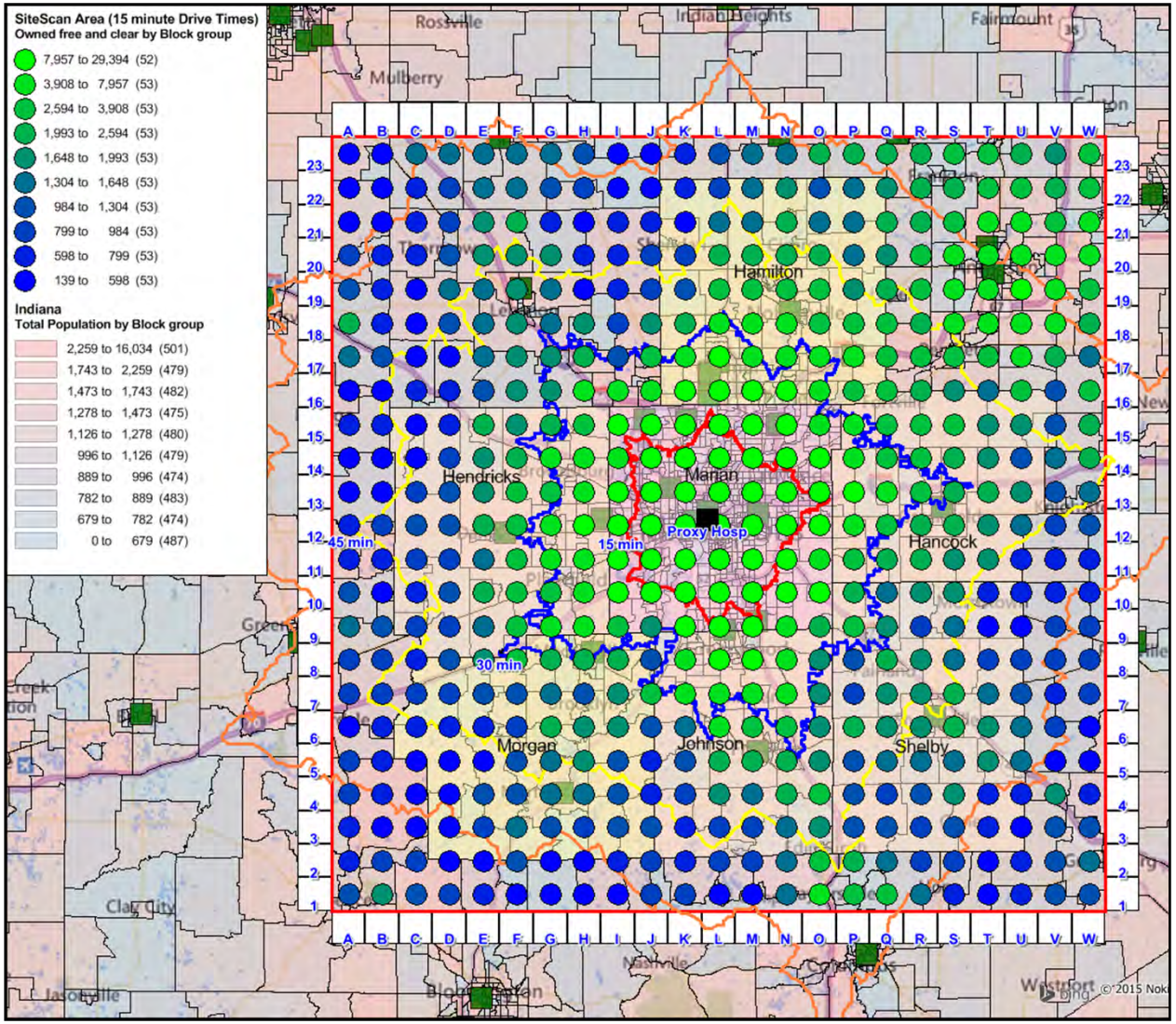
Hospitals/GPS Site
Wo/Proxy Patients…

Drive Time SA Analysis:

15/30/45/60 min cuts

Site Scan: Single Variable

Total Pop in/15 min DT



3. Example: Enhanced Mapping

Site Scan

Proxy Hospital:

- Hospital Site

Geo Boundary (Nested):

By County
By Census Blocks

Data / Source:

Pop-All / 2010 Census

Additional Data/Links:

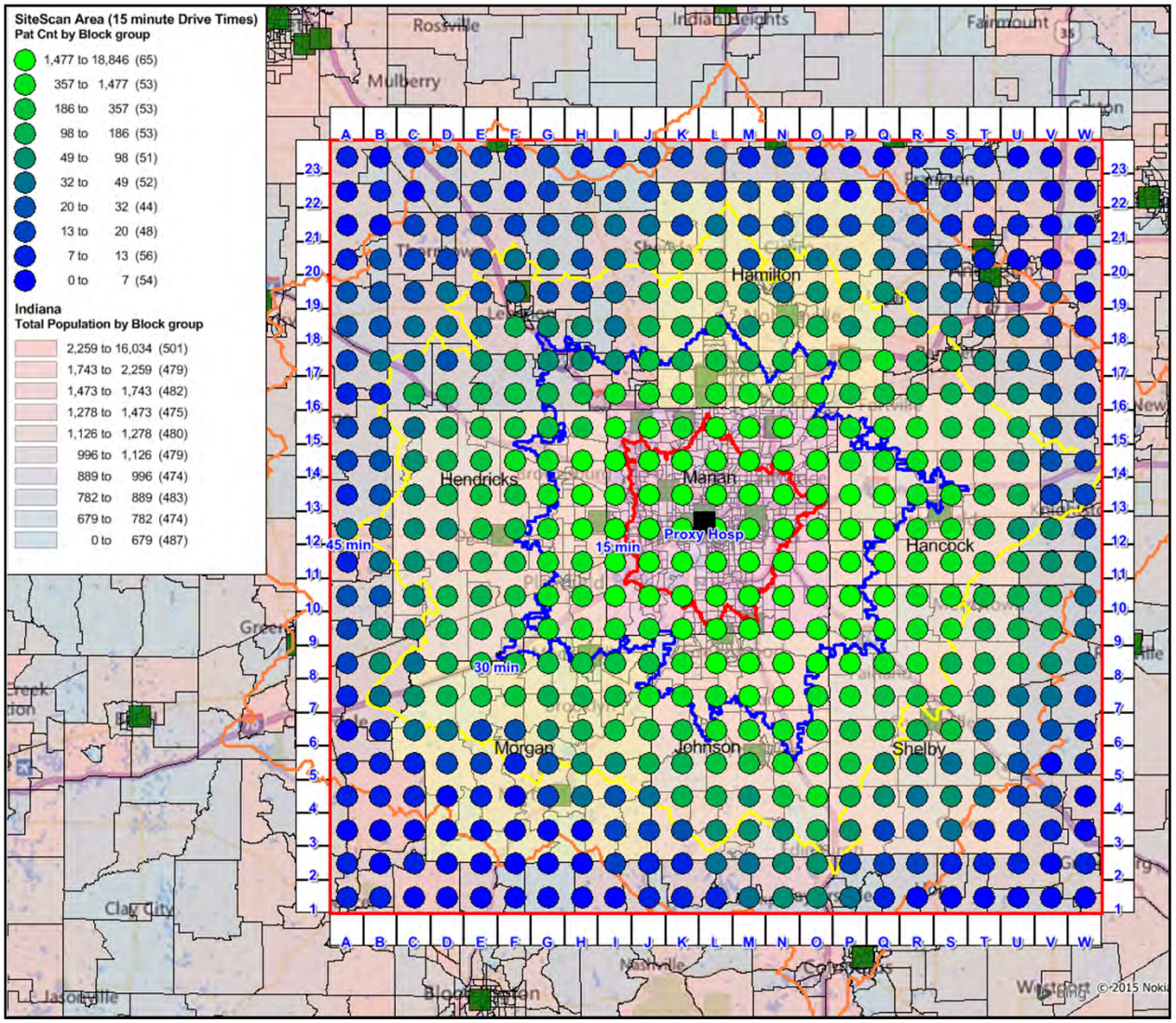
Hospitals/GPS Site
Wo/Proxy Patients…

Drive Time SA Analysis:

15/30/45/60 min cuts

Site Scan: Single Variable

Total Patient Count in/15 min DT



3. Example: Enhanced Mapping

Site Scan

Proxy Hospital:

- Hospital Site

Geo Boundary (Nested):

By County
By Census Blocks

Data / Source:

Pop-All / 2010 Census

Additional Data/Links:

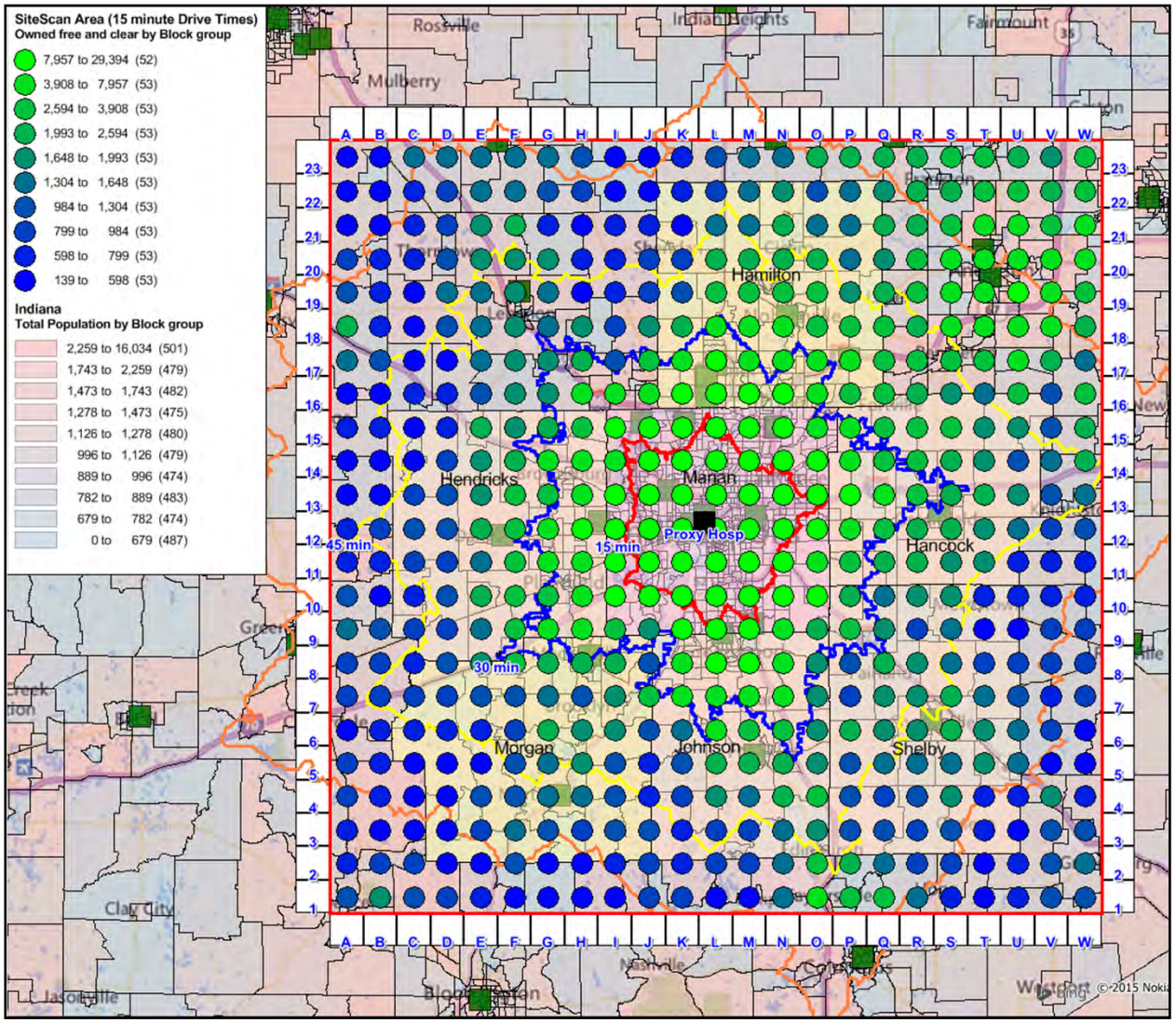
Hospitals/GPS Site
Wo/Proxy Patients…

Drive Time SA Analysis:

15/30/45/60 min cuts

Site Scan: Single Variable

Own Housing in/15 min DT



3. Example: Enhanced Mapping

Site Score

Proxy Hospital:

- Hospital Site

Geo Boundary (Nested):

By County
By Census Blocks

Data / Source:

Pop-All / 2010 Census

Additional Data/Links:

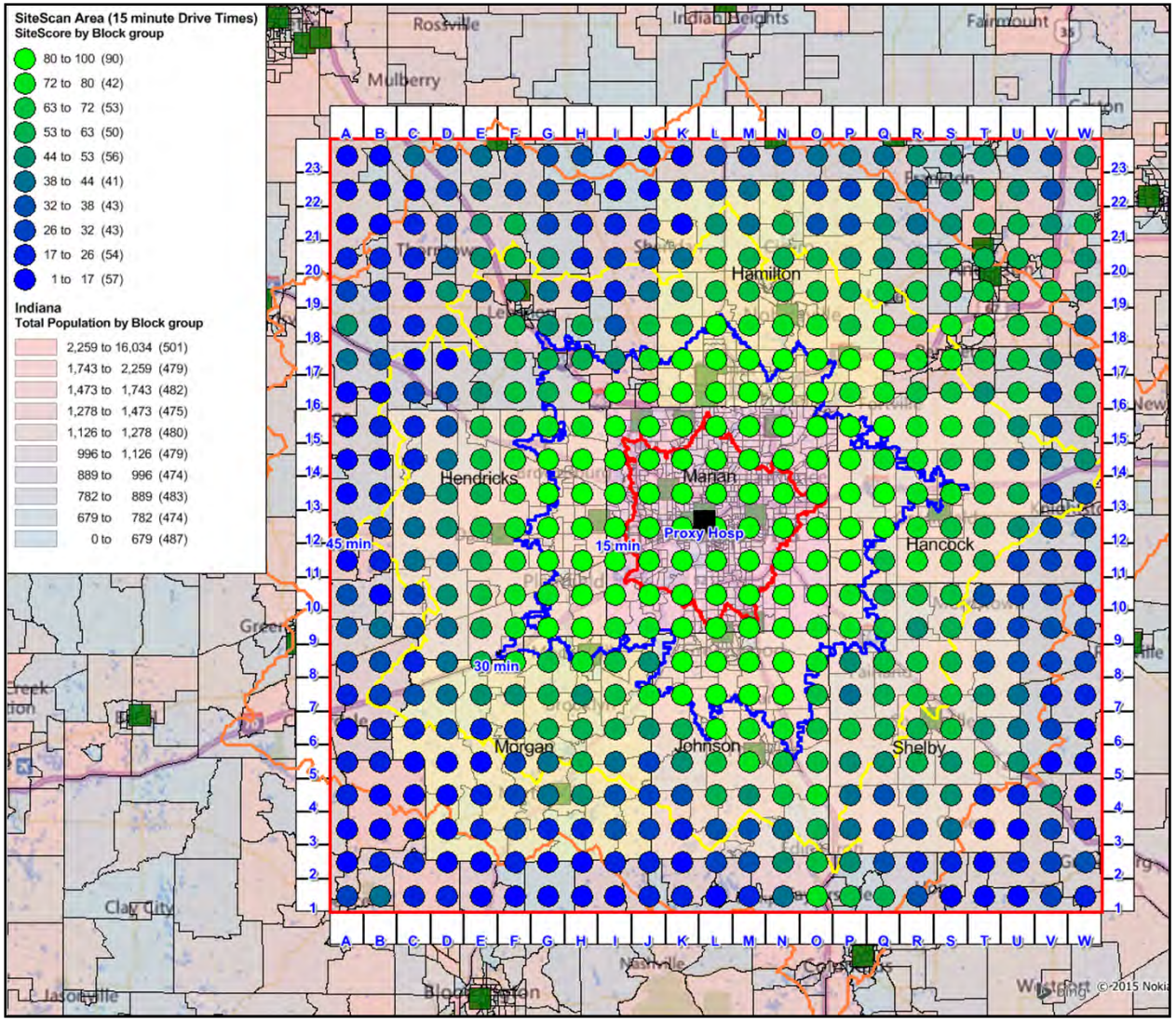
Hospitals/GPS Site
Wo/Proxy Patients…

Drive Time SA Analysis:

15/30/45/60 min cuts

Site Scan: Single Variable

SITE SCORE in/15 min DT



3. Example: Enhanced Mapping

Site Score Detail

Rank	SiteScan DriveTime 15 List	SiteScore	Score: Owned free and clear	Value: Owned free and clear	Score: Pat Cnt	Value: Pat Cnt	Score: Total Population	Value: Total Population
1	(12, L)	100	100	29,394	100	18,846	100	570,544
2	(11, L)	100	100	25,048	100	17,872	100	475,536
3	(12, N)	99	99	22,567	100	16,518	99	442,834
4	(12, M)	99	99	21,880	99	16,450	99	413,422
5	(13, L)	99	100	23,690	98	13,610	100	455,500
6	(12, K)	99	99	21,703	99	15,278	99	435,092
7	(13, M)	99	99	21,337	99	14,301	99	404,706
8	(13, N)	99	99	21,683	98	12,948	99	431,499
9	(11, N)	98	98	19,394	99	15,522	98	372,919
10	(10, L)	98	98	20,495	98	13,858	98	393,785
11	(13, K)	98	98	18,581	98	12,407	98	401,558
12	(11, J)	98	98	17,712	97	11,073	98	393,709
13	(10, M)	98	97	17,361	98	14,243	97	335,337
14	(11, K)	97	97	17,107	98	12,343	97	329,101
15	(11, M)	97	97	16,258	99	14,930	96	308,152
16	(12, J)	97	96	15,039	97	10,308	98	350,027
17	(14, L)	97	98	17,705	96	7,845	98	349,719
18	(10, K)	97	97	16,590	97	9,260	97	334,636
19	(14, M)	97	98	17,757	95	6,667	97	334,728
20	(13, J)	96	96	14,286	96	8,326	97	326,337
21	(14, N)	96	96	14,597	95	6,011	96	293,155
22	(14, J)	95	95	12,947	95	5,790	96	317,747
23	(10, J)	95	95	14,072	95	7,497	95	278,349
24	(14, K)	95	95	12,824	95	5,756	95	290,381
25	(13, O)	95	94	11,692	96	8,061	94	231,625

Site Scan 15 Minute Drive Time output from PCensus, summarizing in ranked fashion, the combined measurement of total 2010 Population, Total Proxy Patient Locations and “Mortgage Free” Homeowners… Other Scoring options are available.

3. Example: Enhanced Mapping

Site Score with High Value Markers

Proxy Hospital:

- ■ Hospital Site
- ✚ **Ancillary Locations**

Geo Boundary (Nested):

By County
By Census Blocks

Data / Source:

Pop-All / 2010 Census

Additional Data/Links:

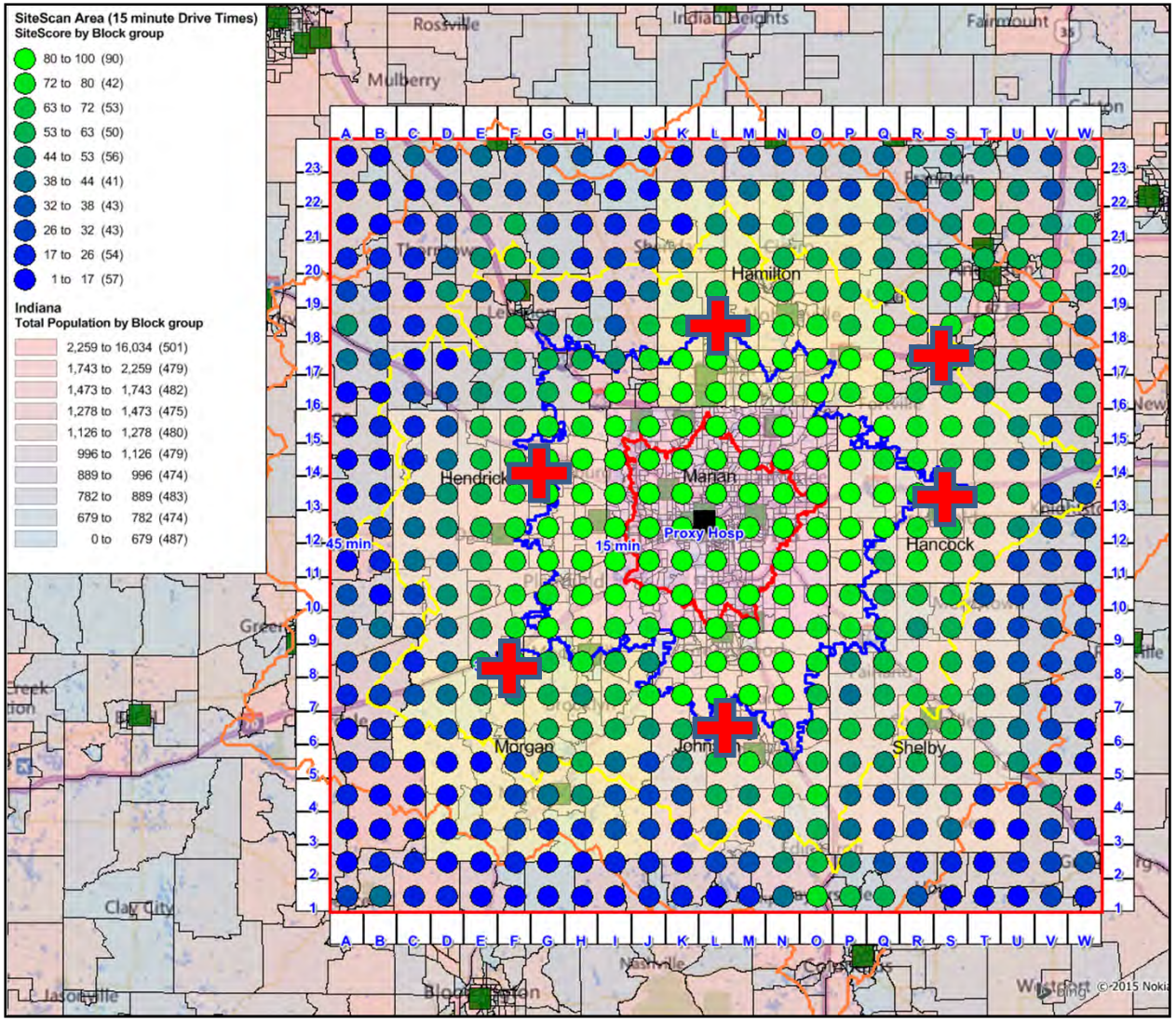
Hospitals/GPS Site
Wo/Proxy Patients…

Drive Time SA Analysis:

15/30/45/60 min cuts

Site Scan: Single Variable

SITE SCORE in/15 min DT



3. Example: Enhanced Mapping

Alternate Location Comparisons

Proxy Hospital:
- ■ Hospital Site
- ✚ Ancillary Locations

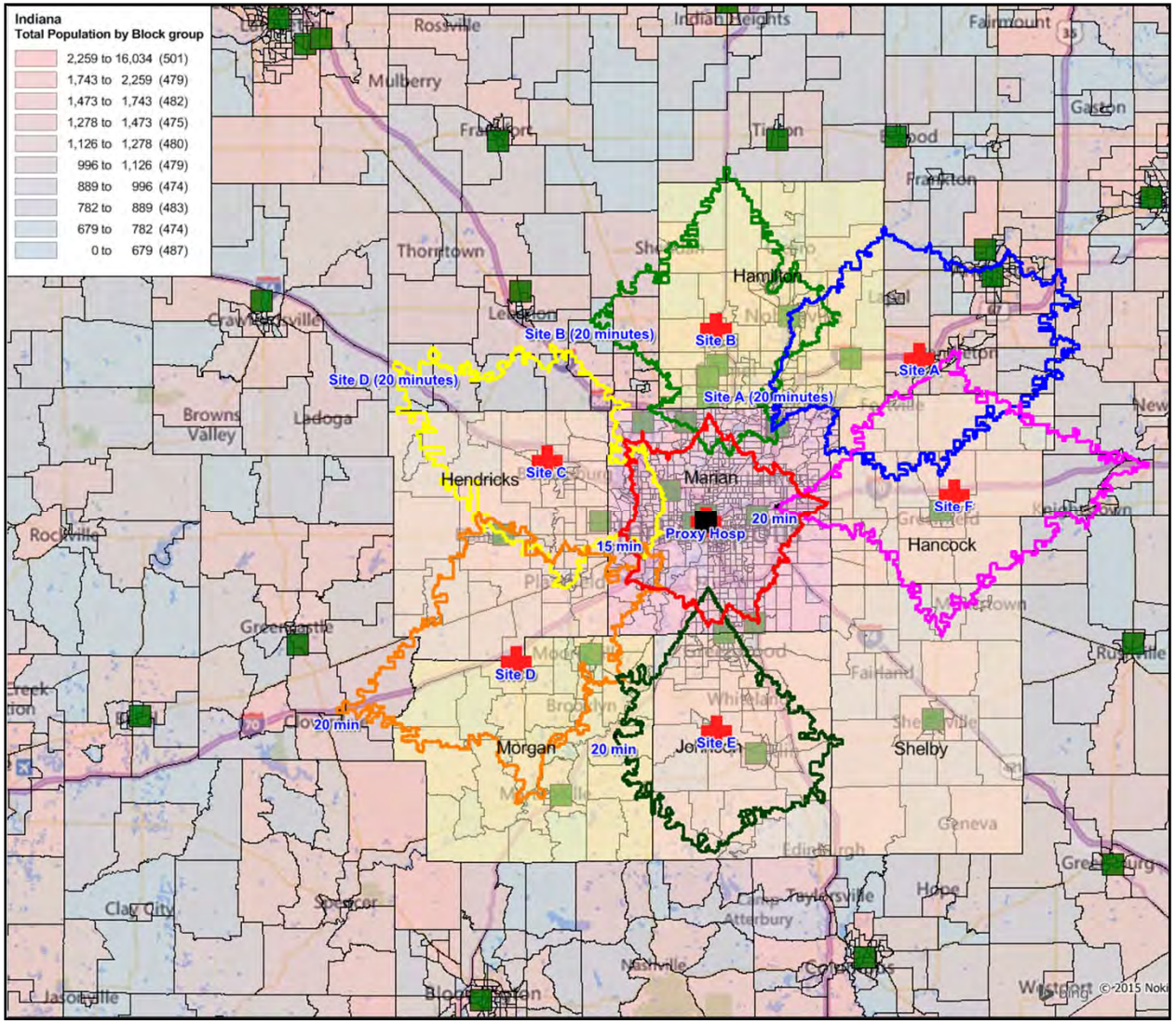
Geo Boundary (Nested):
By County
By Census Blocks

Data / Source:
Pop-All / 2010 Census

Additional Data/Links:
Hospitals/GPS Site
Wo/Proxy Patients…

Drive Time SA Analysis:
15/30/45/60 min cuts

Alternate Site Location Comparisons:
Sites A-F with 20 min DT



3. Example: Enhanced Mapping

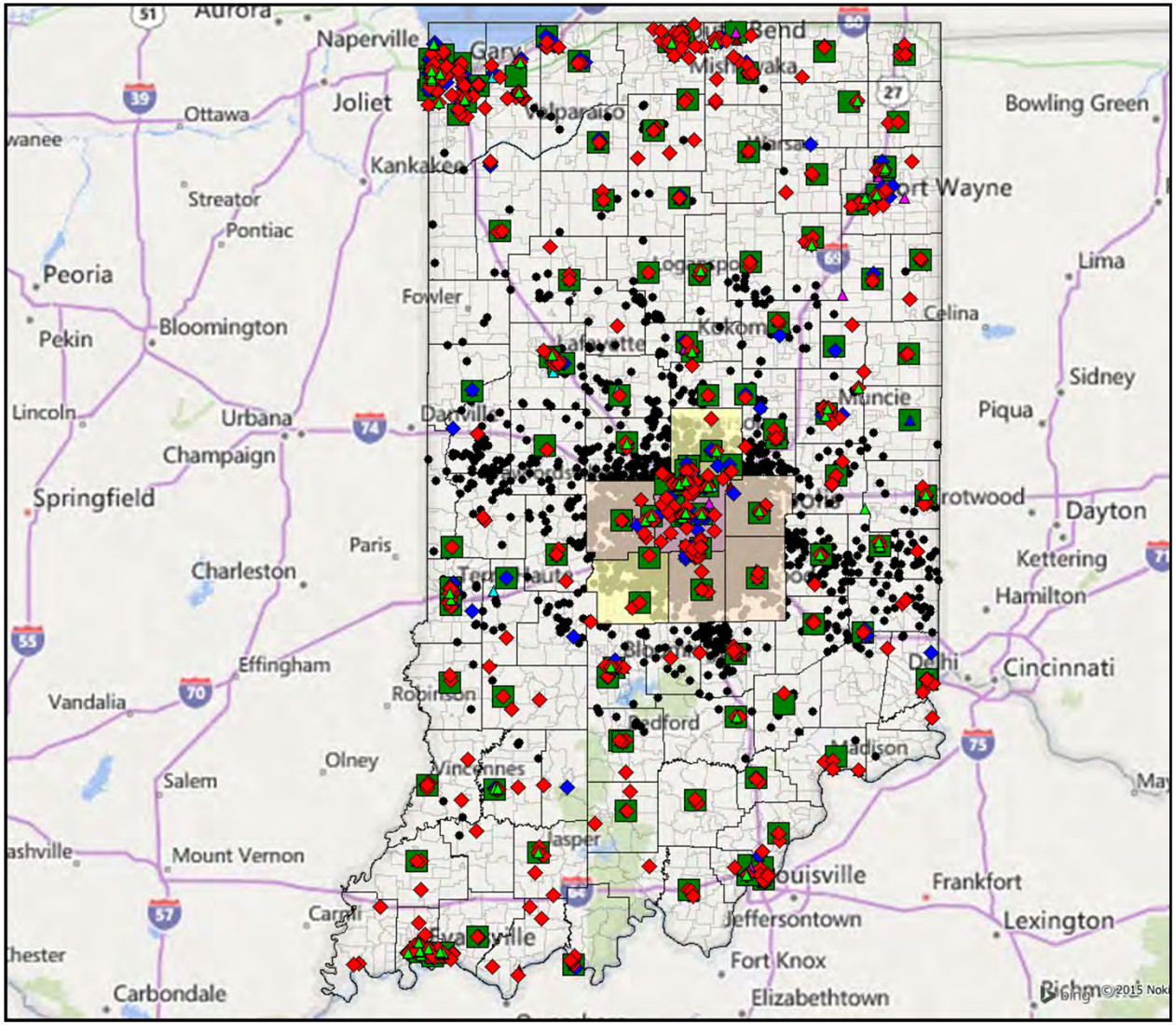
Alternate Location Comparisons

New Category	Proxy Hosp 0 min - 15 min		Site A 0 min - 20 min		Site B 0 min - 20 min		Site C 0 min - 20 min		Site D 0 min - 20 min		Site E 0 min - 20 min		Site F 0 min - 20 min	
		%		%		%		%		%		%		%
2010 Census														
Total Population	**536,111**		**205,628**		**226,343**		**202,386**		**99,173**		**149,670**		**94,899**	
Total Housing Units	257,565		83,231		96,309		85,850		38,713		61,450		37,873	
Occupied	218,676	85%	76,247	92%	89,669	93%	78,682	92%	36,085	93%	56,770	92%	34,726	92%
Owner occupied	114,726		57,342		62,319		51,150		27,376		41,687		24,371	
With a mortgage or a loan	87,034	34%	46,859	56%	50,798	53%	42,078	49%	21,369	55%	33,040	54%	19,225	51%
Owned free and clear	27,692	11%	10,483	13%	11,521	12%	9,072	11%	6,007	16%	8,647	14%	5,146	14%
Renter occupied	103,950	40%	18,905	23%	27,350	28%	27,532	32%	8,709	22%	15,083	25%	10,355	27%
Internal - Facility Metrics														
Proxy Inpatient Count	17,970		473		358		2,491		734		1,076		1,097	
External - Provider Inventory Data														
Hospital Counts	4		1		4		2		2		2		1	
Physicians - Primary Care														
Phy FTEs: FPGP	103		0		3		37		4		3		4	
Phy FTEs: Med	190		0		5		30		2		25		1	
Physicians - Specialists														
Phy FTEs: Cardio	68		0		0		5		0		1		0	
Phy FTEs: Endo	24		0		0		5		0		0		0	
Phy FTEs: Gastro	58		0		0		1		1		0		0	
Phy FTEs: Hem/Onc	42		0		0		2		0		1		0	
Phy FTEs: Neuro	82		0		1		0		0		0		0	
Phy FTEs: Ortho	40		1		0		12		0		6		0	

3. Example: Enhanced Mapping

Data (Map) Site Locations

- **Hospitals**
- **Proxy Patient Locations**
- **Physicians – Primary**
  - **– FPGP**
  - **– Int Med**
- **Physicians – Specialty**
  - **– Endo**
  - **– Gastro**
  - **– Hem/Onc**
  - **– Neuro**
  - **– Ortho**



4. Application

New Analytics for Market Planning

4. Applications

New Analytics in General

What are some new questions you will be trying to answer or new decisions you will need to be making within 5 years?

What kinds of analysis will you need in order to answer these questions and make these decisions?

-
-
-

5. Your Next Steps

New Analytics for Market Planning

5. Your Next Steps

What do I do…

…next week?	…next month?	…next quarter?
Start tuning in:	***Start exploring:***	***Start applying:***
LinkedIn Groups Subscriptions Webinars & Conferences	One new source One new variable Internal & External	Incorporate a new technique into a Business Plan Strategic Plan Market Analysis Service Line Analysis

Comments…

Questions…

Ideas…

New Analytics for Market Planning