Rumson 2021 Reassessment Report



Reassessment FAQ

Appeal FAQ

2020 Reassessment Presentation

Prior Year (2020) Assessment Accuracy Reflection

Each October, the NJ Division of Taxation conducts statistical studies which measure the accuracy of current year assessments. These studies could be considered as the "assessor's gradebook" for that year's assessments and resulting tax distribution. Nevertheless, recognition must be made that the assessments are produced the prior year based off past sales and the study is done the subsequent year based off future sales. Appreciating markets would likely result in a ratio under 100%, while depreciating markets would likely result in a ratio over 100%.

Director's Ratio

While the "Director's Ratio" is a complex calculation, this measurement is intended to express the typical relationship between assessments and sale prices in a given municipality. <u>Rumson's 2020 Director's Ratio was **99.73%**.</u>

General Coefficient of Deviation (COD)

The General Coefficient of Deviation is widely held as the best indicator in determining proper tax distribution. It is a way to measure how tightly clustered individual assessment ratios are in relation to the average ratio. A lower COD means more accurate and fair tax distribution. The COD normalizes ratios to show accuracy within a municipality regardless of what the Director's Ratio is in any given year.

The more homogeneous the properties in a municipality are, the lower the COD should be. For example, a municipality that is comprised of mostly townhouses would be expected to yield better assessment accuracy than a municipality that is comprised of a complex range of property types and values (like Rumson). Through annual reassessments, Monmouth and Somerset Counties are showing much lower CODs when compared to historical or statewide data. Despite the complexity of the Borough, our COD is more accurate than the norms in the rest of the state, meaning that our assessments and resulting tax distribution are more fair. We are also trending to be meaningfully more accurate than our own historical coefficients from the past. The 2020 COD was **8.38** which is the lowest COD on record for Rumson (in at least the past 30 years).

Below is a summary of Rumson's general COD for the past 7 years (*see figure 1*). Rumson's average COD prior to implementation of annual reassessments (years 1991-2014) was 13.68. The 2020 COD is about half of the expected COD prior to the annual reassessment model, meaning that tax distribution is significantly more fair and accurate.

	General					
	Coefficient of					
Year	Deviation					
2014	12.53					
2015	18.95					
2016	11.74					
2017	12.50					
2018	12.57					
2019	9.45					
2020	8.38					
	(figure 1)					

(figure 1)

2021 Reassessment

Through the 2021 reassessment, changes to global modeling were made to target market value. Adjustments were also made to all individual properties, neighborhoods and submarkets to refine assessment accuracy. The goal is to annually target 100% market value so that statistical measurements represent better assessment accuracy.

Inspections (data collection)

The Borough completed the first five-year inspection program in 2018. The law now allows for an eight-year inspection cycle which will be less expensive and inconvenience residents with inspections less often. For the second cycle, we accelerated the project to be sure all data is current. Half of the Borough was inspected in 2019 and the other half in 2020. We will not have to do regular inspections till at least 2025/2026. Of course, we will still inspect properties that undergo renovations or new construction in the interim.

In late January, inspection notices were mailed to residents located in the area outlined in blue (*see figure 2*). Luckily, we were able to complete most of the project February/March prior to the COVID-19 shutdowns. The pandemic only affected the project at its very tail end. While we continued the exterior inspections as originally planned, we modified the interior inspection process to include virtual inspection options. We stopped entering houses during the last week or so of the 2020 project. Instead, our inspection vendor quickly adapted and created a virtual inspection option where the property owner could walk through the house with a mobile device to show the inspector the interior while the inspector remained off site. We now are seeking a legislative solution to permanently allow for this type of service: https://www.insidernj.com/press-release/gopal-bill-modernize-pilot-property-tax-assessment-program-advances/



February-March 2020 Inspection Area

(figure 2)

General Comments on the Current Real Estate Market

"Unprecedented times" has been a term commonly used to describe many aspects of 2020. With regard to the real estate market, the same holds true. In March, many would have predicted a full blown real estate market collapse. While we are not out of the woods yet, the current reality is that market reactions are <u>very</u> location specific. NYC property values are crashing but properties in Monmouth County (particularly shore towns) have been the beneficiaries of these wild times.

Prior to COVID-19, we were already experiencing a market compression in Rumson. Higher valued properties were struggling while lower valued properties were appreciating at modest rates. The COVID-19 pandemic has accelerated this compression (in relative terms). While larger/older houses may have found a bottom (or at least some level of temporary support), the lower value property appreciation has accelerated at a rate that has not been seen in many years. The flight from the city and low interest rate environment are certainly identifiable causes of this dynamic.

For the vast majority of properties, the market is driven by buyers interested in what their monthly payment will be. The historically low interest rate environment makes all homes more affordable. Nonetheless, higher valued properties located in towns that have higher property taxes can't participate in the appreciation the same way that the lower valued properties can. Quite simply- the higher the property taxes, the less the monthly payment can be affected by the lower interest rates. This does not hold true in towns that have lower property taxes (mainly shore towns). The Rumson Tax Rate is on the lower side of the County. While the significant market appreciation appears to slow around the 850k price point in towns that have 2% tax rates, Rumson properties appear to have a higher threshold (likely due to the lower property taxes).

It is important to keep in mind that shared budgets (like the Regional School and County budgets) are apportioned to the participating towns based on the respective net values of those towns. Should appreciation in Rumson outpace our 52 counterparts in the County, we will be assigned to pay a higher proportionate share of the County Tax Levy. Should Rumson outpace Fair Haven, we would be assigned to pay a higher proportionate share of the Regional School Levy (*see figure 3*). The way the market behaves is mainly out of our control, but it is important to keep a pulse on how other towns are assessing their properties. All towns should be on an equal playing field so that shared budgets get apportioned fairly.

														Percent of
Tax Levy Component	20)16 Tax Levy	2	2017 Tax Levy		2018 Tax Levy		2019 Tax Levy		2020 Tax Levy	4 Year Change			Bill
County Budget	\$	8,860,091	\$	8,813,226	\$	8,999,865	\$	8,865,086	\$	9,273,390	\$	413,300	4.66%	16%
County Library	\$	608,173	\$	617,595	\$	637,924	\$	634,189	\$	674,967	\$	66,795	10.98%	1%
Local Elementary School Budget	\$	15,467,271	\$	16,059,502	\$	16,899,627	\$	17,332,020	\$	18,103,124	\$	2,635,853	17.04%	32%
Regional High School Budget	\$	12,681,878	\$	12,989,474	\$	13,534,345	\$	13,898,869	\$	14,451,437	\$	1,769,559	13.95%	26%
Local Municipal Purposes	\$	10,289,019	\$	10,514,109	\$	10,849,768	\$	11,157,169	\$	11,376,795	\$	1,087,776	10.57%	20%
Reserve for Uncollected Taxes	\$	988,067	\$	1,016,115	\$	1,050,634	\$	1,087,578	\$	1,409,296	\$	421,229	42.63%	2%
County Open Space Fund	\$	508,863	\$	517,809	\$	999,527	\$	1,023,753	\$	1,082,820	\$	573,957	112.79%	2%
Excess for Rate Rounding	\$	12,339	\$	22,994	\$	26,173	\$	29,725	\$	15,147				
Total Tax Levy	\$	49,415,700	\$	50,550,825	\$	52,997,862	\$	54,028,387	\$	56,386,976	\$	6,971,276	14.11%	

Rumson Tax Levy History

Total Change of Net Valuation Taxable

The net valuation of the Borough is increasing by 2.82% in 2021 (*see figure 4*). About 111M has been added to the Rumson ratable base (partially related to new construction and partially related to market appreciation).

2020 Final Net Valuation	3,934,890,180
2021 Preliminary Net Valuation	4,045,998,657
Change	111,108,477
Change %	2.82%

(figure 4)

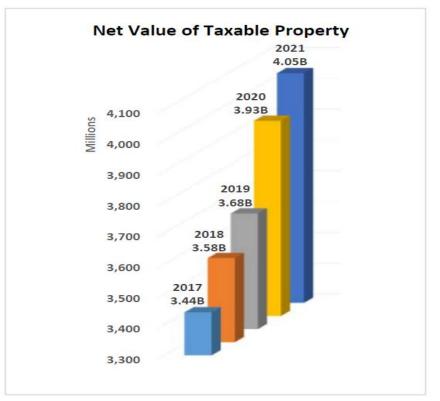
Property Class Breakdown (Year over Year)

	2020 Final Tax List									
					Share of					
Class	Property Type	Count	Value	Average	Borough					
1	Vacant Land	56	39,089,600	698,028.57	0.99%					
2	Residential	2534	3,731,467,400	1,472,560	94.83%					
3A	Farm House	4	16,011,200	4,002,800	0.41%					
3B	Farm Land	7	9,300	1,329	0.00%					
4A	Commercial	67	146,100,800	2,180,609	3.71%					
4C	Apartment	1	1,057,400	1,057,400	0.03%					

Total	3,933,735,700
Verizon	1,154,480
Net Valuation Taxable	3,934,890,180

	2021 Preliminary Tax List										
					Share of						
Class	Property Type	Count	Value	Average	Borough						
1	Vacant Land	40	28,989,700	724,743	0.72%						
2	Residential	2542	3,848,953,200	1,514,144	95.13%						
3A	Farm House	6	19,918,900	3,319 <mark>,</mark> 817	0.49%						
3B	Farm Land	8	10,200	1,275	0.00%						
4A	Commercial	<mark>67</mark>	145,785,200	2,175,899	3.60%						
4C	Apartment	1	1,102,200	1,102,200	0.03%						

Total	4,044,759,400
Verizon	1,239,257
Net Valuation Taxable	4,045,998,657



(figure 6)

20	17 -2020 Tax Lev	y and Net Taxable Valu	ie
Year	Tax Levy	Ratables	Tax Rate
2017	50,550,825	3,441,172,574	1.469%
2018	52,997,862	3,576,104,047	1.482%
2019	54,028,387	3,677,902,471	1.469%
2020	56,386,976	3,934,890,180	1.433%
2021	TBD	4,045,998,657	TBD
		111,108,477	Ratable base cl
		2.82%	Increase Prior t

(figure 7)

2021 Tax Rate Prediction

Year	Ratables	Tax Levy	Tax Rate	
2020	3,934,890,180	56,386,976	1.433%	
2021*	4,045,998,657	56,386,976		*Rate if levy was the same year over yean and no reductions from appeals

			**Assumes a 1% reduction in ratables
2021**	4,005,538,670	57,514,716	1.436% from appeals & 2% increase in Levy

Realistic 2021 Tax Rate Range 1.4%-1.44%

Residential Market

Lower price points (homes under 1M) have seen the greatest appreciation in this market. Generally, markets that continue to struggle are older/non-renovated houses on large lots. With regard to the lower price points (namely West Park, the Oceanic, the East River townhomes and other neighborhoods with smaller lots), market appreciation is incredibly strong. It is nearly impossible to find *any* house in Rumson under 600k in this market. While these properties recently had increases in tax levy apportionment due to the 2020 reassessment, the trend continues for the 2021 reassessment. Generally, these neighborhoods will see assessment increases between 5% and 10% (nothing like last year, but still significant relative to larger homes). As for the higher price points, market reactions are very house specific (of course making the reassessment analysis more difficult). If a home is fully renovated (to today's market trends) it will indeed command a much higher price. The delta between non-renovated and renovated, new vs old, has never been so wide in recent history.

The aggregate change of the ratable base is 2.82%. The aggregate change of the residential class is 3.15%, though it is important to note that the 3.15% is actually being inflated by new construction and renovations. The below chart gives better insight into the actual impact on the existing residential property class. Since 2.82% is the aggregate change of the entire ratable base, 2.82% should be seen as the baseline of apportionment change. Any property increasing greater than 2.82% will pay a greater proportionate share of the tax levy. Conversely, any property increasing less than 2.82% (or decreasing) will pay a lesser proportionate share of the tax levy.

Volatility is Subsiding

For the 2021 reassessment, roughly 81% of residential properties will fall between a 0% and 10% assessment change. About 7% will increase greater than 10% and about 12% will see their assessment decrease. For a frame of reference, only 42% fell in the 0-10% bucket last year while 45% increased greater than 10% (45% compared to this year's 7%). While we are indeed past the point of extreme volatility, we still must recognize that all properties will not change at the same rates. Each year will stabilize further now that we are done with inspections. Also, modeling refinement will continue to target market value and only get better with time.

The steep trend line down, showing the median assessment of each grouping (*see figure 10*), displays the market compression referenced earlier. Lower value properties are increasing at greater rates than higher value properties. Normally, commercial properties will change around the same as the residential properties (or at least in the same direction), but COVID-19 is putting obvious pressure on the commercial market causing assessments to decline in that particular asset class. Other property classes (like residential) will absorb the taxes from this apportionment change.

Assessment change of all residential properties (excluding new construction and properties that had renovations)

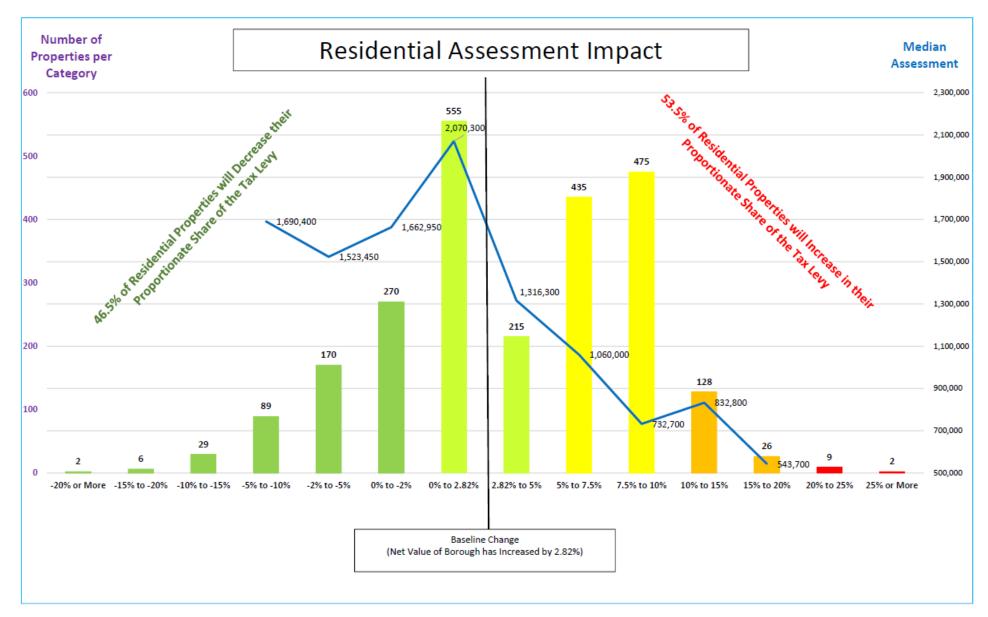
	Reside	ntial Classified P	roperties	
	Assessment Change Category	Number of Properties In Change Category	% of Total	Median Assessment of Group
of al	-20% or More	2	0.08%	
46.5% of Residential Properties will Decrease their Proportionate Share the Tax Levy	-15% to -20%	6	0.25%	
side es w Lev	-10% to -15%	29	1.20%	
5% of Resident Properties will Decrease their ortionate Shar the Tax Levy	-5% to -10%	89	3.69%	1,690,400
% of ope ecre he _	-2% to -5%	170	7.05%	1,523,450
t D D J	0% to -2%	270	11.20%	1,662,950
Prc 41	0% to 2.82%	555	23.02%	2,070,300
al al te	2.82% to 5%	215	8.92%	1,316,300
creation on a creation of the	5% to 7.5%	435	18.04%	1,060,000
Tax	7.5% to 10%	475	19.70%	732,700
Re the	10% to 15%	128	5.31%	832,800
fir P 60	15% to 20%	26	1.08%	543,700
53.5% of Residential 59.08 vill Increase In their Proportionate Share of the Tax Levy	20% to 25%	9	0.37%	
S 5 1 15	25% or More	2	0.08%	
	Total Properties In Group	2411	100.00%	

*Net Value of Borough has Increased 2.82%

(figure 9)

Residential Change Report

The market compression continues. Statewide, lower valued properties are appreciating at greater rates than higher valued properties.



(figure 10)

2021 Tax List Accuracy

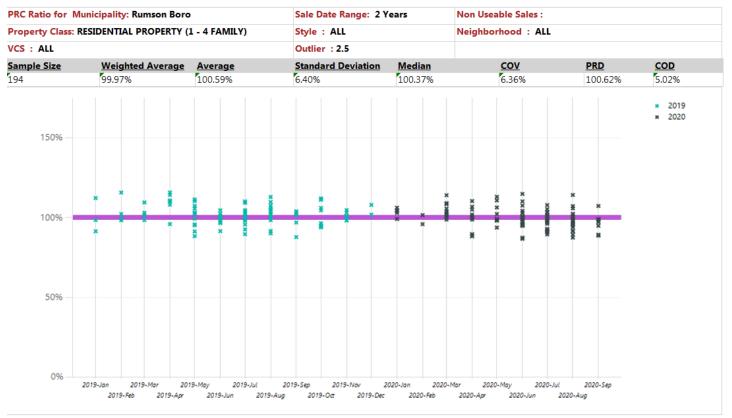
The primary driver of a reassessment is recent "arms-length market transactions". Statutorily, properties are assessed for what they would have sold for on October 1st of the pretax year. The 2021 valuation date is October 1st, 2020.

Our Supreme Court has held "value for purposes of taxation has some measure of permanence which renders it secure against general temporary inflation or deflation." (Hackensack Water Co. v. Division of Tax Appeals, 2 N.J. 157, 163 (1949)); and "True value must be fairly constant and must be gauged by conditions, not temporary and extraordinary, but by those which over a period of time will be regarded as measurably stable." (Berkeley Arms Apartment Corp. v. City of Hackensack, 6 N.J. Tax 260, 286 (Tax 1983)).

These quotes are more important now than ever. While the local market has appreciated at significant rates, assessors must view sales data used in the study in its totality while mass modeling assessments. While more recent sales are certainly given more credibility in the analysis, older sales will still be a stabilizing factor with annual reassessments. Inevitably, older sales will pull the modeling in the direction that the market was in the past. With regard to the 2021 reassessment, pre-COVID sale data is still dragging the assessments slightly lower than current sale prices actually are. Should this market appreciation continue through 2021, the Division of Taxation Director's ratio will certainly be lower than the 100% target. We must recognize that the ratio study is being done with future sales, while the reassessment analysis is being done with past sales. The goal of the reassessment is to react to the market, not predict it.

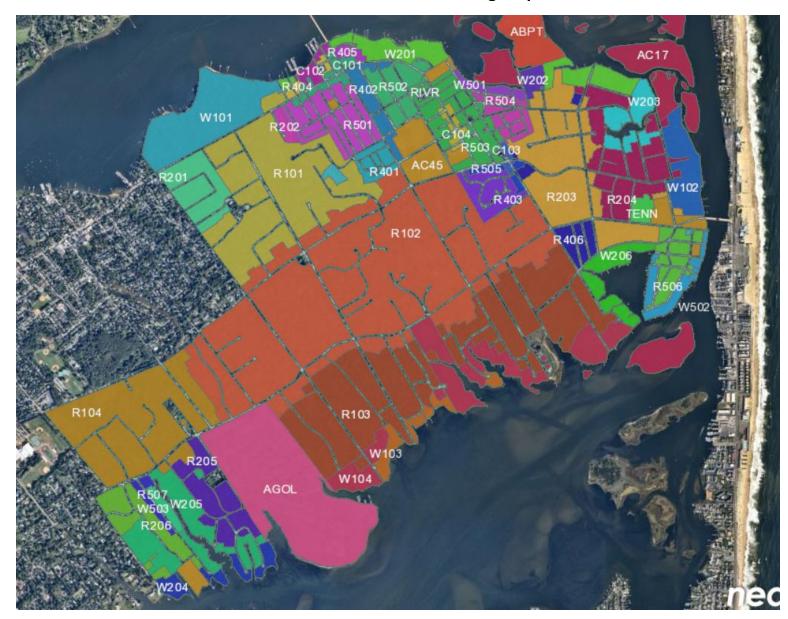
A reassessment generally measures sale prices from the past two years (giving more credibility to the more recent transactions.) The Monmouth County Tax Board has a standardized review process to measure new assessments against sale prices from the current and prior year (see figure 11).

Tax Board Assessment Data Analysis Module (ADAM360) Standardized Review: All 2019/2020 residential usable sales (removing top & bottom 2.5% outliers and properties that had renovations after the sale)



*Data addendum with sales attached

⁽figure 11)



Value Control Sector Modeling Map

(figure 12)

Lot Valuation Matrix (Acreage Costed VCS)

*does not include property specific adjustments (Traffic, flood zone, economic obsolescence, etc.)

		Neighborhood				VCS Calcu	lation Matrix			
Section	VCS	Description	Site	Per Acre- Up to Standard Size 1 or 1.5 (see Section)	Per Acre of Excess (After Standard Size)	1 Acre Lot	1.5 Acre Lot	2 Acre Lot	2.5 Acre Lot	4 Acre Lot (w/ one site)
R1- Non	R101	North of Ridge	875,000	225,000	125,000	1,100,000	1,212,500	1,275,000	1,337,500	1,525,000
Waterfront	R102	Between Rumson & Ridge	875,000	225,000	125,000	1,100,000	1,212,500	1,275,000	1,337,500	1,525,000
Residential 1.5	R103	South of Rumson	850,000	225,000	125,000	1,075,000	1,187,500	1,250,000	1,312,500	1,500,000
Acre Standard Lot	R104	Woods End to Fair Haven Rd	775,000	200,000	100,000	975,000	1,075,000	1,125,000	1,175,000	1,325,000
	R201	Circle / Edgewood	825,000	225,000	125,000	1,050,000	1,112,500	1,175,000	1,237,500	1,425,000
R2- Non	R202	Sugar Maple	800,000	375,000	125,000	1,175,000	1,237,500	1,300,000	1,362,500	1,550,000
Waterfront	R203	East of Ave of Two Rivers	900,000	225,000	125,000	1,125,000	1,187,500	1,250,000	1,312,500	1,500,000
Residential 1 Acre	R204	East of Navesink Ave	1,025,000	275,000	125,000	1,300,000	1,362,500	1,425,000	1,487,500	1,675,000
Standard Lot	R205	West of Golf Course	875,000	225,000	125,000	1,100,000	1,162,500	1,225,000	1,287,500	1,475,000
	R206	Riverside / Ivins	850,000	225,000	125,000	1,075,000	1,137,500	1,200,000	1,262,500	1,450,000
W1- Waterfront	W101	West River Waterfront	2,050,000	550,000	400,000	2,600,000	2,875,000	3,075,000	3,275,000	3,875,000
Residential 1.5	W102	North Ward Waterfront	1,900,000	500,000	300,000	2,400,000	2,650,000	2,800,000	2,950,000	3,400,000
	W103	Eastside Shrewsbury River	1,500,000	400,000	100,000	1,900,000	2,100,000	2,150,000	2,200,000	2,350,000
Acre Standard Lot	W104	Non-Premium Shrews-Large Sections of Marshland	1,300,000	400,000	25,000	1,700,000	1,900,000	1,912,500	1,925,000	1,962,500
	W201	Navesink Waterfront	1,750,000	400,000	250,000	2,150,000	2,275,000	2,400,000	2,525,000	2,900,000
W2- Waterfront	W202	Non-Premium Nav-Large Sections of Marshland	1,300,000	400,000	25,000	1,700,000	1,712,500	1,725,000	1,737,500	1,775,000
W2- Waterfront Residential 1 Acre	W203	Blackpoint Horseshoe	1,750,000	400,000	100,000	2,150,000	2,200,000	2,250,000	2,300,000	2,450,000
	W204	Shrewsbury Riverfront	1,500,000	400,000	200,000	1,900,000	2,000,000	2,100,000	2,200,000	2,500,000
Standard Lot	W205	Inlets West of Golf Course	925,000	300,000	150,000	1,225,000	1,300,000	1,375,000	1,450,000	1,675,000
	W206	Oyster Bay	1,350,000	300,000	200,000	1,650,000	1,750,000	1,850,000	1,950,000	2,250,000

Lot Valuation Matrix (Front Foot Costed VCS)

*does not include property specific adjustments (Traffic, flood zone, economic obsolescence, etc.)

Neighborhood			VCS Calculation Matrix										
Section	VCS	Desc	Site	FF Calc (up to 75ft then 0.5 factor)	25x75 (.5DF)	50x75 (.5DF)	100x75 (.5DF)	25x150 (1.00DF)	50x150 (1.00DF)	100x150 (1.00DF)	25x250 (1.26DF)	50x250 (1.26DF)	100x250 (1.26DF)
R4- FF Method (Medium Sized Lot Areas)	R401	Cherry/Crabapple	500,000	4,400	555,000	610,000	692,500	610,000	720,000	885,000	638,600	777,200	985,100
	R402	Bingham/Park	400,000	4,400	565,000	510,000	592,500	510,000	620,000	785,000	538,600	677,200	885,100
	R403	Robin/Blossom	500,000	4,400	665,000	610,000	692,500	610,000	720,000	885,000	638,600	777,200	985,100
	R404	Residential North of E River	350,000	3,300	473,750	432,500	494,375	432,500	515,000	638,750	453,950	557,900	713,825
	R405	Oak Tree/Park	450,000	4,400	615,000	560,000	642,500	560,000	670,000	835,000	588,600	727,200	935,100
	R406	Small Lots East of Ave of Two Rivers	450,000	4,400	615,000	560,000	642,500	560,000	670,000	835,000	588,600	727,200	935,100
R5- FF Method (Small Sized Lot Areas)	R501	Church/Lafayette	350,000	4,400	515,000	460,000	542,500	460,000	570,000	735,000	488,600	627,200	835,100
	R502	Lennox/Lakeside	330,000	4,400	495,000	440,000	522,500	440,000	550,000	715,000	468,600	607,200	815,100
	R503	E River/Center	330,000	4,400	495,000	440,000	522,500	440,000	550,000	715,000	468,600	607,200	815,100
	R504	Holly/Bay	350,000	4,400	515,000	460,000	542,500	460,000	570,000	735,000	488,600	627,200	835,100
	R505	Ave of Two Riv/Ridge	310,000	4,400	475,000	420,000	502,500	420,000	530,000	695,000	448,600	587,200	795,100
	R506	West park Non-Waterfront	350,000	4,400	515,000	460,000	542,500	460,000	570,000	735,000	488,600	627,200	835,100
	R507	West of Golf Course Non-Waterfront	325,000	4,400	490,000	435,000	517,500	435,000	545,000	710,000	463,600	602,200	810,100
W5- FF Method (Small	W501	Highland Ave Waterfront	500,000	5,500	706,250	637,500	740,625	637,500	775,000	981,250	673,250	846,500	1,106,375
Sized Lot Areas	W502	West Park Waterfront	530,000	5,500	736,250	667,500	770,625	667,500	805,000	1,011,250	703,250	876,500	1,136,375
Waterfront)	W503	West of Golf Course Waterfront	575,000	5,500	781,250	712,500	815,625	712,500	850,000	1,056,250	748,250	921,500	1,181,375

(figure 14)

MONMOUTH COUNTY AVERAGE GENERAL COD (excluding the eight 2020 non-reassessment districts) Monmouth County County Historical Municipal General CODs POST ANNUAL REASSESSMENT 15.00 40.00 14 07 14 90 THE ADP UNDER 35.00 14.22 14.00 붎 UNDER 30.00 13.73 14.17 P -13.54 13.74 25.00 13.00 20.00 12.57 12.22 12.10 12,16 00 12.36 12.00 15.00 **AVERAGE 12.19%** 11.84 11.38 ര് 11.76 11.75 BASELINE PRE ADP 11.71 12 02 11.64 age **MEDIAN 11.33%** 10.00 ŝ 11.17 County 11.11 11.00 10.99 11.29 5.00 10.61 10.40 0.00 10.38 1990 1992 1994 1998 2000 2002 2006 2008 2010 2012 2014 2016 10.00 1996 2004 9.91 10.00 9.98 ABERDEEN ALLENHURST ASBURY PARK ATLANTIC HIGHLANDS BRADLEY BEACH BRIELLE COLTS NECK DEAL EATONTOWN ENGLISHTOWN FAIR HAVEN FARMINGDALE FREEHOLD BORO FREEHOLD TWP HAZLET HIGHLANDS 9.00 HOLMDEL HOWELL INTERLAKEN KEYPORT County Average General COD Weighted By Number of Sales 873 **UITTLE SILVER** LOCH ARBOUR LONG BRANCH MANALAPAN County Average General COD MATAWAN MIDDLETOWN MONMOUTH BEACH NEPTUNE TWP NEPTUNE CITY OCEAN TWP OCEANPORT RED BANK 8.00 ROOSEVELT RUMSON SEA BRIGHT SEA GIRT 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 LAKE COMO SPRING LAKE SHREWSBURY BORO SHREWSBURY TWP YEAR SPRING LAKE HGTS TINTON FALLS UNION BEACH UPPER FREEHOLD WEST LONG BRANCH

Monmouth County General Coefficient of Deviation Update 2020

The above charts display the Historical Average Coefficient of Deviation (COD) of the 45 Monmouth County Reassessment Districts. Coefficients are (on average) significantly lower in the Annual Reassessment Model under the ADP. That said, a simple average can be misleading as it gives the same credibility to municipalities of varying sizes. In some municipalities, the COD is developed with only a few sales. The orange bars post annual reassessment address this concern by weigh6ting the municipalities based on the number of sales in each year's sample. The 2020 Tax Year General COD Weighted by Number of Sales is lower than any prior year in the study. As expected with an annual reassessment model, assessments and resulting tax distribution continue to get more accurate as time goes on.