September 13, 2023

Board of Trustees
Carpenters Local No. 491 Pension Plan
c/o Mr. Dave Jensen
Associated Administrators, LLC
911 Ridgebrook Road
Sparks, MD 21152-9451

Re: Actuarial Studies to Reflect Shop Increases

Dear Trustees:

At the June 2023 Board of Trustees meeting, Bolton was asked to study the cost of providing an increase in the Shop benefit multiplier from the current $30[1] to either $35 or $40 for all service credits (past and future). The purpose of this letter is to provide the results of the requested study.

We have determined the cost of the benefit increase using the valuation data, plan provisions, assumptions, and methods (except those being studied) described in our draft 2023 Actuarial Zone Certification Report, which will be presented together with this report at the September 2023 Trustee meeting.

Description of Studies Performed

We were asked to estimate the cost of providing an increase in the Shop benefit multiplier under the following scenarios:

- Increase the Shop benefit multiplier from $30[1] to $35 for each service credit
- Increase the Shop Show benefit multiplier from $30[1] to $40 for each service credit

The possible plan changes in each scenario were assumed to take place retroactively effective July 1, 2023, which was done for simplicity and to be somewhat conservative. Additionally, the increase in benefit multiplier (as a percent) was applied on all prior service periods (including those periods separated by a Break in Service), which was done for simplicity and to be somewhat conservative. Neither of these approaches would have a material impact on the results if a more complex method was followed.

[1] Effective July 1, 2021, the benefit multipliers for Shop participants are $33 for service credits earned through August 31, 2009, $20 for service credits earned from September 1, 2009 to June 30, 2021, and $30 for service credits earned after July 1, 2021.

Study Results

Increase in Shop Benefit Multiplier

The table below provides the cost as an increase in the Shop contribution rate. As can be seen in the table, the cost for every $1 increase in the current Shop benefit multiplier is approximately a $0.15 to $0.19 increase in the contribution rate.

As of July 1, 2023	Baseline – Current Plan Provisions	Shop Monthly Unit Benefit Rate – For All Service	
		Increase to $35	Increase to $40
Accrued Liability	47,960,863	48,322,298	48,492,079
Accrued Liability Increase		361,435	531,216
15-year Amortization of Increase[2]		35,108	51,599
Normal Cost (excl expenses)	1,326,724	1,333,811	1,340,899
Normal Cost Increase		7,087	14,175
Dollar Per Hour ($/Hr)[3]	**N/A**	**$0.94**	**$1.46**
Funded Ratio (AVA/Liability)	**125.5%**	**124.6%**	**124.1%**

As footnoted below, the above costs are based on active Shop participants working 45,000 hours annually. If hours for the current active Shop participants increase, then this would have little impact on benefit accruals, but would increase contributions into the Plan, thus reducing the cost on a per-hour basis. For example, if Shop hours increase by 10,000, the cost drops to $0.77 and $1.20 for the increase to $35 and $40 scenarios, respectively.

[2] This is determined at 6.00%. There is no amortization base created for this increase in accrued liability if the Plan is 100% funded.
[3] Based on 45,000 estimated hours worked by Shop participants in the plan year July 1, 2022 to June 30, 2023 (hours provided through May 22, 2023 from Associated Administrators; annualized).

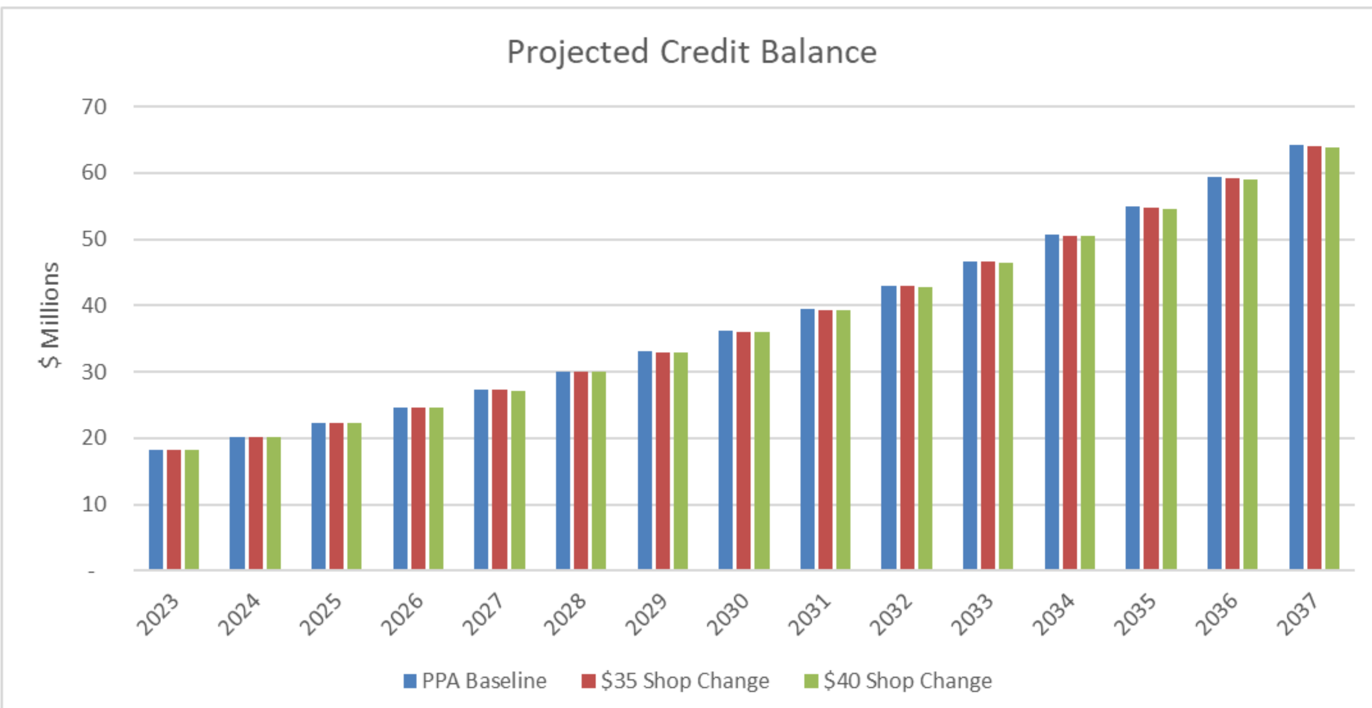
Projections

The tables below show projected values of the Credit Balance and Funded Ratio (Actuarial Value of Assets / Unit Credit Liability) under three scenarios: Baseline, Increase to $35, and Increase to $40.

The Baseline projections represent the results from our draft 2023 Actuarial Zone Certification Report, which will be presented together with this report at the September 2023 Trustee meeting. The other projections reflect the relative increases in accrued liability and normal cost discussed above and assumed to be effective on July 1, 2023.

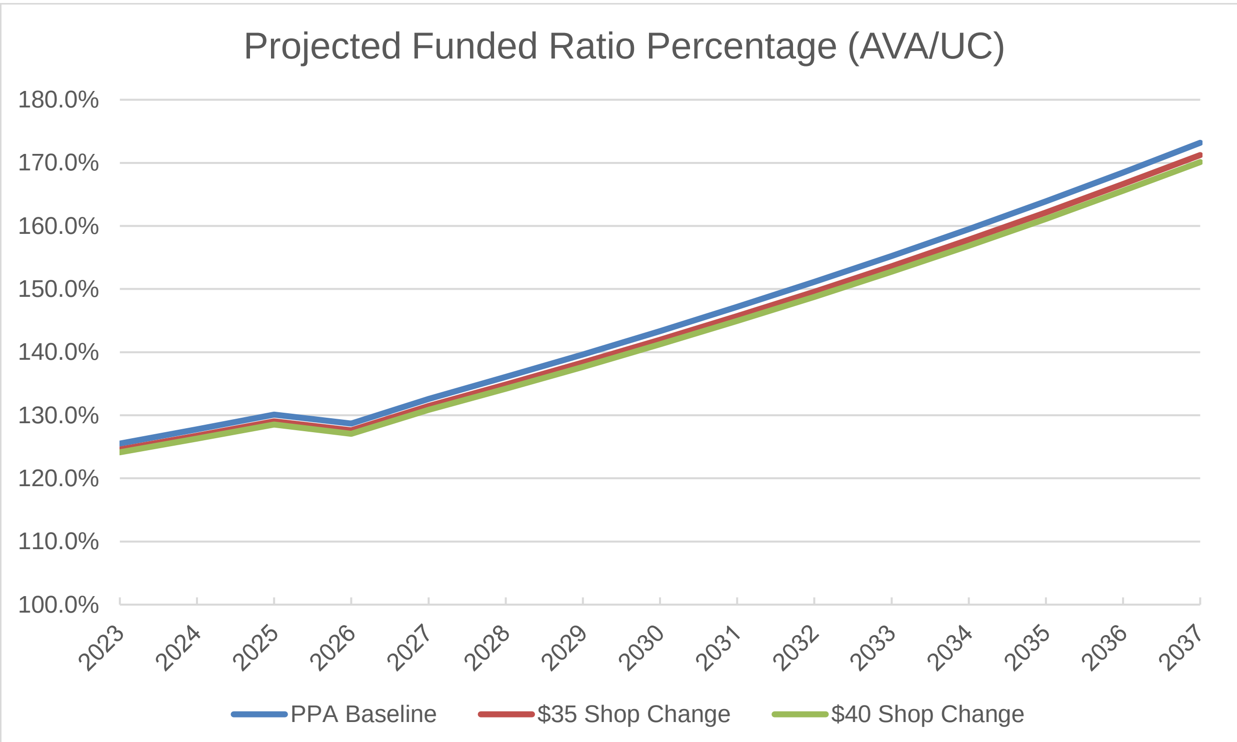
Credit Balance Projection

The credit balance is projected to remain well above $0 in each projection year. Thus, the Plan is projected to not have an accumulated funding deficiency under any of the study scenarios.



Funded Ratio Projection

The Plan is projected to remain well above 100% funded in each projection year. Thus, the Plan is projected to remain within the Green Zone under each of the study scenarios. There is a decrease in the funded ratio in 2026 because recent investment losses have caused the actuarial value of assets to be higher than the market value of assets as of July 1, 2023. These losses are fully reflected in the actuarial value of assets by 2026.



As with all projections, future results may differ substantially from those projected herein. See appendix for tables of the projections shown in the charts above.

Actuarial Certification

This is a deterministic valuation in that it is based on a single set of assumptions. This set of assumptions is one possible basis for our calculations. Other assumptions may be equally valid. We may consider that some factors are not material to the valuation of the plan and may not provide a specific assumption for those factors. We may have used other assumptions in the past. We will likely consider changes in assumptions at a future date.

The cost of this plan is determined by the benefits promised by the plan, the plan's participant population, the investment experience of the plan and many other factors. An actuarial valuation is a budgeting tool for the trustees. It does not affect the cost of the plan. Different funding methods provide for different timing of contributions to the plan. As the experience of the plan evolves, it is normal for the level of contributions to the plan to change. If a contribution is not made for a particular year, either by deliberate choice or because of an error in a calculation, that contribution can be made in later years. We will not be responsible for contributions that are made at a future time rather than an earlier time. The contributing employers are responsible for funding the cost of the plan.

The accuracy of the results presented in this report is dependent upon the accuracy and completeness of the underlying information. The Plan Sponsor is solely responsible for the validity and completeness of this information.

This report is conditioned on the assumption of an ongoing plan and is not meant to present the actuarial position of the Plan in the case of Plan termination. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions, changes in economic or demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status), and changes in plan provisions or applicable law.

This report was completed using both proprietary and third-party models (including software and tools). We have tested these models to ensure they are used for their intended purposes, within their known limitations, and without any known material inconsistencies unless otherwise stated.

Bolton Partners, Inc. ("Bolton") does not practice law and, therefore, cannot and does not provide legal advice. Any statutory interpretation on which this report is based on reflects Bolton's understanding as an actuarial firm. Bolton recommends that recipients of this report consult with legal counsel when making any decisions.

The information in this report was prepared for the internal use of the Board of Trustees and its auditors in connection with our actuarial valuations of the pension plan. It is neither intended nor necessarily suitable for other purposes. We are not responsible for the consequences of any other use.

If you have any questions regarding these studies, please do not hesitate to contact me via email at tboles@boltonusa.com or via phone at 443-573-3938.

Sincerely,

Timothy D. Boles

Timothy D. Boles, ASA, EA

Appendix

Baseline

15-Year Projection of the Credit Balance and Funded Percentage

Plan Year	PPA Funded %	Beginning Credit Balance	Total Normal Cost	Net Amort. Charge	Anticipated Contribution	Interest	Ending Credit Balance
2023	125.5%	$ 18,166,560	$ 1,606,639	$ 456,605	$ 2,961,863	$ 1,055,055	$ 20,120,234
2024	127.8%	20,120,234	1,612,237	351,323	2,961,863	1,178,256	22,296,793
2025	130.1%	22,296,793	1,617,947	286,378	2,961,863	1,312,404	24,666,735
2026	128.7%	24,666,735	1,623,771	191,628	2,961,863	1,459,936	27,273,135
2027	132.6%	27,273,135	1,629,712	143,517	2,961,863	1,618,850	30,080,619
2028	136.1%	30,080,619	1,635,772	131,293	2,961,863	1,787,669	33,063,086
2029	139.7%	33,063,086	1,641,953	213,263	2,961,863	1,961,328	36,131,061
2030	143.3%	36,131,061	1,648,258	130,372	2,961,863	2,150,002	39,464,296
2031	147.2%	39,464,296	1,654,689	130,372	2,961,863	2,349,610	42,990,708
2032	151.1%	42,990,708	1,661,248	130,372	2,961,863	2,560,801	46,721,752
2033	155.2%	46,721,752	1,667,938	130,372	2,961,863	2,784,262	50,669,567
2034	159.5%	50,669,567	1,674,762	130,375	2,961,863	3,020,722	54,847,015
2035	163.9%	54,847,015	1,681,723	90,732	2,961,863	3,273,329	59,309,752
2036	168.5%	59,309,752	1,688,823	7,696	2,961,863	3,545,650	64,120,746
2037	173.2%	64,120,746	1,696,065	0	2,961,863	3,834,337	69,220,881

Increase to $35 for Shop

15-Year Projection of the Credit Balance and Funded Percentage

Plan Year	PPA Funded %	Beginning Credit Balance	Total Normal Cost	Net Amort. Charge	Anticipated Contribution	Interest	Ending Credit Balance
2023	124.6%	$ 18,166,560	$ 1,613,726	$ 456,605	$ 2,961,863	$ 1,054,630	$ 20,112,722
2024	126.8%	20,112,722	1,619,324	351,323	2,961,863	1,177,380	22,281,318
2025	129.1%	22,281,318	1,625,034	286,378	2,961,863	1,311,050	24,642,819
2026	127.6%	24,642,819	1,630,858	191,628	2,961,863	1,458,076	27,240,272
2027	131.5%	27,240,272	1,636,799	143,517	2,961,863	1,616,453	30,038,272
2028	134.9%	30,038,272	1,642,859	131,293	2,961,863	1,784,703	33,010,686
2029	138.3%	33,010,686	1,649,040	213,263	2,961,863	1,957,759	36,068,005
2030	142.0%	36,068,005	1,655,345	130,372	2,961,863	2,145,793	39,389,944
2031	145.7%	39,389,944	1,661,776	130,372	2,961,863	2,344,724	42,904,383
2032	149.6%	42,904,383	1,668,335	130,372	2,961,863	2,555,196	46,622,735
2033	153.6%	46,622,735	1,675,025	130,372	2,961,863	2,777,896	50,557,097
2034	157.8%	50,557,097	1,681,849	130,375	2,961,863	3,013,548	54,720,284
2035	162.1%	54,720,284	1,688,810	90,732	2,961,863	3,265,300	59,167,905
2036	166.6%	59,167,905	1,695,910	7,696	2,961,863	3,536,714	63,962,876
2037	171.2%	63,962,876	1,703,152	0	2,961,863	3,824,439	69,046,026

Increase to $40 for Shop

15-Year Projection of the Credit Balance and Funded Percentage

Plan Year	PPA Funded %	Beginning Credit Balance	Total Normal Cost	Net Amort. Charge	Anticipated Contribution	Interest	Ending Credit Balance
2023	124.1%	$ 18,166,560	$ 1,620,814	$ 456,605	$ 2,961,863	$ 1,054,204	$ 20,105,208
2024	126.3%	20,105,208	1,626,412	351,323	2,961,863	1,176,504	22,265,840
2025	128.6%	22,265,840	1,632,122	286,378	2,961,863	1,309,696	24,618,899
2026	127.1%	24,618,899	1,637,946	191,628	2,961,863	1,456,215	27,207,403
2027	130.9%	27,207,403	1,643,887	143,517	2,961,863	1,614,056	29,995,918
2028	134.2%	29,995,918	1,649,947	131,293	2,961,863	1,781,737	32,958,278
2029	137.7%	32,958,278	1,656,128	213,263	2,961,863	1,954,189	36,004,939
2030	141.2%	36,004,939	1,662,433	130,372	2,961,863	2,141,584	39,315,581
2031	144.9%	39,315,581	1,668,864	130,372	2,961,863	2,339,837	42,818,045
2032	148.8%	42,818,045	1,675,423	130,372	2,961,863	2,549,591	46,523,704
2033	152.7%	46,523,704	1,682,113	130,372	2,961,863	2,771,529	50,444,611
2034	156.9%	50,444,611	1,688,937	130,375	2,961,863	3,006,374	54,593,536
2035	161.1%	54,593,536	1,695,898	90,732	2,961,863	3,257,270	59,026,039
2036	165.6%	59,026,039	1,702,998	7,696	2,961,863	3,527,777	63,804,985
2037	170.1%	63,804,985	1,710,240	0	2,961,863	3,814,541	68,871,149