

*A Geospatial Approach to Modeling Shopping
Center Locational Efficiency in the San Francisco
Bay Area*

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Model Assumptions

- Both a trade area's absolute income as well as the distribution of income are critical factors in assessing the strength and volatility of a shopping center's cash flow and value; and
- An unknown percentage of all shopping centers are underperforming because they have the wrong tenant mix relative to the trade area's income-influenced demand

Why Bother?

- Retail landscape not smooth:
 - Road Network
 - Zoning
 - Agglomeration Effects
 - Needing to be near or in retail clusters
- Result for an investor:
 - Higher vacancies
 - Lower percent sales
 - Higher cap ex
 - Ultimately lower returns and higher risk

Model Objectives

- Identify center-level competitive landscape based on:
 - Price Point of Shopping Centers
 - Buying Power of Consumers
 - “Fit” of Centers to Trade Areas by Price Point and Competition
- Identify opportunities/gaps:
 - Strongest Centers in Their Trade Areas
 - Centers for Acquisition/Repositioning
 - Development Sites

Two Perspectives on the World

■ Consumer/Demand (Block Group) Perspective:

- How well is demand being met given:
 - Buying power (absolute dollars available to spend)
 - Consumption patterns based on income levels
 - Supply landscape how many, what types, and distance of centers to consumers

■ Center/Supply Perspective:

- What is my trade area?
- How well is my trade area being served?
- Does a center have the right tenants to maximize demand?

■ Bottom Line:

- Are the right centers located in right location given distance weighted supply and demand?

Data

- Shopping Centers (NRB)
- 2004 Demographic Estimates
- geoVue Retail Trade Area Metrics

Assumptions - Supply

■ Key Assumptions

- Supply – 937 shopping centers
- Centers can be classified based on size and tenant quality:
 - Type 1 - 322 (Low-End)
 - Type 2 - 572 (Medium)
 - Type 3 - 43 (High-End)
- Each center type has a maximum drive time based on size
- Final classification reviewed by Grosvenor acquisition and asset management staff

Assumptions - Supply

Drive Times by Center Type

Center Type	Size (1000s SF)	Max Drive Time (minutes)
Neighborhood 1	<50	6
Neighborhood 2	<150	10
Community 1	<250	12
Community 2	<500	16
Mall 1	< 1000	18
Mall 2	1000 +	20

Assumptions - Demand

- Consumer Unit = “Block Group”
 - ~ 4,800 in study area
- Three Block Group categories based on derivative of Block Group median income:
 - Class I – 25% least affluent of all Block Groups
 - Class II – 50% moderate affluence
 - Class III - > 25% most affluent of all Block Groups
- Consumer spending varies by Block Group “Class”
- Each Block Group faces different supply landscape
 - Center types vary
 - Distance to centers varies
- Therefore “Service Levels” vary between Block Groups

Assumptions - Demand

- From the consumer's perspective:
 - Attraction to Center or Maximum Draw (Minutes) by Center Type
 - How far am I willing to drive for a dozen eggs?
 - How far am I willing to drive for a diamond ring?
 - Distance Decay Utility Function:
 - $(1 - (\text{Distance to Center} / \text{Max Distance for Center Type}))$

Shopping Center Service Levels from BG Perspective

$PricePoint_a@BG_j = ? (1 - (\text{Distance to Center}_i / \text{Max Distance for Center Type}_a)) * \log(\text{Distance to Center}_i)$

Where:

$PricePoint_a@BG_j$ = Utility of all Center Type “a”s for the jth Block Group

$\text{Distance to Center centroid}$ = Drive time between Block Group “j” and Center “a” where equals center type

$\text{Max Distance travel to Center Type “a”}$ = Maximum time consumers will

Center Type_a = Center Type 1, 2, 3 (Low, Medium, High)

Consumption Patterns Are Assumed to Vary By Income

■ Spending Patterns

- Theory based on judgment (geoVue and Gold)
- Percent Spend by Affluence and Center Price Point

		Center Price Point		
		Low	Medium	High
Low		50	40	10
Medium		25	50	25
High		10	50	40

Model Schematic – BG Perspective

- Utility of any shopping center to any BG in the study area
- Affluence of any BG based on BG's median income and income distribution:
 - Low, medium, or high
- Retail expenditures per household in BG
- Total households in BG
- Distribution of shopping center expenditures by consumer affluence by BG type
- Retail expenditures per household by consumer affluence by BG:
 - Absolute values
 - Indexed values scaled to Bay Area
- Service level of all value, medium, and high-end shopping centers to any BG:
 - Absolute values
 - Indexed values scaled to Bay Area

Model Schematic – Center Perspective

- Utility of any BG to any shopping center for each shopping center type based on center's GLA and maximum drive time
- Utility weighted retail expenditures by affluence (low, medium, high) from any BG to any shopping center/location for each center type
- Opportunity Index by shopping center price point
 - Absolute values
 - Scaled to Bay Area average
 - Clustered and ranked from 1 to 6 (1 = lowest rating)

Opportunity Indices

Bay Area Shopping Center Opportunity Indices Summary Statistics by Shopping Center Type

	Raw Opportunity Indices			Scaled Opportunity Indices		
	Value	Mid	High	Value	Mid	High
Average	.27	.36	.37	0.00	0.00	0.00
Std Dev	.19	.16	.18	1.00	1.00	1.00
Max	.74	.99	1.00	2.55	3.86	3.54
Min	.00	.00	.00	-1.45	-2.22	-2.05

The average and standard deviation for the scaled values are the result of Z-Scoring the raw data.

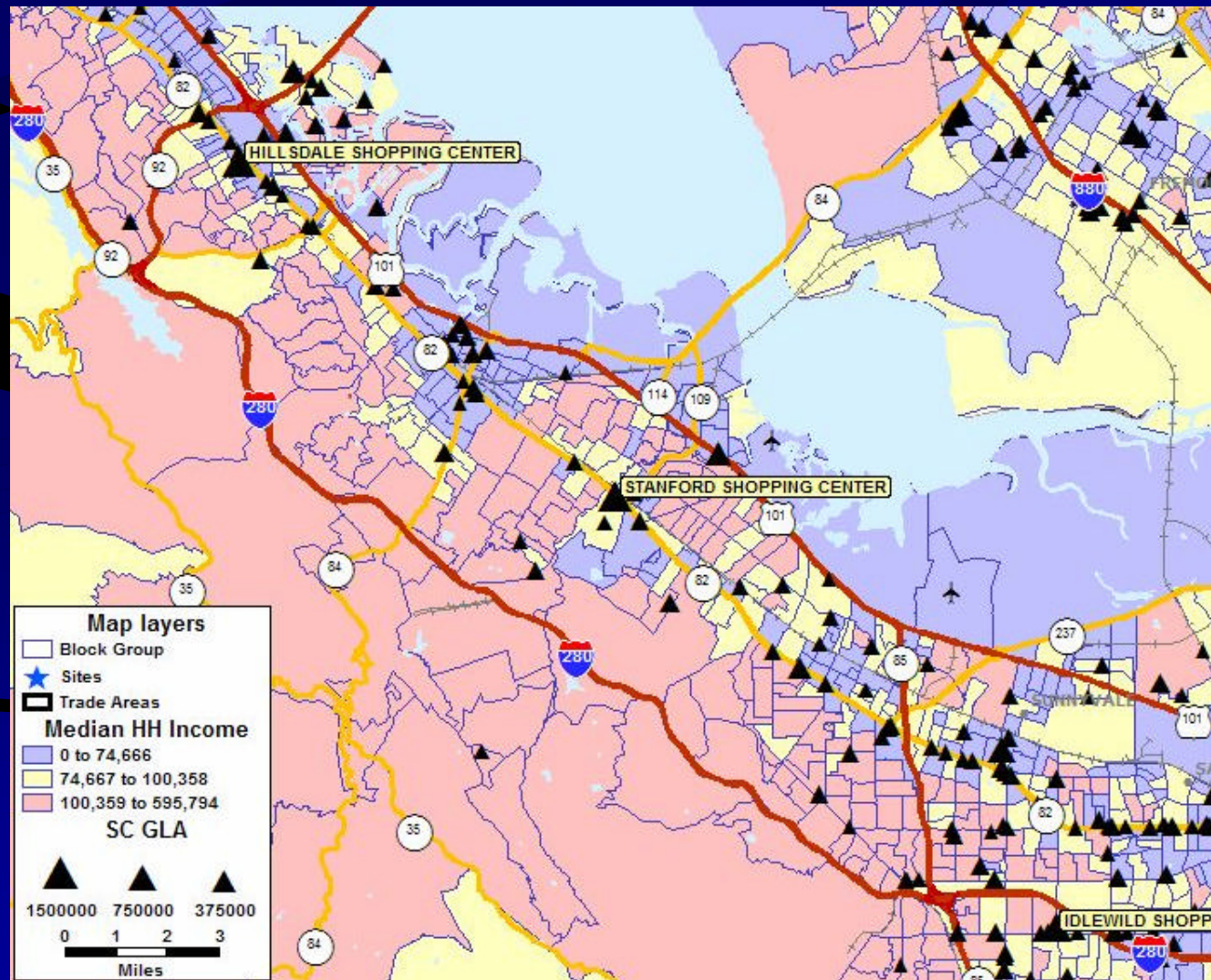
Cluster Group 5 and 6 Opportunities

Nine Value Centers Fell Into the
2 Top High-End Clusters But No
Existing High-End Centers Did!

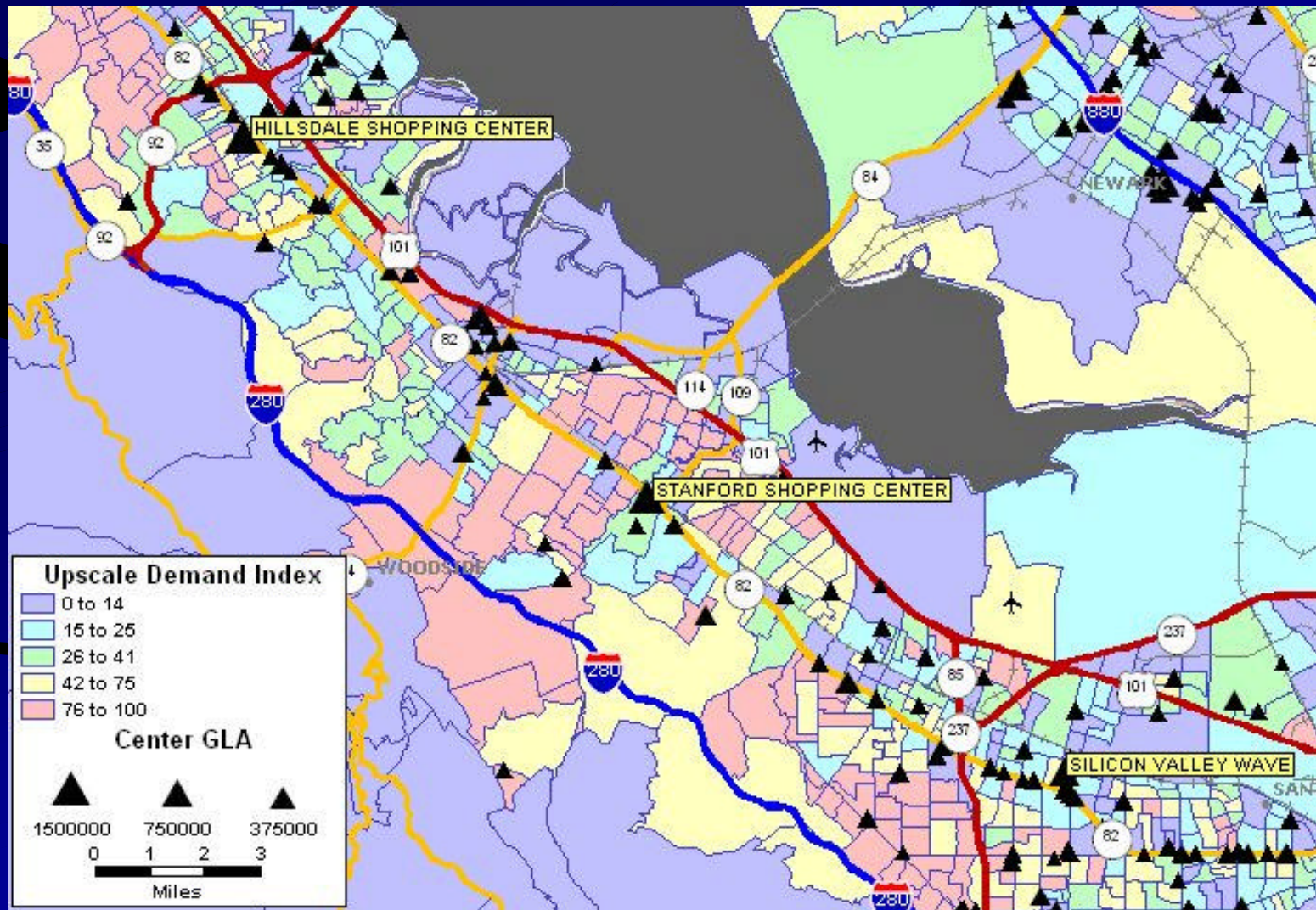
C.G. 5 or 6*	Current Classification		
	Value	Mid	High
Value	18	61	2
Mid	19	39	0
High	9	31	0

*Cluster Group 5 or 6 - Top Opportunity Index

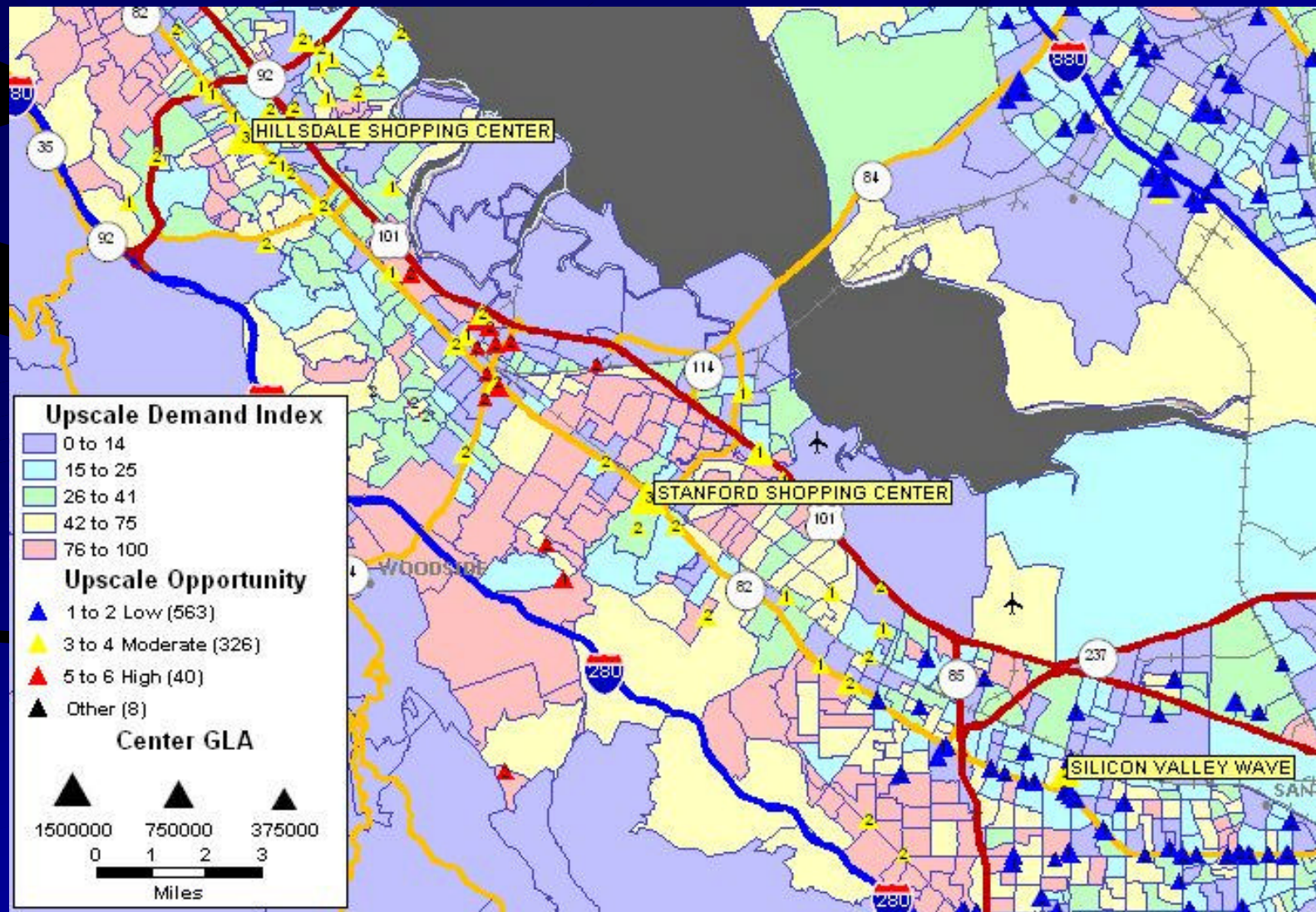
Traditional Shopping Center Analysis



Index of High-End Potential by BG



Putting It All Together - High-End Opportunities in Existing Centers



Conclusions

- Not all locations are serviced equally
- Locational inefficiencies exist:
 - More opportunities to go “upscale”
 - But not all upscale centers enjoy “upscale” competitive environments
- Therefore:
 - Clusters of similar type BG’s are not sufficient for guaranteeing success
 - Need to discriminate based on both available demand and supply
 - Cap Ex cannot change underlying supply and demand fundamentals