

- IMPACTS ON RESIDENTIAL PROPERTY VALUES
- MAC CORMACK PAIRED SALES ANALYSIS REPORT
- GOMAN+YORK “LAND USE AND IMPACT TO PROXIMATE PROPERTIES” REPORT
- IMPACT OF ENVIRONMENTAL DISAMENITIES ON RESIDENTIAL PROPERTY VALUES
- CONCLUSIONS

WHAT FACTORS INFLUENCE PROPERTY VALUES?

1. LOCATION

2. CHARACTERISTICS OF THE HOME (Style, age, square footage, size of lot, # beds and baths, heating and cooling, outbuildings)

3. CONDITION (updates, mechanicals, quality of construction)

4. UPGRADES/AMENITIES (pools, spas/hot tubs, fenced yards, bonus living space)

5. MARKET CONDITIONS (supply and demand, interest rates)

6. INTANGIBLES (buyers' perception of location, uncertainty or instability in local market conditions)

LOCATION is primary focus of buyer's decision to purchase and how much they are willing to pay. Locations are best characterized by the amenities and/or disamenities specific to that location.

AMENITIES would include things that add value to a location such as a pleasant, walkable neighborhood, a quality school system, proximity to parks or open spaces, access to basic needs such as grocery stores and restaurants.

DISAMENITIES would commonly be viewed as negative externalities such as noise, traffic, odors and crime. Depending on the intensity and frequency these can range from a mere nuisance to a disruption in the ability to enjoy one's home entirely. Visual disamenity is often created by incompatible land uses and can temporarily or permanently diminish value. Environmental disamenities are the most concerning to buyers and the most impactful on home prices. These would include air quality degradation, traffic congestion, vibration and noise from blasting, and potential damage to human health and safety.

Locations that are impacted by environmental disamenities create a "stigma" for at least some nearby properties. *The Dictionary of Real Estate Appraisal* defines stigma as "An adverse public perception regarding a property with some type of opprobrium (environmental contamination, a grisly crime) which exacts a penalty on the marketability of the property and hence its value"

A variety of land uses may create stigma including, but not limited to, heavy industrial operations that are associated with environmental disamenity. Rock quarries are heavily represented in the literature that studies these effects on property values along with landfills, airports, and hazardous waste facilities.

The question before the Commission is whether the application before you will impact property values in the surrounding residential zone.

WHAT IS THE MOST APPROPRIATE METHOD FOR DETERMINING THE IMPACT OF THIS APPLICATION ON PROPERTY VALUES IN GALES FERRY?

The applicant has provided an Impact Study by a commercial real estate appraiser from Brooklyn, CT and a paper titled “Land Use and Impact to Proximate Properties” from GOMAN +YORK by Planner Donald J. Polland and I will discuss each of those.

The three methodologies for determining proximity impact by incompatible land uses are:

- 1. Comparable Sales Analysis**
- 2. Difference-in-Difference**
- 3. Hedonic Pricing Model**

DIFFERENCE-IN-DIFFERENCE (D-I-D)

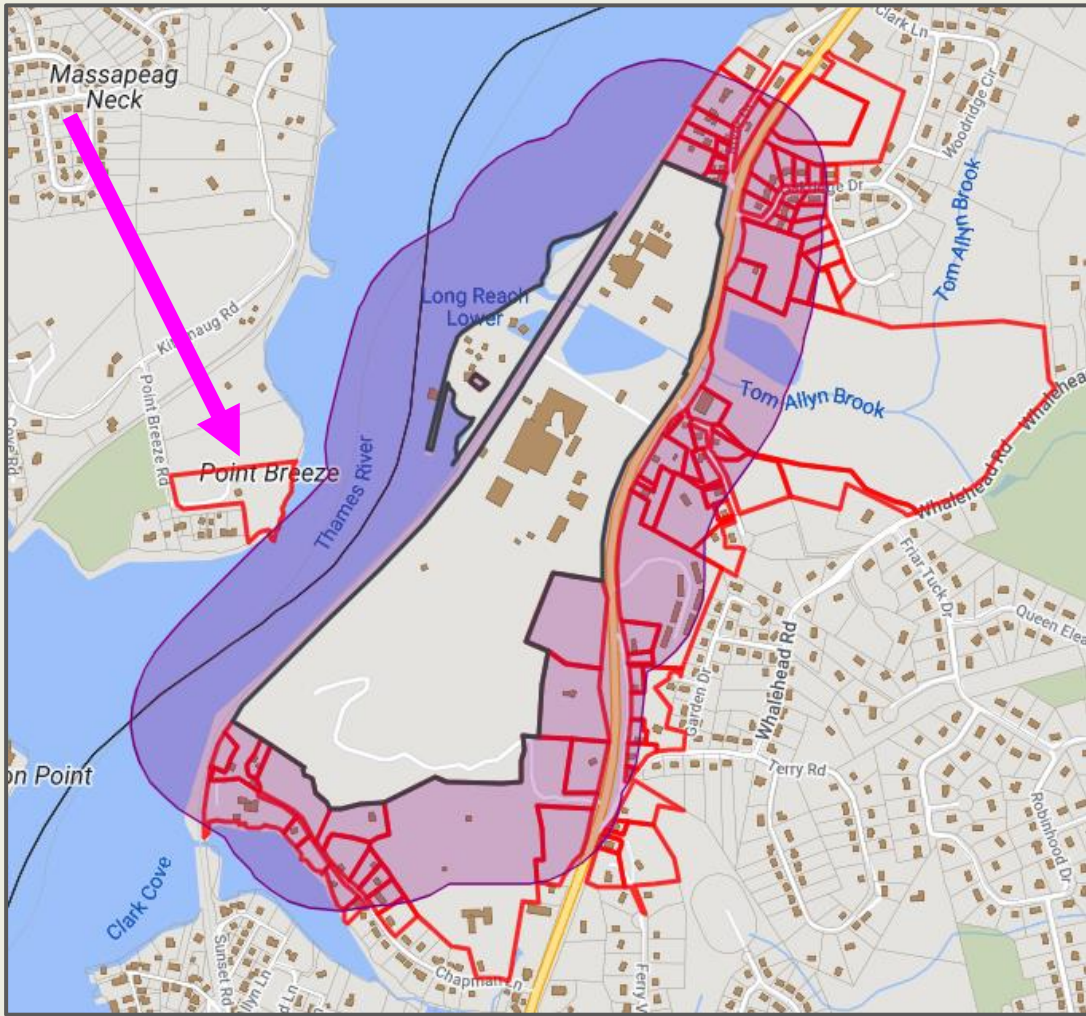
The study of property values before and after the introduction of a variable to establish the impact of the variable. For this application it would require finding a residential community comparable to Gales Ferry, a quarrying operation comparable to the one described in the application, a similar distance between the two incompatible land uses and access to home sales for a period before and after.

PAIRED SALES ANALYSIS

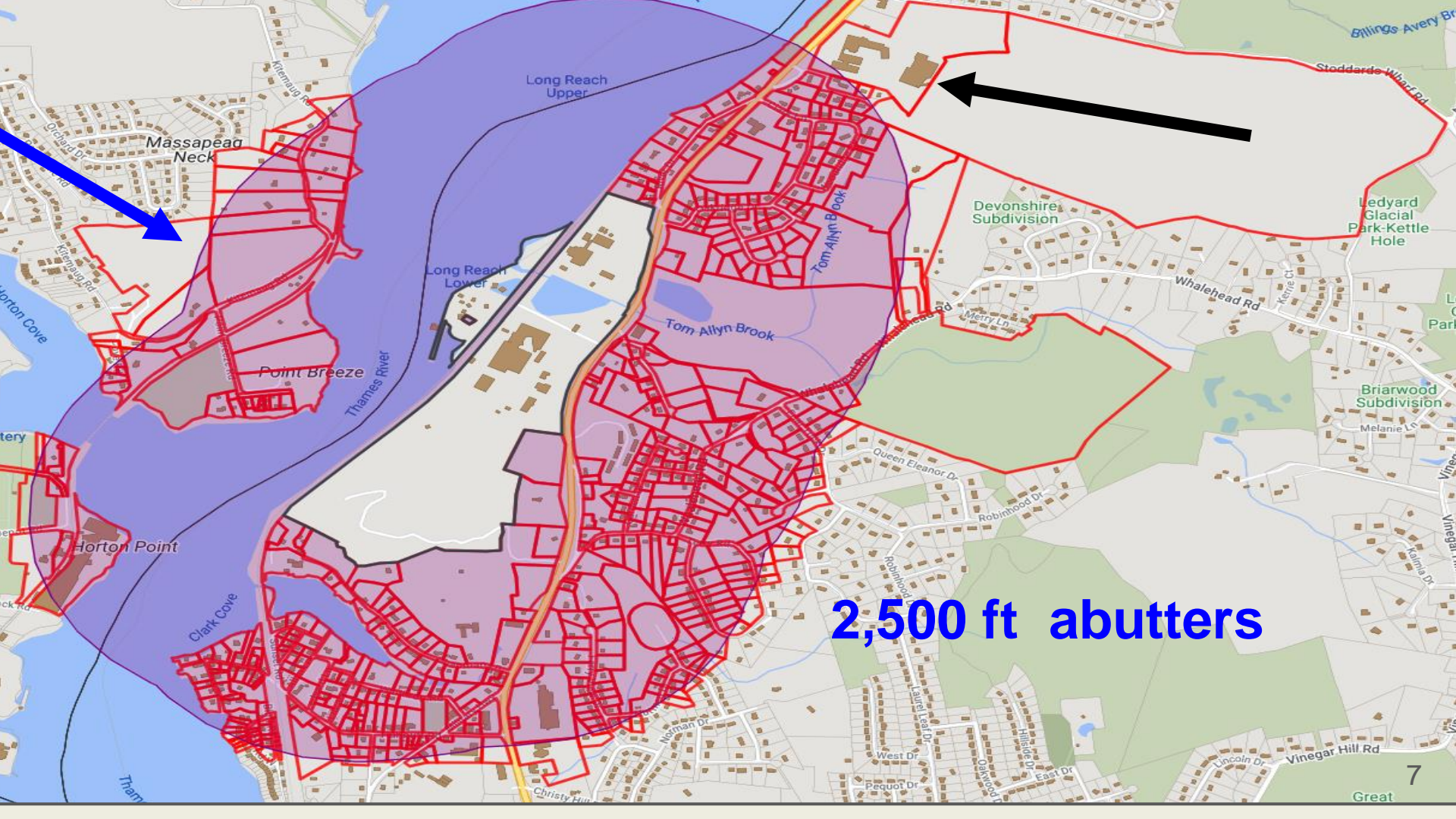
Comparing similar properties, with a distinct dissimilar feature, to establish the value of that feature. All other characteristics of the properties must be accounted for to isolate that one feature accurately. This is done by making adjustments reflecting an accurate value of each characteristic in the specific market at the time.

HEDONIC PRICING MODEL

A quantitative, statistical analysis, using a regression technique to isolate the impact of a single variable on the value of a product. It is the most commonly used world-wide methodology to study the impact of proximity to environmental amenities or disamenities on residential communities.



750 ft abutters



Massapean Neck

Point Breeze

Horton Point

Long Reach Upper

Long Reach Lower

Tom Allyn Brook

Devonshire Subdivision

Ledyard Glacial Park-Kettle Hole

Briarwood Subdivision

2,500 ft abutters

SUMMARY OF COMPARABLES
Thompson, CT
Rock Quarry @ 307 Reardon Road

#	Location Address House Style	Sale Date	Size (SF)	Sale Price	Price / SF	Yr. Built Cond.	Bdrms / Baths	Bsmt. / Garage	Wood Deck Chimney	Land (Acres)	Adj. Price/SF
1	346 Reardon Road Cape Cod	2/27/23	1,487	\$410,000	\$275.72	1988 Avg.	3 / 2	986 SF UF 575 SF G	368 SF 1	2.50 Level	\$317.08
2	320 Reardon Road Raised Ranch	12/16/22	2,068	\$395,000	\$191.01	1974 Avg.	4 / 2.5	1,496 SF PF 572 SF G	Patio 0	1.90 Level	\$219.66
3	76 Border Trail Ranch	1/19/24	1,674	\$363,600	\$217.20	1963 Avg.	3 / 2	1,674 SF PF No Gar.	No Deck 0	7.60 Level	\$217.20
4	170 Ballard Road Colonial	1/10/24	1,997	\$375,000	\$187.78	1805 Av.-Gd.	4 / 2	832 SF UF No Gar.	192 SF 0	1.91 Level	\$197.17
5	62 Red Bridge Road Colonial	12/22/23	1,836	\$265,000	\$144.34	1929 Avg.	3 / 1.5	484 SF UF No Gar.	320 SF 1	1.60 Level	\$165.99
6	32 Townes Lane Conventional	12/5/23	1,371	\$205,000	\$149.53	1880 Avg.	2 / 1	740 SF UF 1,428 SF G 320 SF Barn	257 SF 0	4.00 Level	\$134.58
7	266 Fabyan Road Ranch	10/27/23	1,902	\$265,000	\$139.33	1971 Avg.	5 / 1	720 SF UF 320 SF G	40 SF 0	4.99 Level	\$139.33
8	38 Sand Dam Road Cape Cod	10/24/23	1,359	\$405,000	\$298.01	1940 Avg.	2 / 2	486 SF UF 621 SF G	192 SF 0	1.50 Level	\$312.91
9	90 Hagstrom Road Ranch	10/11/23	1,494	\$330,000	\$220.88	1956 Avg.	2 / 1	1,062 SF UF 240 SF G 855 SF Barn	Patio 0	4.00 Sloping	\$220.88
10	59 Quaddick Road Split Level (Brick)	8/31/23	1,760	\$430,000	\$244.32	1969 Av.-Gd.	3 / 2	1,188 SF UF 520 SF G	EF Porch 1.5	4.21 Level	\$232.10
11	199 Thompson Road Ranch	8/25/23	864	\$292,900	\$339.00	1987 Avg.	3 / 1.5	864 SF PF 880 SF G	Patio 0	1.85 Level	\$322.05

Analysis of Comparables

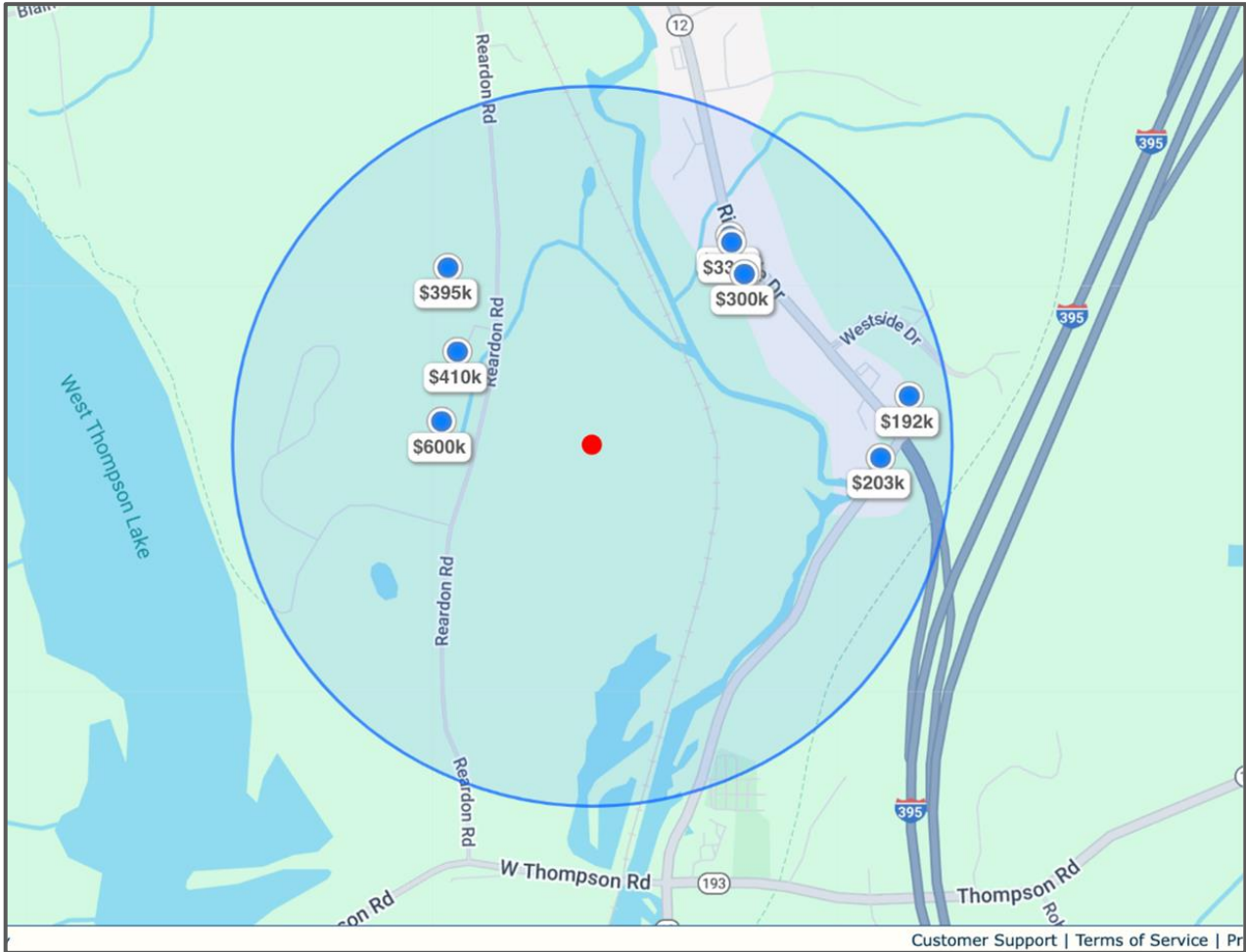
The rock quarry house Sales 1 & 2 are cape cod style and raised ranch style houses respectively as compared to cape cod, ranch, split level, conventional and colonial style homes as shown for our comparable house Sales 3-11. For proper comparison, the smaller home sizes similar to Sale 1 should have 3 bedrooms and the larger size home sizes similar to Sale 2 should have 4 bedrooms; otherwise, an adjustment will be made in our analysis. Since Sales 1 & 2 occurred 6-13 months prior to our comparables house sales, a 15% upward adjustment to account for appreciation in the market is applied to the sale price / SF of Sales 1 & 2 in the last column to allow for proper comparison.

Sales 4 & 10 are in average to good condition requiring a slight downward adjustment to each as compared to Sales 1 & 2's average condition. Sales 5, 6, 8 & 9 require upward adjustments for their lack of an extra bedroom as compared to Sales 1 & 2. Sale 7 needs a downward adjustment for its extra bedroom. Sales 5-7, 9 & 11 warrant upward adjustments for less bathroom area. Sales 4, 5 & 7 need upward adjustments for their inferior basement finish. Sales 3-5 require upward adjustments for lack of garage space. Sales 6 & 9 need downward adjustments for their extra barn area and/or larger garage area. Sale 1 is given an upward adjustment for its lack of a wood deck. Sales 3, 4, 6-9 & 11 warrant upward adjustments for their lack of a fireplace. Sale 10 requires a slight downward adjustment for its extra fireplace opening. Sales 3, 6, 7, 9 & 10 need downward adjustments for their larger lot sizes. Sale 9 warrants an upward adjustment for its inferior sloping topography making site use more difficult.

Please note, the appraiser has added up all of the upward and downward adjustments for each comparable house sale and has rounded the aggregate of the adjustments between 5-15% and then has multiplied that upward or downward inverse percentage (i.e.: -10% = .90 or +10% = 1.10) by the original comparable house sale price / SF to arrive at the adjusted sale price / SF in the last column. After applying the aggregate adjustments, the comparable house Sales 3-11 have an adjusted price / SF ranging from \$134.58/SF to \$322.05/SF. The rock quarry house Sales 1 & 2 have an adjusted price / SF (after a 15% upward adjustment to account for appreciation since they sold 6-13 months prior to our comparable house sales) of \$317.08/SF and \$219.66/SF respectively in the upper part of the range just below the highest Sale 11 at \$322.05/SF. This indicates that the abutting rock quarry does not appear to have any negative impact on the property values of Sales 1 & 2.

ANALYSIS SUMMARY CONCLUSION

After applying appropriate adjustments to each of the comparable house sales and after careful analysis of the adjusted price / SF of each sale in relation to the rock quarry house Sales 1 & 2, it is the appraiser's opinion that the abutting rock quarry at 307 Reardon Road has no negative impact on the market value of the rock quarry house sales located at 320 Reardon Road and 346 Reardon Road in Thompson, CT.



SUMMARY OF COMPARABLES

Putnam, CT

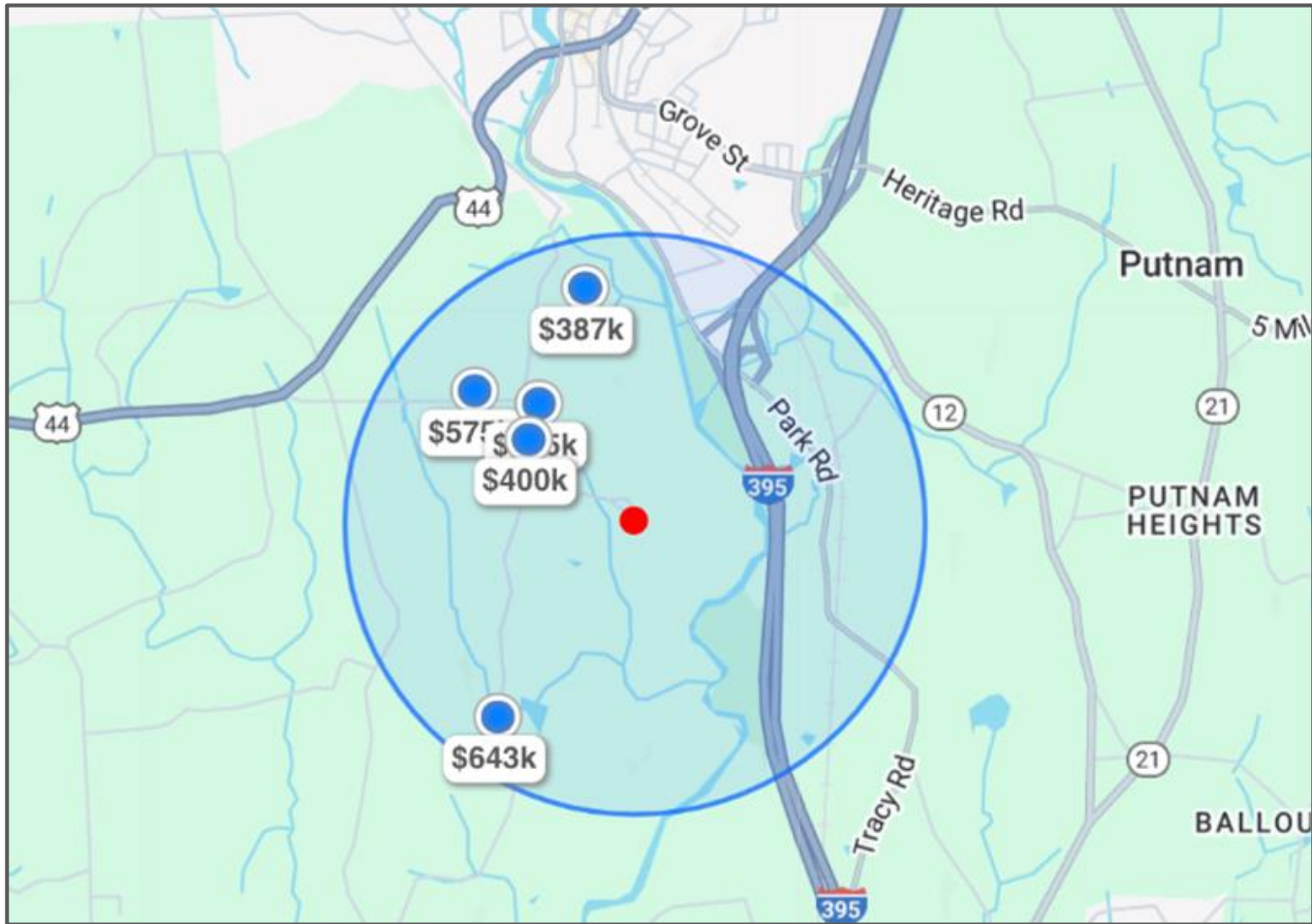
Rock Quarry @ 150 Technology Park Drive (79 Town Farms Road)

#	Location Address House Style	Sale Date	Size (SF)	Sale Price	Price / SF	Yr. Built Cond.	Bdrms / Baths	Bsmt. / Garage	Wood Deck Chimney	Land (Acres)	Adj. Price/SF
1	10 River Road Victorian	10/11/22	2,361	\$387,000	\$163.91	1870 Good	4 / 2.5	1,296 SF UF No Gar. 960 SF Barn	105 SF 1	3.10 Level	\$188.50
2	341 River Road Colonial with Cottage	8/11/23	3,860	\$643,000	\$166.58	1726 V. Gd.	5 / 4.5	1,504 SF UF 672 SF G 1,920 SF Barns 608 SF Shed	Patio 8	13.34 Sloping	\$166.58
3	8 Genevieve Street Conventional	1/17/24	2,064	\$370,000	\$179.26	1867 V. Gd.	4 / 2	1,032 SF UF No Gar.	108 SF 0	0.30 Level	\$197.19
4	4 Genevieve Street Conventional	12/14/23	2,180	\$325,000	\$149.08	1867 Avg.	4 / 1.5	964 SF UF 209 SF	120 SF 0	0.17 Level	\$163.99
5	43 Five Mile River Rd. Split Level	11/17/23	2,060	\$450,000	\$218.45	1963 Good	3 / 3.5	364 SF UF 576 SF G 540 SF Shed	256 SF 1	2.71 Level	\$229.37
6	84 Aspinock Road Raised Ranch	11/17/23	2,794	\$215,000	\$76.95	1979 Fair	5 / 2	120 SF UF No Gar. 200 SF Barn	704 SF 0	2.27 Level	\$92.34
7	22 Underwood Road Conventional	10/30/23	3,024	\$215,000	\$71.10	1860 Fair	6 / 2.5	1,392 SF UF No Gar.	184 SF 0	0.59 Level	\$85.32
8	225 School Street Conventional	7/28/23	2,514	\$330,000	\$131.26	1900 Avg.	4 / 1.5	1,010 SF UF 360 SF G	180 SF 1	0.23 Level	\$144.38

\$85.32/SF to \$229.37/SF. The rock quarry house Sales 1 & 2 have an adjusted price / SF (after a 15% upward adjustment for Sale 1 to account for appreciation since it sold 9-13 months prior to our comparable house sales) of \$188.50/SF and \$166.58/SF respectively in the middle to upper end of the range just below the second highest Sale 3 at \$197.19/SF. This indicates that the abutting rock quarry does not appear to have any negative impact on the property values of Sales 1 & 2.

ANALYSIS SUMMARY CONCLUSION

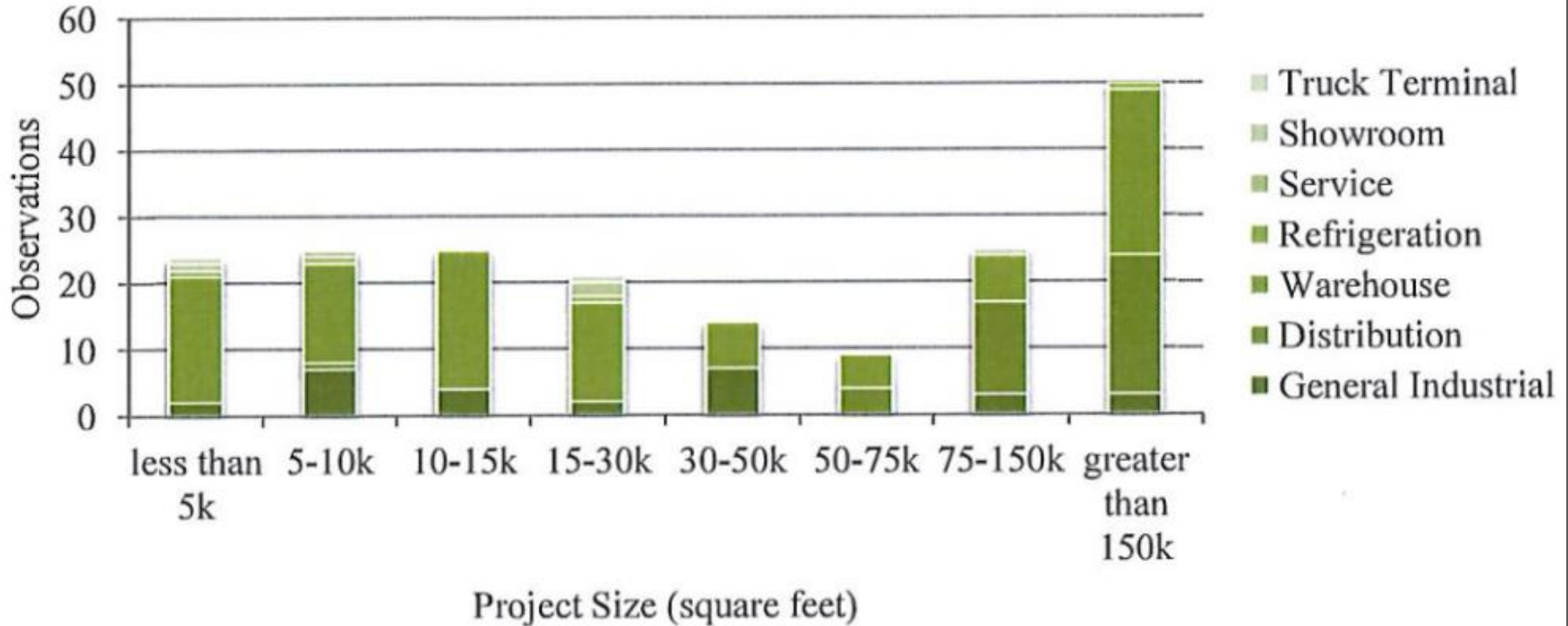
After applying appropriate adjustments to each of the comparable house sales and after careful analysis of the adjusted price / SF of each sale in relation to the rock quarry house Sales 1 & 2, it is the appraiser's opinion that the abutting rock quarry at 150 Technology Park Drive (aka 79 Town Farms Road) has no negative impact on the market value of the rock quarry house sales located at 10 River Road and 341 River Road in Putnam, CT.



FINAL OPINION CONCLUSION

After making a complete analysis of all three charts and considering the results of the findings that indicate that the proximity of the rock quarries to the rocky quarry house sales showed no obvious negative impact on their market values, it is the appraiser's final opinion that the proposed 40+/- Acres Rock Excavation Project at 1737-1761 Route 12 in Gales Ferry, CT as of February 7, 2024 will **not** have a negative impact on the real estate market values in the Town of Ledyard.

A. Sample of Industrial Developments



The Impact of Commercial Development on Surrounding Residential Property Values
(Jonathan A.Wiley, PhD, April 2015)

Figure 4. Estimated Price Impact following New Commercial Development

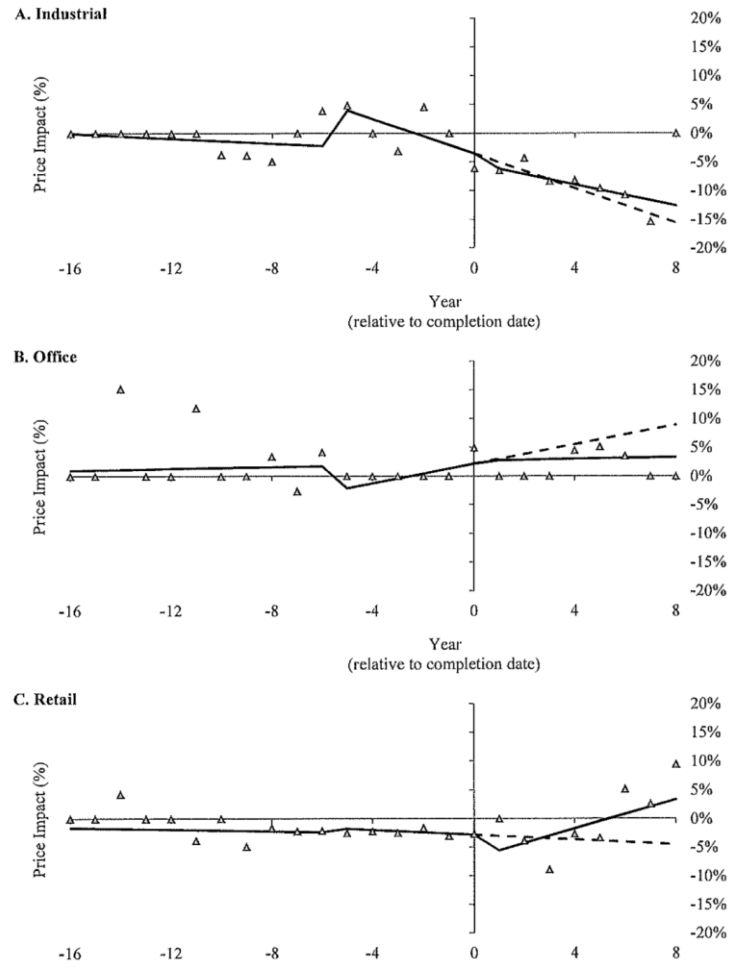
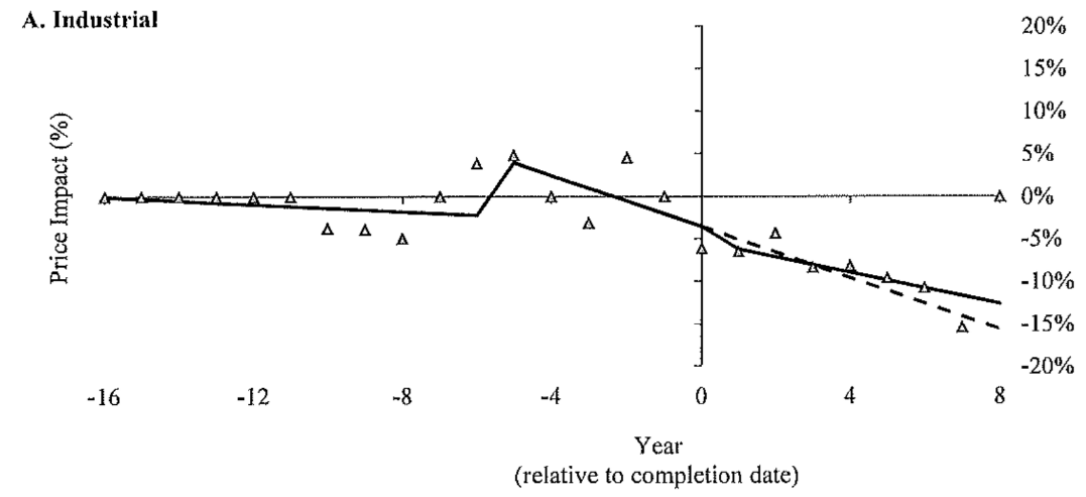


Figure 4. Estimated Price Impact following New Commercial Development



The Impact of Commercial Development on Surrounding Residential Property Values (Jonathan A.Wiley, PhD, April 2015)

Study Findings in Sevelka (2022)

1 “MINE (QUARRY OPERATIONS) ARE A DISAMENITY THAT WOULD HAVE A NEGATIVE IMPACT ON PROPERTY VALUES RANGING FROM A 7.5% TO 36% DISCOUNT “BASED ON DISTANCE FROM THE MINE” (18,941 homes)

(The Impact of Hard Rock and Gravel Mines on House Prices in Upstate New York, June 2015)

2. “A RESIDENTIAL PROPERTY LOCATED A HALF MILE FROM THE GRAVEL MINE WOULD EXPERIENCE AN ESTIMATED 20 PERCENT REDUCTION IN VALUE; ONE MILE, A14.5 % REDUCTION; 2 MILES...8.8% AND 3 MILES A 4.9% REDUCTION. THESE ESTIMATES ARE SIMILAR TO ESTIMATES PUBLISHED IN ACADEMIC JOURNALS ON THE EFFECT OF LANDFILLS ON NEARBY PROPERTY VALUES.

(An Assessment of the Economic Impact of the Proposed Stoneco Gravel Mine Operation on Richland Township W.E. Upjohn Institute 2006) (1400 homes)

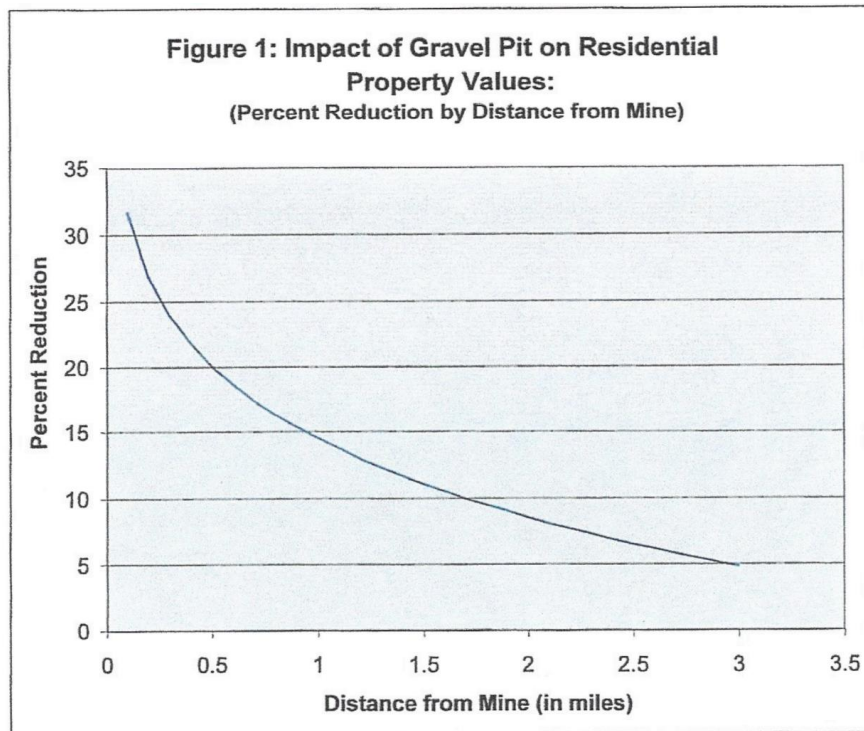
3. “THE STUDY FOUND THAT RESIDENTAIL PROPERTIES WITHIN 1.2 MILES...TRADE AT 20% TO 30% DISCOUNT TO SIMILAR RESIDENTIAL PROPERTIES LOCATED AT LEAST 4.3 MILES FROM THE PIT” (21,850 homes)

(Impacts of Mining on Property Values in Western Australia, Kolala C, Polyakov, M. Fogarty (2020)

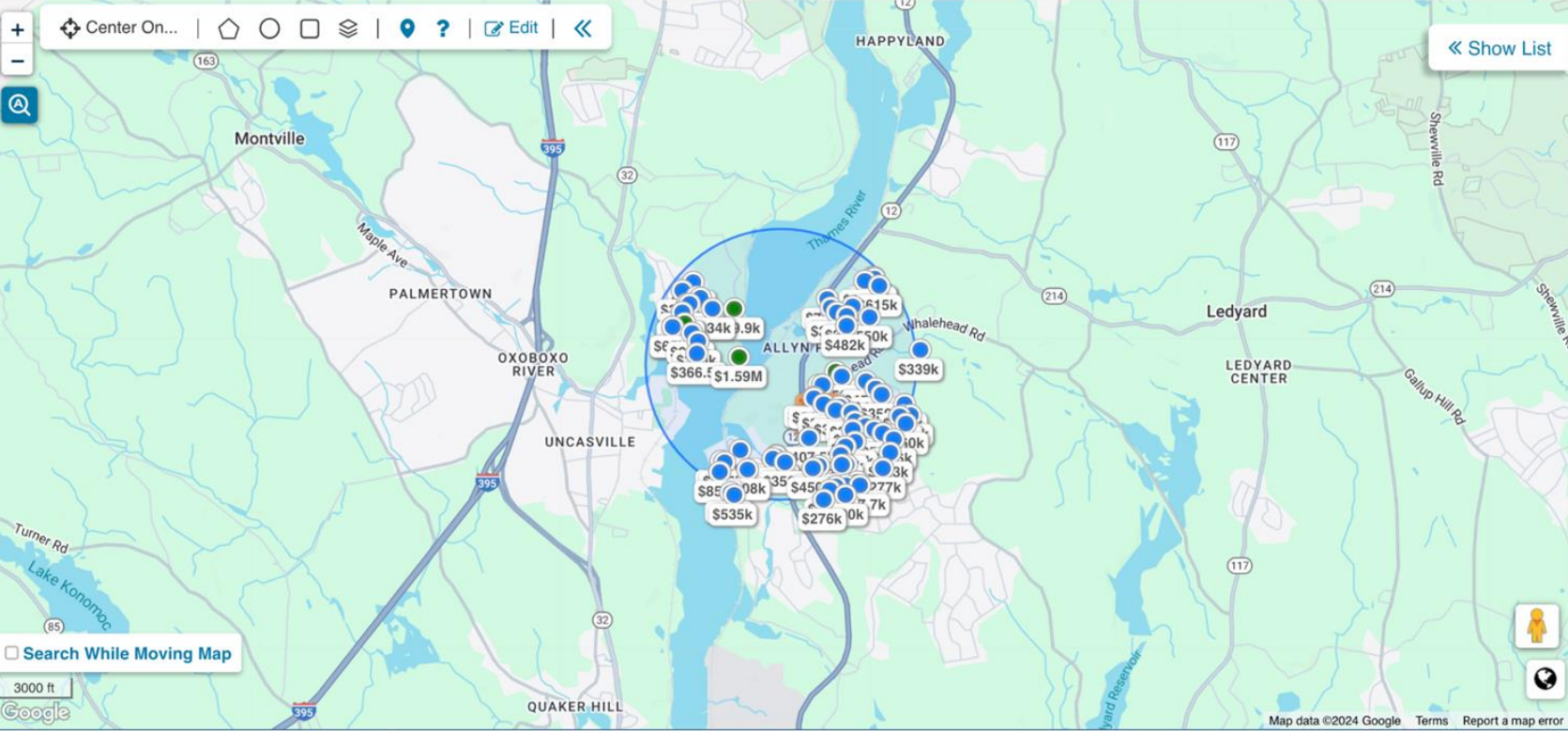
The hedonic pricing model has been the standard research technique for evaluating property value impacts for decades. It is a regressive modeling technique that uses high quality data in large quantity controlling for a large set of other factors to determine location impact on value. It was pioneered by a profession of economics at the University of Chicago in 1974 and is widely used today to study the effect of environmental disamenities on residential property values.

Page 55 of the Tony Sevelka (2022) report finds COURT RECOGNITION OF POTENTIAL PROPERTY VALUE IMPACTS FROM QUARRY OPERATIONS

"Figure 1 displays the estimated effects of distance from the gravel pit on house price. A residential property located a **half mile** from the gravel mine would experience an estimated **20%** reduction in value; **one mile** from the mine, a **14.5%** reduction; **2 miles** from the mine, an **8.9%** reduction; and **3 miles** from the mine, a **4.9%** reduction. These estimates are similar to estimates published in academic journals on the effects of landfills on nearby property values."



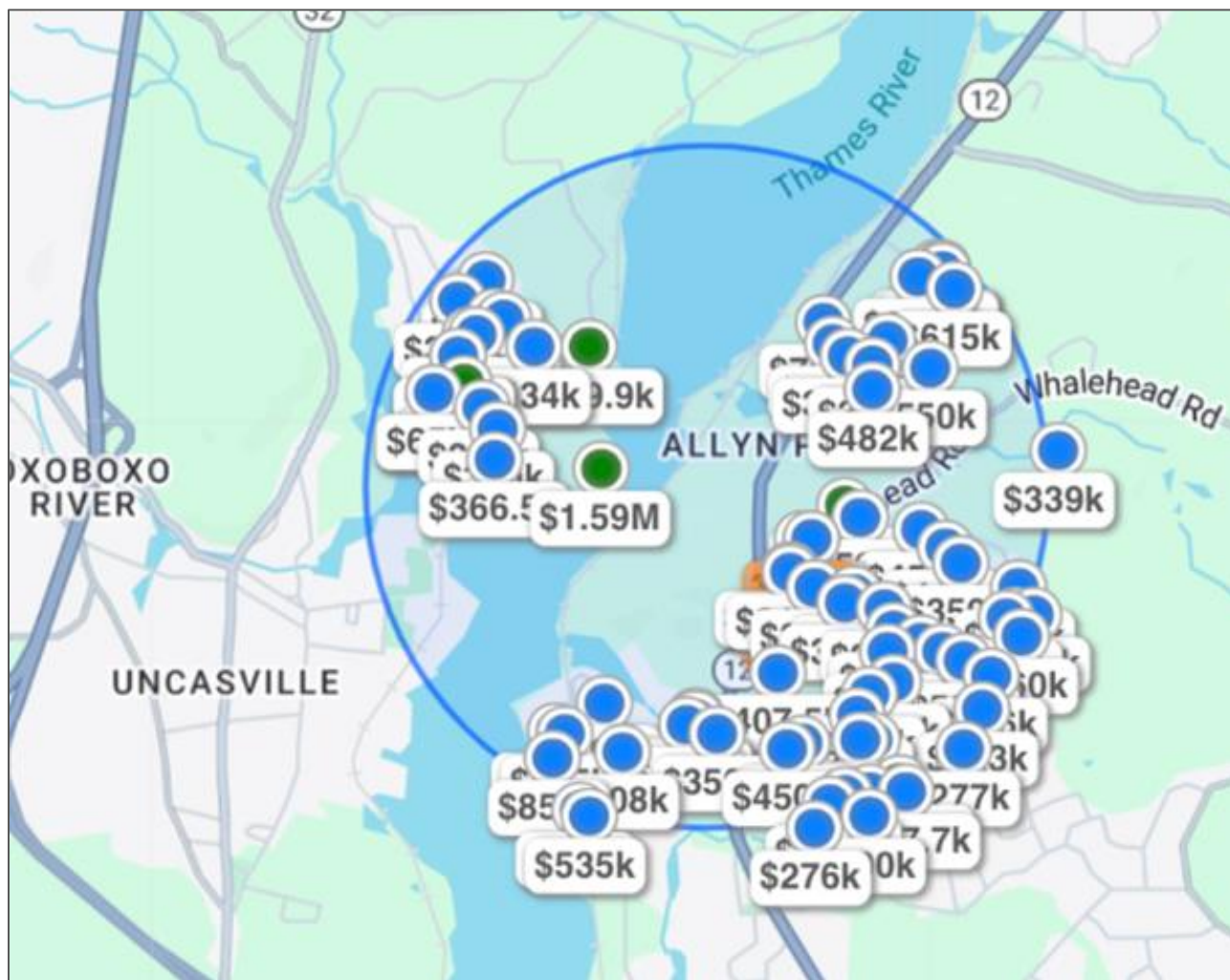
"An Assessment of the Economic Impact of the Proposed Stoneco Gravel Mine Operation on Richland Township" (Erickcek, W.E. Upjohn Institute for Employment Research, August 15, 2006)



Search While Moving Map

3000 ft





REAL ESTATE *ASSESSMENTS* ON HOMES WITHIN ONE-HALF MILE OF GFI (2640 FEET)

TOTAL NUMBER OF RESIDENTIAL PROPERTIES ~ 570

TOTAL **ASSESSED** VALUE (AS OF MAY 2024) \$86,541,414

LOSS OF TAX REVENUE TO THE TOWN OF LEDYARD DUE TO IMPACT OF DISAMENITIES ASSOCIATED WITH BLASTING, EXTRACTION AND PROCESSING OF AGGREGATE AS PROPOSED:

10% \$8,654,141 (\$304,712) per year

15% \$12,981,212 (\$457,068) per year

20% \$17,308,282 (\$609,424) per year

30% \$25,962,424 (\$914,136) per year

BASED ON STATISTICAL STUDIES OF IMPACT OF ROCK QUARRIES ON NEARBY RESIDENTIAL REAL ESTATE VALUES AND MY EXPERTISE IN THE LOCAL REAL ESTATE MARKET, USING A CONSERVATIVE ESTIMATE OF 15% DIMINUTION OF VALUE, THE LOSS OF VALUE TO HOMEOWNERS WOULD BE

\$18,544,588