

The Michigan Department of Treasury highly recommends that any municipality interested in issuing pension or OPEB bonds should contact their Bond Counsel and Financial Advisor when looking into bonding or when attempting to calculate the NPV savings of such bonding.

	A	B	C (A+B)	D	E	F	G (D + E + F)	H	I	J (=B)	K (G + H + I + J)	L (C - K)	M
	No pension bonds			After issuing \$29.1m pension bonds								Nominal/NPV Savings	
Fiscal Year Ending 6/30	UAL Amort Pmts <1>, <6>	Normal Cost <2>	UAL Amort Pmts + Normal Cost	November Interest	May Interest	May Principal	Total Debt Service Payment <3>	UAL Remaining Amort Pmts <4>, <5>	UAL Amort Pmts Already Made in FY <6>	Normal Cost <2>	Debt Service + UAL Amort Pmts + Normal Cost	Nominal Annual Savings	NPV Savings Discount Rate 3.977% <7>
2019	3,779,433	672,732	4,452,165	-	698,400	640,000	1,338,400	686,817	944,858	672,732	3,642,807	809,358	809,358
2020	3,779,433	580,125	4,359,558	569,200	569,200	1,305,000	2,443,400	915,757	-	580,125	3,939,282	420,276	404,201
2021	3,779,433	511,310	4,290,743	543,100	543,100	1,355,000	2,441,200	915,757	-	511,310	3,868,267	422,476	390,776
2022	3,779,433	435,568	4,215,001	516,000	516,000	1,410,000	2,442,000	915,757	-	435,568	3,793,325	421,676	375,118
2023	3,779,433	365,345	4,144,778	487,800	487,800	1,465,000	2,440,600	915,757	-	365,345	3,721,702	423,076	361,968
2024	3,779,433	300,966	4,080,399	458,500	458,500	1,525,000	2,442,000	915,757	-	300,966	3,658,723	421,676	346,971
2025	3,779,433	247,026	4,026,459	428,000	428,000	1,585,000	2,441,000	915,757	-	247,026	3,603,783	422,676	334,491
2026	3,779,433	193,668	3,973,101	396,300	396,300	1,650,000	2,442,600	915,757	-	193,668	3,552,025	421,076	320,479
2027	3,779,433	151,859	3,931,292	363,300	363,300	1,715,000	2,441,600	915,757	-	151,859	3,509,216	422,076	308,953
2028	3,779,433	119,043	3,898,476	329,000	329,000	1,780,000	2,438,000	915,757	-	119,043	3,472,800	425,676	299,671
2029	3,779,433	93,479	3,872,912	293,400	293,400	1,855,000	2,441,800	915,757	-	93,479	3,451,036	421,876	285,636
2030	3,779,433	71,359	3,850,792	256,300	256,300	1,930,000	2,442,600	915,757	-	71,359	3,429,716	421,076	274,189
2031	3,779,433	54,345	3,833,778	217,700	217,700	2,005,000	2,440,400	915,757	-	54,345	3,410,502	423,276	265,080
2032	3,779,433	41,529	3,820,962	177,600	177,600	2,090,000	2,445,200	915,757	-	41,529	3,402,486	418,476	252,050
2033	3,779,433	29,176	3,808,609	135,800	135,800	2,175,000	2,446,600	915,757	-	29,176	3,391,533	417,076	241,598
2034	3,779,433	22,168	3,801,601	92,300	92,300	2,260,000	2,444,600	915,757	-	22,168	3,382,525	419,076	233,472
2035	3,779,433	15,433	3,794,866	47,100	47,100	2,355,000	2,449,200	915,757	-	15,433	3,380,390	414,476	222,077
Total	64,250,361	3,905,131	68,155,492	5,311,400	6,009,800	29,100,000	40,421,200	15,338,923	944,858	3,905,131	60,610,112	7,545,380	5,726,086 <8>

<1> amortized payment only, do not include normal cost

<2> normal cost can be included for presentation purposes, but it's not required as it has no impact on NPV savings calculation

<3> debt service structured with level or descending payments (excluding year one) - see Bulletin 11, page 2, B.2.

<4> PA 34 of 2001, Sec. 518 (1) and (2) prohibits bonding to fund up to 100% of UAL, therefore smaller UAL amortization payments will remain after bonding

<5> 9 months worth of UAL amortization payments for Oct 2018 - June 2019 made after bond issuance in Sept 2018:  $9/12 = 0.75 * 915,757 \approx 686,817$

<6> 3 months worth of UAL amortization payments for Jul-Sept 2018 made prior to bond issuance in Sept 2018:  $3/12 = 0.25 * 3,779,433 \approx 944,858$

<7> Each year NPV savings calculation shall use discount rate equal to True Interest Cost (TIC) from bonds

<8>  $\$5,726,086 / \$29,100,000 = 19.7\%$  - see PA 34 of 2001, Sec. 518 (5)(e)

UAL funded with bond proceeds	28,900,000
Costs of issuance	200,000
Bond par	29,100,000 <8>
True Interest Cost (TIC)	3.977% <7>
NPV Savings \$5,726,086 / Bond Par \$29,000,000 =	19.7% <8>