A Research Bureau Policy Alternative:

Tax Rates

A White Paper on Criteria for Consideration in Preparation of Annual Tax Rate Determinations and Alternatives to Secure a More Equitable Single Tax Rate.

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The Research Bureau

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Executive Summary

In its November 2016 report *Tax Classification: Passing the Buck$ - Ending the Tug-of-War Among Worcester Taxpayers,* The Research Bureau found that extreme shifts in tax rates could impact property values, and that these impacts were especially damaging to commercial and industrial properties. The Bureau identified a single tax rate as a municipality's best tool to limit extreme tax rate shifts and mitigate the impact of tax rates on economic opportunity. The report argued that "A tax rate that equitably distributes the burden of government among all property owners is essential to the region's long-term sustainability and growth."

The Research Bureau offers *A Research Bureau Policy Alternative: Tax Rates* to further efforts to transition from a dual tax rate to a single tax rate. This document offers the City Council a series of policy alternatives that, if adopted, would transition the City from the current system (which has contributed to Worcester's residential and commercial/industrial taxpayers grappling with tax rates among the highest in the Commonwealth) to a single tax rate. At the same time, the Bureau offers a means for recognizing and mitigating the economic and financial conditions that a transition might encounter along the way.

A Research Bureau Policy Alternative: Tax Rates outlines a basic formula that analyzes and compares annual changes in the financial condition of residential and commercial/industrial property owners. Armed with that knowledge, the report then frames two transition strategies for City Council consideration—one strategy that explores the straight transition of tax rates over a set period of time and one strategy that buffers residential property owners by holding commercial/industrial/personal (CIP) property contributions steady while experimenting with reductions in the allowed annual property tax increase. Used correctly, these approaches allow the City to transition strategically to a single tax rate at a manageable and informed rate, with the potential to slow down or speed up the process based on actual economic and financial indicators rather than anecdotal testimony.

For more than three decades, the Worcester City Council has approved tax rates without a data-driven review of conditions or implications. *A Research Bureau Policy Alternative: Tax Rates* offers a new way of approaching the annual tax rate debate founded on and informed by the facts.

Tax Classification: Passing the Buck$ - Ending the Tug-of-War Among Worcester Taxpayers **highlighted the negative effects of the dual tax rate on commercial and industrial properties. The report argued that "A tax rate that equitably distributes the burden of government among all property owners is essential to the region's long-term sustainability and growth." At its meeting on December 20, 2016, the City Council for the 34th consecutive year assigned a disproportionate share of taxes to commercial, industrial, and personal property (CIP) taxpayers. Yet during the discussion some elected officials voiced a willingness to look more closely at the issue prior to setting tax rates for FY18. In order to encourage and inform additional City Council discussions, The Research Bureau offers criteria for narrowing the differential between Residential and CIP taxpayers, and alternative approaches to work toward a more effective and responsible single tax rate.**

> **Opportunity Costs:** Across Lake Quinsigamond, Grossman Development Group, LLC is finishing a 375,000 square foot mixed-use development at the former Spag's site known as Lakeway Commons. The project includes approximately 100,000 square feet of retail, 250 apartments, and 14 townhomes. According to rough initial estimates, the project has a value of $56,800,000 ($17,300,000 in commercial value and $39,500,000 in residential value). In Shrewsbury, where the single FY2017 tax rate is $12.83 per $1,000 of valuation, the project can anticipate initial property taxes of $728,744 per year ($56,800,000/$1,000*$12.83). In Worcester, an equivalent project would anticipate property taxes of $1,328,879 ($17,300,000/$1,000*$32.93 + $39,500,000/$1,000*$19.22) per year - nearly double the annual tax burden.

The annual justification for shifting the burden of property taxes from Residential taxpayers to CIP taxpayers focuses on the perceived economic challenges and financial burdens impacting residents. Yet no framework exists to indicate the extent of those perceived challenges or the impact of that burden. Local property taxes are bounded by two alternatives: the single tax rate (in which all properties are taxed at equal rates regardless of property class) and the lowest Residential tax rate/highest CIP tax rate (in which the maximum levy percentage allowed—currently about 20% of the Residential tax levy—is shifted from Residential taxpayers to CIP taxpayers). In between these extremes, the City Council can act to relieve Residential taxpayers from some of the tax levy burden while rationing, in some part, the shift of that burden to CIP taxpayers. Since implementation of the dual tax rate in 1984, the City Council has never voted for a single tax rate, has voted for the lowest Residential tax rate/highest CIP tax rate nine (9) times, and voted for a tax rate between those extremes twenty-five (25) times, with an average shift of costs from Residential to CIP taxpayers of approximately 86% of the maximum allowed. Each year, without a framework for debate, the vote on the tax rate is arbitrary and unpredictable to Residential and CIP taxpayers alike.

City Council should establish quantifiable criteria to temper the erratic nature of the annual tax rate debate. Independent criteria can be a basis for determining the capacity of residents and businesses to shoulder their portions of the tax levy. Quantifiable criteria transforms the annual data-free discussion into a data-driven analysis, built on year-over-year shifts. Importantly, quantifiable criteria can be used to form a basic comparison that can guide policymakers in their decisions.

$$\frac{\textbf{(Change in Household Income - Change in Household Costs) + (Change in Residential Property Value)}}{\textbf{(Change in Business Revenues - Change in Business Costs) + (Change in CIP Property Value)}}$$

The above comparison contrasts year-over-year assessments of net income/revenues and real property value of households and businesses. In years where the nominator exceeds the denominator, households have experienced greater income and wealth growth than commercial entities. In years where the denominator exceeds the numerator, commercial entities have prospered more than households. As part of a long-term strategic effort to transition to a single tax rate, The Research Bureau recommends that City Council establish a strategic approach to eliminate the dual tax rate, reducing the differential between the tax rates based in part on the results of the above equation.

Policy Alternative: Tax Rates

The following data sources can be a basis for evaluating the economic and financial situation of Worcester property owners:

- Household Income: Indicators can be derived from the U.S. Census Bureau's 5-year American Community Survey (ACS).
- Household Costs: Indicators can be derived from the ACS, the U.S. Bureau of Labor Statistics (BLS), and the City of Worcester Assessor's data.
- Residential Property Value: Indicators can be derived from the ACS and the City of Worcester Assessor's data.
- Business Revenues: Indicators can be derived from the Worcester Economic Index, developed by Assumption College Professor Thomas White, and the U.S. Bureau of Economic Analysis (BEA).
- Business Costs: Indicators can be derived from the BLS, the U.S. Department of Health and Human Services (HHS), and the City of Worcester Assessor's data.
- CIP Property Value: Indicators can be derived from the City of Worcester Assessor's data.

These sources are not intended to be exhaustive, but are a strong starting point for a discussion of tracking economic and financial constraints faced by Worcester's varied property classes. It is important to note that different indicators may focus on different geographies (i.e., city vs. metropolitan statistical area) and different points in time. Application requires the use of best and most recent available data.

As an example of the application of the formula, Table 1 and Table 2 apply the metrics above to the last ten tax rate decisions.

Table 1: Worcester Economic Conditions—Various Factors

	Residential						CIP						
	Change in Household Income	Change in Household Costs			Change in Household Assets		Change in Business Revenue		Change in Business Costs				Change in Business Assets
Fiscal Year	% Change in Median Income	% Change in CPI	% Change in Housing Costs - Census	% Change in Median Single-Family Tax	% Change in Assessed Values	% Change in Median House Value - Census	% Change in Worcester Economic Index	% Change in GDP	% Change in CPI	% Change in Annual Wages	% Change in Health Care Costs	% Change in Median Commercial Tax	% Change in Assessed Values
2017	-1.37	1.47	0.00	1.46	10.85	-2.38	3.02	3.61	1.47	2.10	2.69	0.91	4.96
2016	1.57	0.6	2.52	3.10	0.75	-2.69	1.00	2.81	0.60	-0.15	0.92	6.85	0.19
2015	-0.63	1.61	-1.06	3.20	0.48	-4.51	2.47	3.24	1.61	2.14	2.76	4.04	3.29
2014	-0.36	1.37	-0.29	4.14	1.08	-3.50	1.81	2.00	1.37	0.84	5.12	1.78	2.17
2013	1.80	1.58	2.96	0.00	-4.17	-3.46	0.72	2.31	1.58	1.17	7.57	4.79	-1.89
2012	-1.98	2.71	-0.2	0.00	-3.97	-2.22	1.79	4.07	2.71	1.90	2.75	3.87	32.11*
2011	2.57	1.57	1.19	5.69	-1.05	-0.56	2.31	-1.01	1.57	2.28	8.93	1.16	1.49
2010	2.67	-0.68	2.97	-1.04	-12.54	-1.89	-2.13	1.58	-0.68	3.03	8.72	-0.86	0.25
2009	-0.34	3.50	0.21	1.61	-6.18	-4.32	-2.32	3.07	3.50	3.62	0.00	8.22	2.52
2008	15.83	1.93	4.84	3.91	1.46	1.49	0.39	4.30	1.93	3.37	5.03	3.48	0.60

**In 2012, the City engaged in a complete reassessment of commercial and industrial properties in coordination with the Massachusetts Department of Revenue. The increase in CIP assessed values in 2012 do not indicate an improvement in market condition but instead were a recalculation necessitated by prior inconsistencies in valuations.*

Evaluating the data using The Research Bureau's formula results in the annual policy considerations for taxpayers outlined in Table 2. If CIP property taxpayers were worse off than Residential taxpayers, we recommended moderate or significant movement toward a single tax rate, depending on whether the differential between CIP and Residential was greater or less than the median. If Residential taxpayers were worse off than CIP property taxpayers, we recommended no or slight movement toward a single tax rate, depending on whether the differential between Residential and CIP was at, greater, or less than the median. The data illustrate that Worcester's CIP taxpayers struggled significantly during the Great Recession, while the business environment has improved since 2014. In comparison, residents have experienced more limited improvement in financial situations since 2014 than business. Digging a bit deeper into available data indicates that the weakness is more reflective of renters—not direct taxpayers to the City—than homeowners. While both Worcester homeowners and renters have experienced a net increase in income (1.8% for homeowners and 0.79% for renters) since 2014, monthly housing costs for homeowners have decreased by 6.9% while monthly housing costs for renters have increased by 4.7%. As a result, The Research Bureau calculation indicates that significant movement toward a single tax rate was appropriate in 2008 and 2009—years in which CIP property taxpayers were significantly worse off than Residential property taxpayers. Moderate movement toward a single tax rate was appropriate in 2010, 2011, 2013, and 2016—years in which CIP property taxpayers were generally worse off than Residential property taxpayers, or Residential property taxpayers were only slightly worse off than CIP taxpayers (i.e., below the median). Slight movement toward a single tax rate was appropriate in 2012 and 2017—years in which Residential property taxpayers were moderately worse off than CIP property taxpayers (recognizing the caveat that 2012 is likely skewed by that year's reassessment). No movement toward a single tax rate would be recommended in 2014 and 2015—years in which Residential property taxpayers were significantly worse off than CIP property taxpayers.

Table 2: Tax Impact Considerations for Worcester Policymakers

Fiscal Year	Constrained Class	Difference Between Classes	WRRB Recommendation on Movement Toward a Single Tax Rate
2017	Residential	Median	Slight
2016	Residential	Below Median	Moderate
2015	Residential	Above Median	None
2014	Residential	Above Median	None
2013	CIP	Below Median	Moderate
2012*	Residential	Above Median	Slight
2011	CIP	Below Median	Moderate
2010	Residential	Below Median	Moderate
2009	CIP	Above Median	Significant
2008	CIP	Above Median	Significant

*****_As stated in the notes to Table 1, the City engaged in a complete reassessment of commercial and industrial properties in 2012. The increase in CIP assessed values in 2012 skews analysis by inflating the value of CIP properties vis-a-vis Residential properties. Therefore, the 2012 recommendation is movement toward a single tax rate, however in light of the uncertainty the recommendation would have been for slight movement._

As evident in the table, quantifying financial impacts and tax rate shifts offers a more targeted policy approach in response to real-world challenges, while allowing flexibility to work toward a more equitable tax rate. Basing annual tax rate decisions on data and experience allows City Council to engage in informed discussion and rate determination, while not limiting the Council in its efforts to embrace a deliberate and sensitive approach.

Reestablishing Equality

Tax Classification: Passing the Buck$ highlights that "...the determination of tax rates has become a tug-of-war among classifications—a zero-sum game in which a savings for one taxpayer results in a shift of cost to another." As a result, working toward reestablishing the single tax rate is impossible without impacting Residential taxpayers. Property taxes in Worcester increase over time as a result of three factors: 1) the increase in individual property valuations, 2) the 2.5% property tax increases allowed annually under current law, and 3) the incorporation of new growth allowed annually under current law.

The Research Bureau offers two basic approaches to achieve a single tax rate that, annually informed by the data discussed previously, could work to mitigate the impact on residents:

1. Unilateral Transition: The Unilateral Transition model uses the municipal budget to drive changes in the Residential tax burden by freezing the CIP tax levy at its current amount, resulting in a gradual shift back to a single tax rate as the Residential tax rate increases in order to accommodate annual budget requirements. The annual shift can be minimized by limiting annual budget increases (e.g., foregoing the allowed 2.5% annual increase or foregoing the increase allowed by new growth).
2. Bilateral Transition: The Bilateral Transition model simply uses a defined period of time to simultaneously move Residential and CIP taxpayers toward a single tax rate, resulting in fixed annual decreases in CIP tax rates balanced by fixed increases in Residential tax rates.

Unilateral Transition

As outlined in Table 3, The Research Bureau explored three scenarios using a Unilateral Transition model, in which the CIP tax levy burden is held steady while Residential tax rates are slowly increased to accommodate the needs of the annual budget. All scenarios assume a 3% increase in total property valuation annually. In the first scenario (see Appendix A), the municipal budget increases at an annual 2.5% rate as well as a conservative $3 million in new growth to achieve a single tax rate in approximately 10 years.* In the second scenario (see Appendix B), the municipal budget increases at an annual 2.5% rate, without the inclusion of new growth, to achieve a single tax rate in approximately 13 years. In the third scenario (see Appendix C), the municipal budget increases only at the rate of new growth, or an average of less than 1% per year, to achieve the single tax rate in approximately 40 years.

Table 3: Unilateral Transition Alternatives

Scenario	Average Annual Tax Rate Increase (Residential)	Average Annual Tax Rate Decrease (CIP)	Average Annual Median Tax Bill (Residential)	Average Annual Median Tax Bill (CIP)	Years to Single Tax Rate	Excess Levy Capacity Upon Completion
2.5% + New Growth Increase	2.01%	-2.91%	$5,025.72	$9,608.57	10	$14,573,902
2.5% Only Increase	0.74%	-2.91%	$4,886.34	$9,608.57	13	$65,251,356
New Growth Only Increase	1.63%	-2.91%	$4,968.92	$9,608.57	40	$612,478,019

To be clear, the above scenarios are hypotheticals based on assumptions related to total property valuations, levy limits, increases in median values, and new growth. This model allows for incorporation of actuals as years progress. That said, the current model indicates the relative impact of change over time,

**The 16-year average for new growth in Worcester is $4.2 million, with no individual year falling below $3 million.*

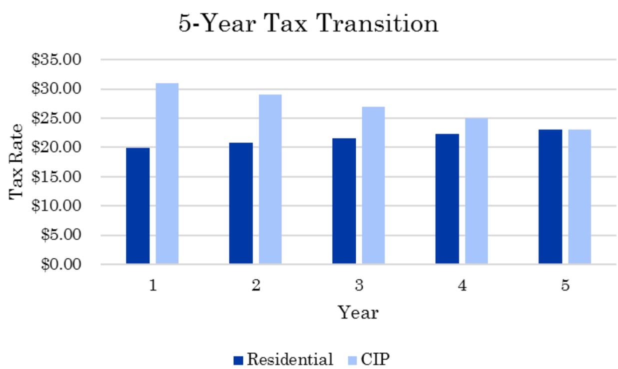
and, if combined with the adherence to criteria as outlined above, provides new predictability and equitability to the annual tax rate process.

Bilateral Transition

The Research Bureau reviewed four scenarios using the Bilateral Transition model in which both the Residential and the CIP tax levy burden change over defined periods of time (See Figure 1: Alternative Tax Transition Periods). Under the City's FY17 tax rates, Residential properties represent 72.3% of Worcester's property tax value but pay only 60.4% of its property tax levy. Alternatively, CIP properties represent 27.7% of Worcester's property tax value but pay 39.6% of its property tax levy. The Bilateral Transition model specifically focuses on moving each class toward a position that equalizes value and levy—the single tax rate.

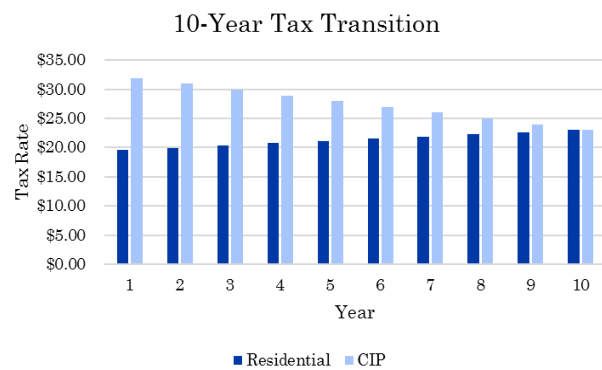
The scenarios presented only indicate the relative burden of the shift over time, not actual amounts of shift. The model was generated using the current tax levy, the current tax rate, and current assessed values, all of which would change annually during the period of the shift. Additionally, using the equation outlined at the beginning of this report, progress could be halted to accommodate increased financial and economic pressures on homeowners. The model does, however, give a sense of the relative burden between classes and the rate at which taxes would shift over years.

Figure 1: Alternative Tax Transition Periods



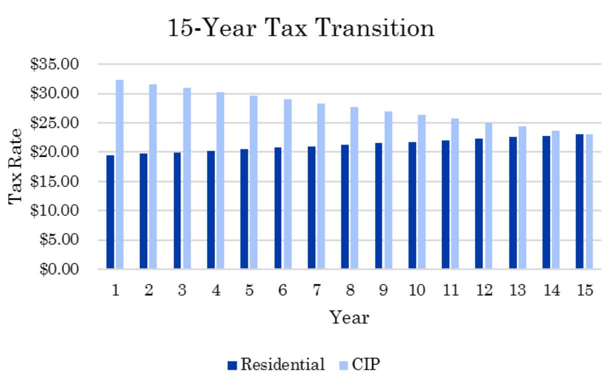
Residential Increase: $0.77/$1,000 Annually

CIP Decrease: $1.98/$1,000 Annually



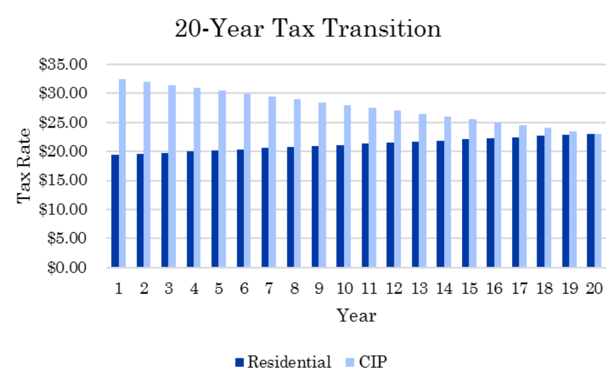
Residential Increase: $0.38/$1,000 Annually

CIP Decrease: $0.99/$1,000 Annually



Residential Increase: $0.26/$1,000 Annually

CIP Decrease: $0.66/$1,000 Annually



Residential Increase: $0.19/$1,000 Annually

CIP Decrease: $0.49/$1,000 Annually

Conclusion

Currently, setting tax rates in the City of Worcester is not a fact-based policy decision. The establishment of criteria with strategic approaches would allow City Council to measure annual progress in key areas and consider actual, rather than anecdotal, impacts of votes. Additionally, it would encourage City Councilors to establish their own rate proposals: in too many instances City Council debates rates originally proposed by outside interest groups, not rates offered independently by Councilors.

The criteria and models outlined in this Policy Alternative white paper are not the entire universe of options. The Research Bureau encourages City Council to consider these and others in an effort to establish predictable and responsible tax policy that works in concert with Worcester's economic development aspirations to promote a fiscally healthy and economically vibrant city for all.

Base Model, FY17 Actuals & Future Assumptions

Fiscal Year	Total Value ($)	% Change	Residential Value ($)	CIP Value ($)	Levy Limit ($)	% Levy Limit	Median Value Residential ($)	Median Value Commercial ($)
2017	**12,266,519,406**	**9.2%**	**8,869,882,042**	**3,396,637,364**	**293,408,601**	**2.4%**	**188,000**	**295,000**
2018	12,634,514,988	3.0%	9,096,850,791	3,537,664,197	303,743,816	2.4%	193,640	303,850
2019	13,013,550,438	3.0%	9,369,756,315	3,643,794,123	314,337,411	2.4%	199,449	312,966
2020	13,403,956,951	3.0%	9,650,849,005	3,753,107,946	325,195,847	2.4%	205,433	322,354
2021	13,806,075,659	3.0%	9,940,374,475	3,865,701,185	336,325,743	2.4%	211,596	332,025
2022	14,220,257,929	3.0%	10,238,585,709	3,981,672,220	347,733,886	2.4%	217,944	341,986
2023	14,646,865,667	3.0%	10,545,743,280	4,101,122,387	359,427,234	2.5%	224,482	352,245
2024	15,086,271,637	3.0%	10,862,115,579	4,224,156,058	371,412,914	2.5%	231,216	362,813
2025	15,538,859,786	3.0%	11,187,979,046	4,350,880,740	383,698,237	2.5%	238,153	373,697
2026	16,005,025,580	3.0%	11,523,618,418	4,481,407,162	396,290,693	2.5%	245,297	384,908
2027	16,485,176,347	3.0%	11,869,326,970	4,615,849,377	409,197,961	2.5%	252,656	396,455
2028	16,979,731,638	3.0%	12,225,406,779	4,754,324,859	422,427,910	2.5%	260,236	408,349
2029	17,489,123,587	3.0%	12,592,168,983	4,896,954,604	435,988,607	2.5%	268,043	420,599
2030	18,013,797,294	3.0%	12,969,934,052	5,043,863,242	449,888,323	2.5%	276,084	433,217
2031	18,554,211,213	3.0%	13,359,032,074	5,195,179,140	464,135,531	2.5%	284,367	446,214
2032	19,110,837,550	3.0%	13,759,803,036	5,351,034,514	478,738,919	2.5%	292,898	459,600
2033	19,684,162,676	3.0%	14,172,597,127	5,511,565,549	493,707,392	2.5%	301,685	473,388
2034	20,274,687,556	3.0%	14,597,775,041	5,676,912,516	509,050,077	2.5%	310,735	487,590
2035	20,882,928,183	3.0%	15,035,708,292	5,847,219,891	524,776,329	2.5%	320,057	502,218
2036	21,509,416,029	3.0%	15,486,779,541	6,022,636,488	540,895,737	2.5%	329,659	517,284
2037	22,154,698,509	3.0%	15,951,382,927	6,203,315,583	557,418,130	2.5%	339,549	532,803
2038	22,819,339,465	3.0%	16,429,924,415	6,389,415,050	574,353,583	2.5%	349,735	548,787
2039	23,503,919,649	3.0%	16,922,822,147	6,581,097,502	591,712,423	2.5%	360,227	565,251
2040	24,209,037,238	3.0%	17,430,506,811	6,778,530,427	609,505,234	2.5%	371,034	582,208
2041	24,935,308,355	3.0%	17,953,422,016	6,981,886,339	627,742,864	2.5%	382,165	599,674
2042	25,683,367,606	3.0%	18,492,024,676	7,191,342,930	646,436,436	2.5%	393,630	617,664
2043	26,453,868,634	3.0%	19,046,785,417	7,407,083,218	665,597,347	2.5%	405,439	636,194
2044	27,247,484,693	3.0%	19,618,188,979	7,629,295,714	685,237,281	2.5%	417,602	655,280
2045	28,064,909,234	3.0%	20,206,734,648	7,858,174,586	705,368,213	2.5%	430,130	674,939
2046	28,906,856,511	3.0%	20,812,936,688	8,093,919,823	726,002,418	2.5%	443,034	695,187
2047	29,774,062,206	3.0%	21,437,324,789	8,336,737,418	747,152,478	2.5%	456,325	716,042
2048	30,667,284,072	3.0%	22,080,444,532	8,586,839,540	768,831,290	2.5%	470,015	737,524
2049	31,587,302,595	3.0%	22,742,857,868	8,844,444,727	791,052,073	2.5%	484,116	759,649
2050	32,534,921,673	3.0%	23,425,143,604	9,109,778,068	813,828,374	2.5%	498,639	782,439
2051	33,510,969,323	3.0%	24,127,897,912	9,383,071,410	837,174,084	2.5%	513,598	805,912
2052	34,516,298,402	3.0%	24,851,734,850	9,664,563,553	861,103,436	2.5%	529,006	830,089
2053	35,551,787,354	3.0%	25,597,286,895	9,954,500,459	885,631,022	2.5%	544,876	854,992
2054	36,618,340,975	3.0%	26,365,205,502	10,253,135,473	910,771,797	2.5%	561,223	880,642
2055	37,716,891,204	3.0%	27,156,161,667	10,560,729,537	936,541,092	2.5%	578,059	907,061
2056	38,848,397,940	3.0%	27,970,846,517	10,877,551,423	962,954,620	2.5%	595,401	934,273
2057	40,013,849,879	3.0%	28,809,971,913	11,203,877,966	990,028,485	2.5%	613,263	962,301
2058	41,214,265,375	3.0%	29,674,271,070	11,539,994,305	1,017,779,197	2.5%	631,661	991,170

Please note that the year the single tax rate is achieved is approximate and rates may not be equivalent between Residential and CIP rates due to annual rounding.

Assumptions:

- *Total assessed value for all taxable property increases 3% per year.*
- *The percentage of Residential and CIP values remains the same.*
- *Median Residential and CIP values increase by 3% per year.*
- *New Growth averages $2.5 million annually.*

Appendix 1: 2.5% Increase + New Growth Scenario

Fiscal Year	Total Levy Raised ($)	$ Change	% Change	Excess Levy Capacity ($)	Residential Levy ($)	% of Total	CIP Levy ($)	% of Total	Residential Tax ($)	% Change	CIP Tax ($)	% Change	Median Residential Tax Bill ($)	Median CIP Tax Bill ($)
2017	**282,301,178**	**7,433,345**	**2.70%**	**11,107,423**	**170,430,585**	**60.4%**	**111,870,593**	**39.6%**	**19.22**	**-6.74%**	**32.93**	**-3.09%**	**3,613.00**	**9,714.00**
2018	292,358,707	10,057,529	3.56%	11,385,109	180,488,114	61.7%	111,870,593	38.3%	19.84	3.23%	31.62	-3.97%	3,841.96	9,608.57
2019	302,667,675	10,308,968	3.53%	11,669,736	190,797,082	63.0%	111,870,593	37.0%	20.36	2.63%	30.70	-2.91%	4,061.40	9,608.57
2020	313,234,367	10,566,692	3.49%	11,961,480	201,363,774	64.3%	111,870,593	35.7%	20.86	2.46%	29.81	-2.91%	4,286.33	9,608.57
2021	324,065,226	10,830,859	3.46%	12,260,517	212,194,633	65.5%	111,870,593	34.5%	21.35	2.31%	28.94	-2.91%	4,516.88	9,608.57
2022	335,166,857	11,101,631	3.43%	12,567,030	223,296,264	66.6%	111,870,593	33.4%	21.81	2.17%	28.10	-2.91%	4,753.19	9,608.57
2023	346,546,028	11,379,171	3.40%	12,881,205	234,675,435	67.7%	111,870,593	32.3%	22.25	2.03%	27.28	-2.91%	4,995.42	9,608.57
2024	358,209,679	11,663,651	3.37%	13,203,235	246,339,086	68.8%	111,870,593	31.2%	22.68	1.91%	26.48	-2.91%	5,243.69	9,608.57
2025	370,164,921	11,955,242	3.34%	13,533,316	258,294,328	69.8%	111,870,593	30.2%	23.09	1.80%	25.71	-2.91%	5,498.18	9,608.57
2026	382,419,044	12,254,123	3.31%	13,871,649	270,548,451	70.7%	111,870,593	29.3%	23.48	1.69%	24.96	-2.91%	5,759.03	9,608.57
2027	394,979,520	12,560,476	3.28%	14,218,441	283,108,927	71.7%	111,870,593	28.3%	23.85	1.59%	24.24	-2.91%	6,026.39	9,608.57
2028	407,854,008	12,874,488	3.26%	14,573,902	295,983,415	72.6%	111,870,593	27.4%	24.21	1.50%	23.53	-2.91%	6,300.45	9,608.57

Please note that the year the single tax rate is achieved is approximate and rates may not be equivalent between Residential and CIP rates due to annual rounding.

Assumptions:

- *Total assessed value for all taxable property increases 3% per year.*
- *The percentage of Residential and CIP values remains the same.*
- *Median Residential and CIP values increase by 3% per year.*
- *New Growth averages $2.5 million annually.*

Appendix 2: 2.5% Increase, No New Growth

Fiscal Year	Total Levy Raised ($)	$ Change	% Change	Excess Levy Capacity ($)	Residential Levy ($)	% of Total	CIP Levy ($)	% of Total	Residential Tax ($)	% Change	CIP Tax ($)	% Change	Median Residential Tax Bill ($)	Median CIP Tax Bill ($)
2017	**282,301,178**	**7,433,345**	**2.70%**	**11,107,423**	**170,430,585**	**60.4%**	**111,870,593**	**39.6%**	**19.22**	**-6.74%**	**32.93**	**-3.09%**	**3,613.00**	**9,714.00**
2018	289,358,707	7,057,529	2.50%	14,385,109	177,488,114	61.3%	111,870,593	38.7%	19.51	1.51%	31.62	-3.97%	3,778.10	9,608.57
2019	296,592,675	7,233,968	2.50%	17,744,736	184,722,082	62.3%	111,870,593	37.7%	19.71	1.04%	30.70	-2.91%	3,932.08	9,608.57
2020	304,007,492	7,414,817	2.50%	21,188,355	192,136,899	63.2%	111,870,593	36.8%	19.91	0.98%	29.81	-2.91%	4,089.92	9,608.57
2021	311,607,679	7,600,187	2.50%	24,718,064	199,737,086	64.1%	111,870,593	35.9%	20.09	0.93%	28.94	-2.91%	4,251.70	9,608.57
2022	319,397,871	7,790,192	2.50%	28,336,015	207,527,278	65.0%	111,870,593	35.0%	20.27	0.87%	28.10	-2.91%	4,417.53	9,608.57
2023	327,382,818	7,984,947	2.50%	32,044,416	215,512,225	65.8%	111,870,593	34.2%	20.44	0.82%	27.28	-2.91%	4,587.50	9,608.57
2024	335,567,389	8,184,570	2.50%	35,845,526	223,696,795	66.7%	111,870,593	33.3%	20.59	0.77%	26.48	-2.91%	4,761.72	9,608.57
2025	343,956,573	8,389,185	2.50%	39,741,664	232,085,980	67.5%	111,870,593	32.5%	20.74	0.73%	25.71	-2.91%	4,940.30	9,608.57
2026	352,555,488	8,598,914	2.50%	43,735,206	240,684,894	68.3%	111,870,593	31.7%	20.89	0.68%	24.96	-2.91%	5,123.34	9,608.57
2027	361,369,375	8,813,887	2.50%	47,828,586	249,498,782	69.0%	111,870,593	31.0%	21.02	0.64%	24.24	-2.91%	5,310.95	9,608.57
2028	370,403,609	9,034,234	2.50%	52,024,300	258,533,016	69.8%	111,870,593	30.2%	21.15	0.60%	23.53	-2.91%	5,503.26	9,608.57
2029	379,663,699	9,260,090	2.50%	56,324,908	267,793,106	70.5%	111,870,593	29.5%	21.27	0.56%	22.84	-2.91%	5,700.37	9,608.57
2030	389,155,292	9,491,592	2.50%	60,733,031	277,284,699	71.3%	111,870,593	28.7%	21.38	0.53%	22.18	-2.91%	5,902.42	9,608.57
2031	398,884,174	9,728,882	2.50%	65,251,356	287,013,581	72.0%	111,870,593	28.0%	21.48	0.49%	21.53	-2.91%	6,109.51	9,608.57

Please note that the year the single tax rate is achieved is approximate and rates may not be equivalent between Residential and CIP rates due to annual rounding.

Assumptions:

- *Total assessed value for all taxable property increases 3% per year.*
- *The percentage of Residential and CIP values remains the same.*
- *Median Residential and CIP values increase by 3% per year.*
- *New Growth averages $2.5 million annually.*

Appendix 3: New Growth Only

Fiscal Year	Total Levy Raised ($)	$ Change	% Change	Excess Levy Capacity ($)	Residential Levy ($)	% of Total	CIP Levy ($)	% of Total	Residential Tax ($)	% Change	CIP Tax ($)	% Change	Median Residential Tax Bill ($)	Median CIP Tax Bill ($)
2017	**282,301,178**	**7,433,345**	**2.70%**	**11,107,423**	**170,430,585**	**60.4%**	**111,870,593**	**39.6%**	**19.22**	**-6.74%**	**32.93**	**-3.09%**	**3,613.00**	**9,714.00**
2018	285,301,178	3,000,000	1.06%	18,442,638	173,430,585	60.8%	111,870,593	39.2%	19.06	-0.81%	31.62	-3.97%	3,691.73	9,608.57
2019	288,301,178	3,000,000	1.05%	26,036,233	176,430,585	61.2%	111,870,593	38.8%	18.83	-1.23%	30.70	-2.91%	3,755.59	9,608.57
2020	291,301,178	3,000,000	1.04%	33,894,669	179,430,585	61.6%	111,870,593	38.4%	18.59	-1.26%	29.81	-2.91%	3,819.45	9,608.57
2021	294,301,178	3,000,000	1.03%	42,024,565	182,430,585	62.0%	111,870,593	38.0%	18.35	-1.29%	28.94	-2.91%	3,883.31	9,608.57
2022	297,301,178	3,000,000	1.02%	50,432,708	185,430,585	62.4%	111,870,593	37.6%	18.11	-1.32%	28.10	-2.91%	3,947.17	9,608.57
2023	300,301,178	3,000,000	1.01%	59,126,056	188,430,585	62.7%	111,870,593	37.3%	17.87	-1.34%	27.28	-2.91%	4,011.03	9,608.57
2024	303,301,178	3,000,000	1.00%	68,111,736	191,430,585	63.1%	111,870,593	36.9%	17.62	-1.37%	26.48	-2.91%	4,074.88	9,608.57
2025	306,301,178	3,000,000	0.99%	77,397,059	194,430,585	63.5%	111,870,593	36.5%	17.38	-1.39%	25.71	-2.91%	4,138.74	9,608.57
2026	309,301,178	3,000,000	0.98%	86,989,515	197,430,585	63.8%	111,870,593	36.2%	17.13	-1.41%	24.96	-2.91%	4,202.60	9,608.57
2027	312,301,178	3,000,000	0.97%	96,896,783	200,430,585	64.2%	111,870,593	35.8%	16.89	-1.44%	24.24	-2.91%	4,266.46	9,608.57
2028	315,301,178	3,000,000	0.96%	107,126,732	203,430,585	64.5%	111,870,593	35.5%	16.64	-1.46%	23.53	-2.91%	4,330.32	9,608.57
2029	318,301,178	3,000,000	0.95%	117,687,429	206,430,585	64.9%	111,870,593	35.1%	16.39	-1.48%	22.84	-2.91%	4,394.18	9,608.57
2030	321,301,178	3,000,000	0.94%	128,587,145	209,430,585	65.2%	111,870,593	34.8%	16.15	-1.50%	22.18	-2.91%	4,458.04	9,608.57
2031	324,301,178	3,000,000	0.93%	139,834,353	212,430,585	65.5%	111,870,593	34.5%	15.90	-1.52%	21.53	-2.91%	4,521.90	9,608.57
2032	327,301,178	3,000,000	0.93%	151,437,741	215,430,585	65.8%	111,870,593	34.2%	15.66	-1.54%	20.91	-2.91%	4,585.76	9,608.57
2033	330,301,178	3,000,000	0.92%	163,406,214	218,430,585	66.1%	111,870,593	33.9%	15.41	-1.56%	20.30	-2.91%	4,649.62	9,608.57
2034	333,301,178	3,000,000	0.91%	175,748,899	221,430,585	66.4%	111,870,593	33.6%	15.17	-1.58%	19.71	-2.91%	4,713.48	9,608.57
2035	336,301,178	3,000,000	0.90%	188,475,151	224,430,585	66.7%	111,870,593	33.3%	14.93	-1.60%	19.13	-2.91%	4,777.34	9,608.57
2036	339,301,178	3,000,000	0.89%	201,594,559	227,430,585	67.0%	111,870,593	33.0%	14.69	-1.61%	18.58	-2.91%	4,841.20	9,608.57
2037	342,301,178	3,000,000	0.88%	215,116,952	230,430,585	67.3%	111,870,593	32.7%	14.45	-1.63%	18.03	-2.91%	4,905.06	9,608.57
2038	345,301,178	3,000,000	0.88%	229,052,405	233,430,585	67.6%	111,870,593	32.4%	14.21	-1.65%	17.51	-2.91%	4,968.92	9,608.57
2039	348,301,178	3,000,000	0.87%	243,411,245	236,430,585	67.9%	111,870,593	32.1%	13.97	-1.66%	17.00	-2.91%	5,032.78	9,608.57
2040	351,301,178	3,000,000	0.86%	258,204,056	239,430,585	68.2%	111,870,593	31.8%	13.74	-1.68%	16.50	-2.91%	5,096.64	9,608.57
2041	354,301,178	3,000,000	0.85%	273,441,686	242,430,585	68.4%	111,870,593	31.6%	13.50	-1.70%	16.02	-2.91%	5,160.50	9,608.57
2042	357,301,178	3,000,000	0.85%	289,135,258	245,430,585	68.7%	111,870,593	31.3%	13.27	-1.71%	15.56	-2.91%	5,224.36	9,608.57
2043	360,301,178	3,000,000	0.84%	305,296,169	248,430,585	69.0%	111,870,593	31.0%	13.04	-1.73%	15.10	-2.91%	5,288.21	9,608.57
2044	363,301,178	3,000,000	0.83%	321,936,103	251,430,585	69.2%	111,870,593	30.8%	12.82	-1.74%	14.66	-2.91%	5,352.07	9,608.57
2045	366,301,178	3,000,000	0.83%	339,067,035	254,430,585	69.5%	111,870,593	30.5%	12.59	-1.75%	14.24	-2.91%	5,415.93	9,608.57

(Table Continues on Next Page)

Please note that the year the single tax rate is achieved is approximate and rates may not be equivalent between Residential and CIP rates due to annual rounding.

Assumptions:

- *Total assessed value for all taxable property increases 3% per year.*
- *The percentage of Residential and CIP values remains the same.*
- *Median Residential and CIP values increase by 3% per year.*
- *New Growth averages $2.5 million annually.*

Appendix 3: New Growth Only (*continued*)

Fiscal Year	Total Levy Raised ($)	$ Change	% Change	Excess Levy Capacity ($)	Residential Levy ($)	% of Total	CIP Levy ($)	% of Total	Residential Tax ($)	% Change	CIP Tax ($)	% Change	Median Residential Tax Bill ($)	Median CIP Tax Bill ($)
2046	369,301,178	3,000,000	0.82%	356,701,240	257,430,585	69.7%	111,870,593	30.3%	12.37	-1.77%	13.82	-2.91%	5,479.79	9,608.57
2047	372,301,178	3,000,000	0.81%	374,851,300	260,430,585	70.0%	111,870,593	30.0%	12.15	-1.78%	13.42	-2.91%	5,543.65	9,608.57
2048	375,301,178	3,000,000	0.81%	393,530,112	263,430,585	70.2%	111,870,593	29.8%	11.93	-1.79%	13.03	-2.91%	5,607.51	9,608.57
2049	378,301,178	3,000,000	0.80%	412,750,895	266,430,585	70.4%	111,870,593	29.6%	11.71	-1.81%	12.65	-2.91%	5,671.37	9,608.57
2050	381,301,178	3,000,000	0.79%	432,527,196	269,430,585	70.7%	111,870,593	29.3%	11.50	-1.82%	12.28	-2.91%	5,735.23	9,608.57
2051	384,301,178	3,000,000	0.79%	452,872,906	272,430,585	70.9%	111,870,593	29.1%	11.29	-1.83%	11.92	-2.91%	5,799.09	9,608.57
2052	387,301,178	3,000,000	0.78%	473,802,258	275,430,585	71.1%	111,870,593	28.9%	11.08	-1.84%	11.58	-2.91%	5,862.95	9,608.57
2053	390,301,178	3,000,000	0.77%	495,329,844	278,430,585	71.3%	111,870,593	28.7%	10.88	-1.86%	11.24	-2.91%	5,926.81	9,608.57
2054	393,301,178	3,000,000	0.77%	517,470,619	281,430,585	71.6%	111,870,593	28.4%	10.67	-1.87%	10.91	-2.91%	5,990.67	9,608.57
2055	396,301,178	3,000,000	0.76%	540,239,914	284,430,585	71.8%	111,870,593	28.2%	10.47	-1.88%	10.59	-2.91%	6,054.53	9,608.57
2056	399,301,178	3,000,000	0.76%	563,653,442	287,430,585	72.0%	111,870,593	28.0%	10.28	-1.89%	10.28	-2.91%	6,118.39	9,608.57
2057	402,301,178	3,000,000	0.75%	587,727,307	290,430,585	72.2%	111,870,593	27.8%	10.08	-1.90%	9.98	-2.91%	6,182.25	9,608.57
2058	405,301,178	3,000,000	0.75%	612,478,019	293,430,585	72.4%	111,870,593	27.6%	9.89	-1.91%	9.69	-2.91%	6,246.11	9,608.57

Please note that the year the single tax rate is achieved is approximate and rates may not be equivalent between Residential and CIP rates due to annual rounding.

Assumptions:

- *Total assessed value for all taxable property increases 3% per year.*
- *The percentage of Residential and CIP values remains the same.*
- *Median Residential and CIP values increase by 3% per year.*
- *New Growth averages $2.5 million annually.*

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