

## Illustrated Supplement to the RMA Journal Series

This supplement has been prepared to provide illustrations and charts that could not be included in the RMA Journal articles, subject quantitative vs. traditional market analysis techniques for senior housing evaluation. Skim the contents of this supplement and then read the articles. If there is limited time, start with the third article.

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### The Three Elements of Market Analysis

1. Define the market area boundaries
2. Demand (primarily from demographics)
3. Supply (competing beds)

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#### Traditional Method

1. Used by 99+% of all analysts
2. Arbitrary (guessed) market boundaries
3. Arbitrary (guessed) demand model (“penetration rate” model, normally based on information from outside the market boundary)
4. Usually excellent at supply estimation.

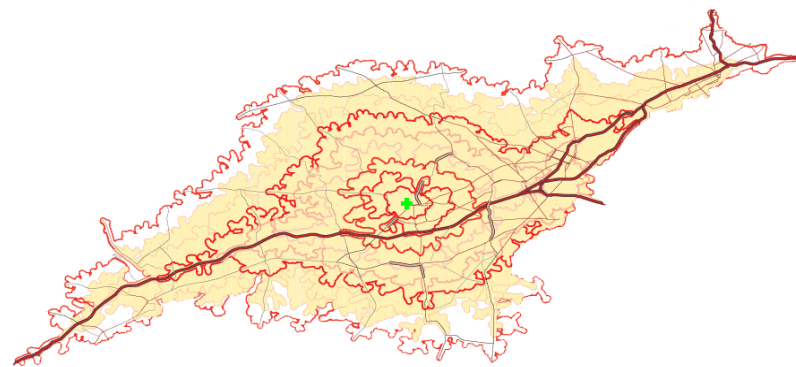
*[Note: almost all traditional analysts say market boundary selection is the most important single part of market analysis, yet they guess at it. Read on.]*

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Traditional Idea of What a  
Market Boundary Looks Like

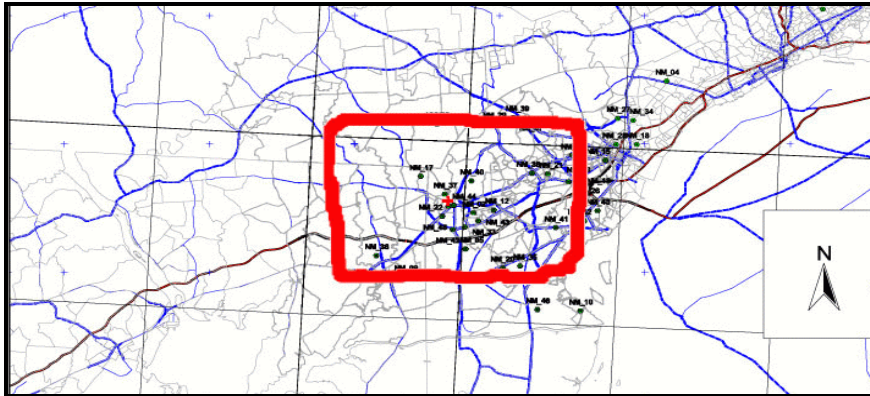


Reality



The reader asks, “What makes you think you know reality?”  
“What is that yellow thing that looks like an amoeba?”

## An Example



This is all the information that traditional analysts have for market selection:

- a site
- a map.

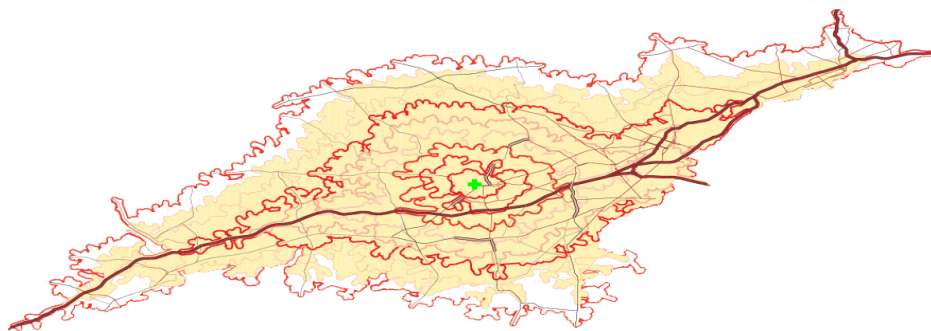
So, they must guess. The standard guess is about ten miles across.

This is an actual market area; the NE-SW Axis is a fast road. The red spot is the site.

A traditional analyst might choose the solid red line as a market boundary, some traditional analysts would describe it as a “physical *and* psychological boundary.”

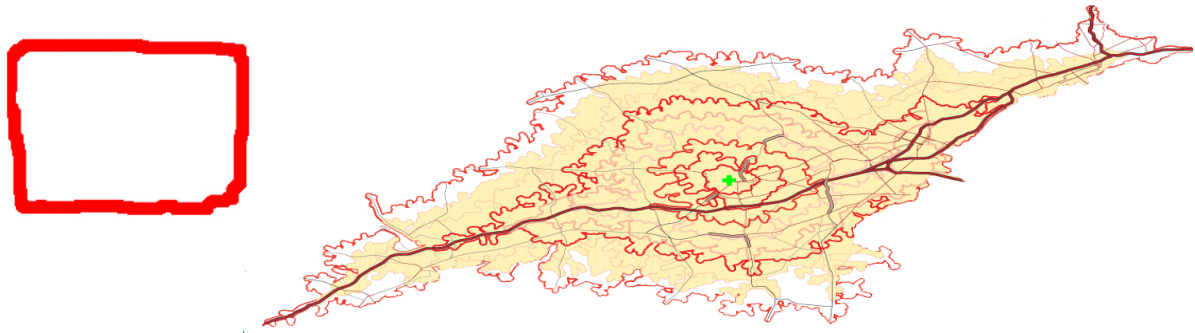
Think about it. **That's nonsense.** It does not use data from within the market area to define the market. It is a guess. How could it be correct?

Here is a better way: Map the site in a fast computer, convert the roads to a network, and solve the network for nine travel time traces. Then plot the sources of the residents.



Now, why is this better?

You must admit, the two conclusions about market boundary certainly are different.

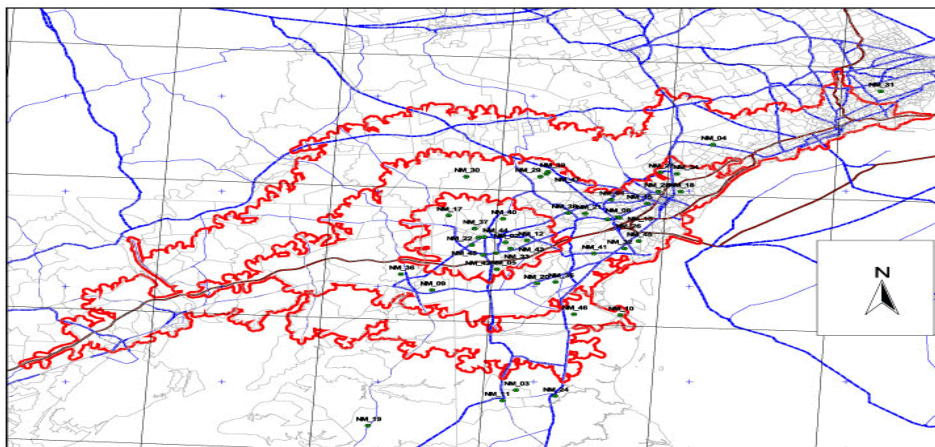


They can't both be right.

How do we know ours is correct? We check it. Here's how.

### Our process (patent pending):

- Locate the site using a computer street map; identify appropriate counties. Then move to a Geographic Information System (GIS).
- Using a GIS system, map the site and all county streets, boundaries (block group, tract, county, place, and appropriate demographics).
- Merge each theme (streets, boundaries) so themes are contiguous.
- Convert the streets to a network with segments as links and intersections as nodes.
- Solve the network for single travel time traces at 5, 10, 15...45 min.
- Those are the red lines, at 15, 30, and 45 minutes.
- Map the residents who come from home. Each one is a green spot.

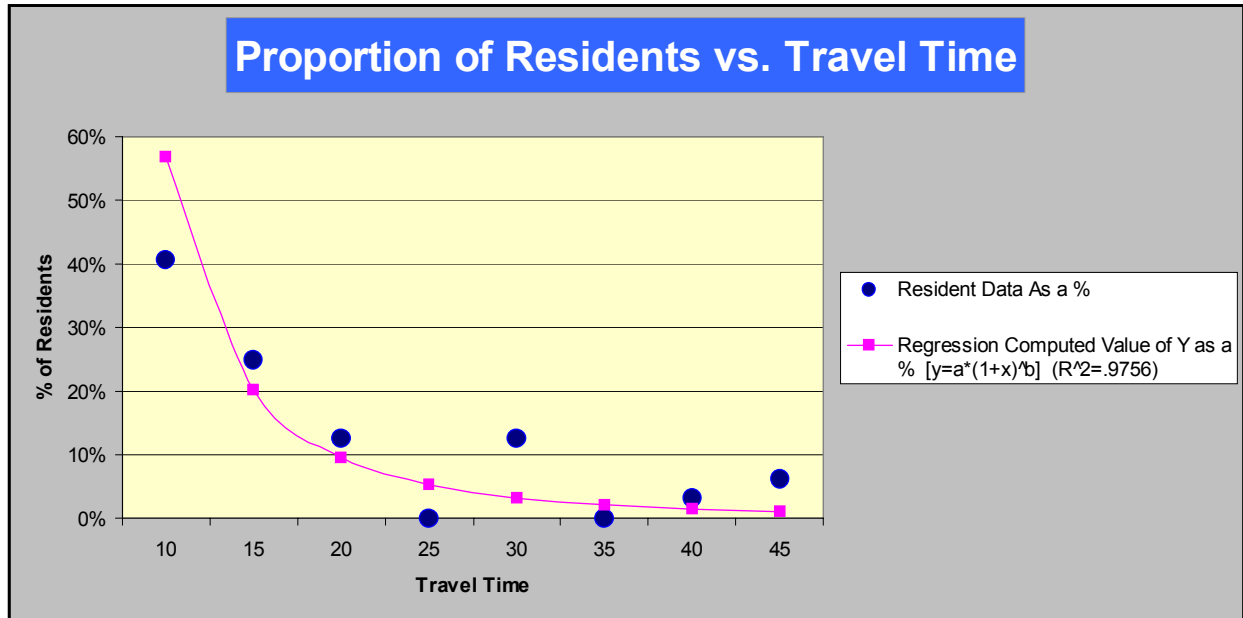


This is not a trivial task, but now, suddenly, we can do more than the obvious.

We now have a travel time associated with each resident who came from home.

Plot the data.

They look like this:



Note three implications of the travel time band technique:

- (1) The technique uses hard data from residents **INSIDE** the market area. [When data are available from inside the market area, one should not hear, "...our experience and our research (from somewhere else) indicate that..."].
- (2) It can describe the distribution of the data within the market area, and therefore:
  - the shape of the market boundary,
  - each of the 5-minute travel time band weights within the market boundary, and
  - the dimensions of the market boundary.
  - **It is not necessary to guess the boundary; it can be computed.**
- (3) The curve,  $y=a(1+x)^b$ , with coefficients  $a=439.00238$  and  $b=-2.75159$ , describes the shape of the data very accurately. It has an  $r^2=.976$ , meaning that this curve **EXPLAINS 97.6% OF THE VARIATION IN THE DATA. If one can compute the boundary, and that boundary can explain 97.6% of the variance, why guess at the market boundary? [Note: the data are adjusted for travel time band area.]**

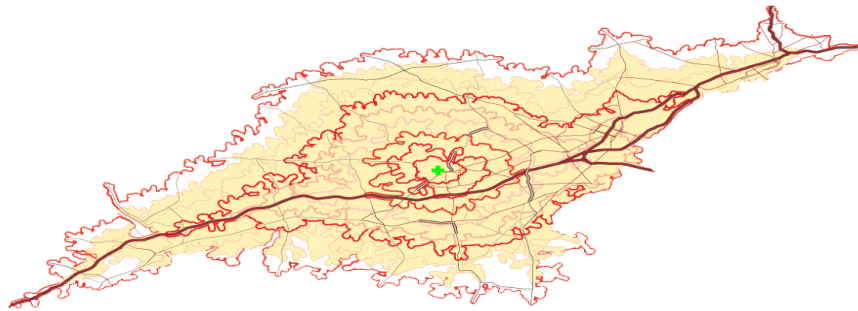
The traditional method, lacking quantitative tools and concepts, can only draw a line and guess.



Rigorous analysis is not a trivial task, nor is it cheap, but it allows us to know a great deal more than a traditional analyst, who must pyramid guess upon guess, never really having a grasp of what is known and what is not. As is often said, “You get what you pay for.”

**Consider one example:** with weighted travel time bands, we can distinguish a competing facility in a 5% band (and weight it 5%) from one next door at 80% (and weight it 80%).

The traditional analyst must consider everything in the red box the same. No distinction can be made about “near vs. far.” This is hardly testimony to a “realistic” analysis.



Now, what else does this allow us to do that is denied the traditional analyst?

- Rigorous comparisons, essential to [appraisals](#).
- Rigorous comparisons, essential to [site valuation analysis for bidding](#).
- Rigorous comparisons, necessary for [area analyses](#).
- Rigorous comparisons, key to [multi-unit simulations for chain purchase or takeover](#).

Recall that market analysis involves

- Market boundary definition (introduced here)
- Demand
- Supply

We use the same rigorous approach to demand analysis and—if the client desires not to take our suggestion that we work with a local traditional analyst—to supply. See article #3.

This ends the supplement to the RMA Journal articles.