



1301 Fifth Avenue
Suite 3800
Seattle, WA 98101-2605 USA
ben.diederich@milliman.com
Tel +1 206 504 5561
Fax +1 206 682 1295
milliman.com

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Sara Stith
Idaho Department of Health and Welfare
3232 Elder St.
Boise, ID 83705

Re: Non-emergency Transportation Projections

Dear Sara,

At your request, Milliman is pleased to provide the State of Idaho, Department of Health and Welfare (IDHW) with this summary letter describing our analysis relating to non-emergency transportation (NEMT) costs. We understand that you will be using this information for initial review to determine if the broker is reimbursing the NEMT providers at an equitable rate. Note this letter replaces the interim letter sent August 24th.

This letter and the attached models have been prepared for the internal use of Idaho Department of Health and Welfare (IDHW) and are only to be relied upon by IDHW. The information contained in this memorandum has been prepared for the State of Idaho Department of Health and Welfare through a contract with Boise State University.

It is our understanding that the information contained in this letter may be utilized in a public document. To the extent that the information contained in this letter is provided to third parties, the letter should be distributed in its entirety. Any user of the data must possess a certain level of expertise in actuarial science and healthcare modeling so as not to misinterpret the data presented. Milliman makes no representations or warranties regarding the contents of this letter to third parties. Likewise, third parties are instructed that they are to place no reliance upon this letter prepared for IDHW by Milliman that would result in the creation of any duty or liability under any theory of law by Milliman or its employees to third parties. Other parties receiving this letter must rely upon their own experts in drawing conclusions about the capitation rates, assumptions and trends.

I am a member of the American Academy of Actuaries, and I meet the qualification standards for performing the analyses in this report.

EXECUTIVE SUMMARY

We took a two-pronged approach to evaluating the NEMT costs, evaluating both historical program costs and creating a bottom-up development of costs. For the bottom-up development, we have included estimates for the six main components of cost: driver wages, vehicle maintenance, fuel, vehicle purchase cost, insurance, and administrative costs. These bottom-up assumptions are totaled together to estimate per member per month (PMPM) and per mile costs for the program. There are a number of key assumptions in the bottom-up development that greatly influence the estimated expenditures. Therefore, we have examined a number of scenarios in the bottom-up approach that vary these assumptions to show a range of results. For the historical costs approach we have not

projected these results and instead have taken the average of claims for various historical periods and summarize individual months.

Table 1, below, shows a high level summary of our results. Note that values in the table represent claim expenditures that would be paid to the provider, and not a fully loaded capitation rate that IDHW would pay to the NEMT vendor.

Table 1			
Idaho Department of Health and Welfare			
Non-Emergency Transportation Cost Evaluation			
Summary of Historical Results and Bottom-Up Development			
	Low	Average	High
Per Member Per Month Costs			
Historical Claims Data ¹	\$3.34	\$5.00	\$5.77
Recent Historical Claims Data ²	\$5.67	\$6.29	\$6.96
Bottom-Up Modeled Scenarios ³	\$7.43	\$8.70	\$9.98
Cost per Mile			
Historical Claims Data ¹	\$0.93	\$1.26	\$1.60
Recent Historical Claims Data ²	\$1.59	\$1.65	\$1.69
Bottom-Up Modeled Scenarios ³	\$1.91	\$2.23	\$2.56
¹ 201301 - 201606 Incurred NEMT claims			
² 201701 - 201712 Incurred NEMT claims			
³ Modeled scenarios only; alternate scenarios could produce different results			

The range of projected costs in the modeled scenarios represent higher costs than the range of historical results. Note that additional scenarios could be considered where the bottom-up modeling produces results that would be either higher or lower than reported recent average historical costs.

METHODOLOGY

The Medicaid NEMT program provides services for the Basic, Enhanced, and Coordinated plans. For this analysis, we combined all eligibles in our historical summaries. This is consistent with how the state intends to pay the capitation rate and how we understand the contracts with the providers are structured. There have been several different NEMT vendors who have provided coverage for IDHW over the years, and the detailed claim data, trip reports, and financial summaries have come in various different formats. We first summarized and reviewed the historical data for several time periods. While we attempted to analyze and validate all data, we note that some time periods appeared to have missing, inconsistent, or incomplete data. However, we were able to create summaries based on our best interpretation of the data. Our data interpretations should not be considered a complete and full audit of the historical programs.

Additional comments about the review of historical data:

- We relied upon the detailed trip reports versus other “miscellaneous” reports, where available. In general, the detailed trips showed lower trips and mileage.
- Invalid (denied or cancelled) trips were excluded from our summaries, whenever we were able to identify them.
- We did not adjust any amounts for completion.
- It appears beginning 201607 that “trips” may be reported as one-way trips versus round trips, as the number of trips roughly doubled, without a notable change in miles. The bottom-up development does not rely on an estimated number of trips; we use this as part of our reasonability review.

Exhibit 1 shows a quarterly summary of key values and metrics we reviewed. Note that in some months we were unable to find data showing dollars paid, leading to \$0 reported in the exhibits. As shown in the exhibit, recent historical data shows higher costs on a PMPM and cost/mile basis than historically seen. However, previous trends show a fairly flat rate of historical cost increase.

We additionally set up a bottom-up development of expected NEMT provider expenditures, using six main components of cost: driver wages, vehicle maintenance, fuel, vehicle purchase cost, insurance, and administrative costs. We reviewed a number of different sources to calculate annual per-vehicle expenditures for each cost component, the total annual expenditures, PMPM costs, and per mile costs. While some vehicles may be used as backups only, some of the cost components would still be required (vehicle purchase cost, insurance) and others we have spread the costs across all vehicles to get a per vehicle estimate (driver wages, fuel, vehicle maintenance). Since there is a range of acceptable values for many of the assumptions, we set up several scenarios to vary these assumptions and produce a range of cost estimates. Note that there are likely acceptable values outside of the modeled ranges. Our scenarios are not intended to be an upper or lower bound of costs.

Here are some notes about the development of these bottom-up cost assumptions for the results:

Driver wages

Out of the six items, driver wages is the assumption that has the most variability, and represents the largest component of cost. Based on Department of Labor summaries from 2017 that list average annual wages in Idaho for Non-EMT Ambulance Drivers, Bus Drivers, and Taxi Drivers, we calculate an annual wage assumption per driver as \$27,331. Assuming a full time employee has a five-day work week and eight hour days, this translates to approximately \$13.10 per hour. It is assumed that a full time driver is paid this regardless of if they are driving a passenger or not. The more full time drivers we assume, the fewer miles we assume each driver actually transports passengers (leading to a lower average trip miles per work day).

In our calculations we estimate the driver wages as an average cost per vehicle within the fleet. For this reason, we also assume that a number of vehicles will be inactive at any time (these vehicles may serve as backups in case other vehicles require repair or some of the vehicles may only run for half of a day). As we review driver wages on a per vehicle basis, the annual wage amount is dampened for those inactive vehicles. If we assumed all vehicles were active and paired with a driver at all times the full assumed wage would be shown. Driver occupancy rate is the primary assumption we have varied by scenario.

For example, in scenarios where we assume an 80% driver occupancy rate, we have dampened the per vehicle wage amount to be 80% of the annual per driver wage. This spreads the annual wage expenditures across all vehicles. Combined with the estimated number of vehicles, we are able to use this information to calculate other interesting metrics, such as trip miles per driver per work day (assuming a five-day work week). Note that updated information from the state indicated there were more drivers than vehicles included in the current fleet. Because our wage assumptions are for full time drivers and there can't be more drivers than vehicles working at any one time, we capped the number of drivers at 100% driver occupancy rate.

Vehicle maintenance

We reviewed several sources to arrive at an annual per vehicle maintenance cost of \$1,567. This amount includes costs associated with oil and lubricants, maintenance labor, maintenance parts, and registration. While the primary source of this data was a 1998 OPE report, we were able to validate this estimate by reviewing a 2017 article relating to fleet operating costs, which showed a lower annual per vehicle maintenance cost.

Fuel

Annual fuel costs per vehicle were calculated assuming a cost of \$3.18 per gallon, and 23.3 miles per gallon. We calculate fuel costs based on the implied annual trip miles per vehicle, for each scenario. This assumption is dynamic and based on the number of annual trip miles and the number of vehicles assumed for each scenario. For example, with an average of 14,463 annual trip miles per vehicle, the annual fuel cost per vehicle to cover the trips is assumed to be \$1,971. We have not assumed any additional fuel costs beyond completing the trips.

Vehicle purchase cost

In setting this assumption, we assume a \$35,000 average purchase price. To calculate the annual capital cost per vehicle, we used a formula outlined in the National Center for Transit Research's cost-benefit analysis of rural and small urban transit report.

The formula is $r = r_k * (R + d) * e^{-dz}$, with the variables defined as follows:

- r = annual capital cost per vehicle
- r_k = average price of a new vehicle (we assume \$35,000)
- R = average prime rate (we assume 0.03)
- D = straight-line rate of depreciation (we assume 0.07, consistent with 15-year straight-line depreciation)
- Z = average fleet age (we assume 7.5)

As a result, the annual capital cost per vehicle is calculated as \$2,052.

Insurance

We were unable to find a reasonable source for this assumption. We currently assume an annual per vehicle cost of \$2,000, which is based on anecdotal information collected by IDHW.

Administrative costs

We have set the administrative cost load at 15%. Note this assumption is a function of the other cost assumptions, rather than a per mile assumption.

Other assumptions

Combining the total costs for the six categories outlined above, we arrive at a total annual cost per vehicle. The last cost assumption is how many vehicles are needed.

A fleet size estimate provided by IDHW indicated there were 931 vehicles used in support of this program. This vehicle estimate corresponds to approximately 14,463 trip miles per year per vehicle on average. Note that we performed our calculations based on the number of trip miles, and have not accounted for "deadhead" miles (the miles before and after trips).

The 1998 OPE report described fleet management literature recommending passenger vehicles in public sector fleets be driven approximately 12,000 miles per year on average. Based on that recommendation additional vehicles could be warranted, however we were unable to confirm if current literature recommends the same level of utilization.

With the six cost components estimated per vehicle, and the total number of vehicles in the fleet, we are able to calculate total dollars, and other useful metrics such as PMPM and cost per mile. For these summaries, the average

annual trip miles and membership are based on IDHW's 2018 first quarter results. We note that, as shown in the historical summaries, the average annual trip miles have been fairly stable over time.

For this summary, we have calculated four different scenarios, varying key assumptions. Table 2 below shows the resulting PMPM and cost/mile values for each scenario as well as metrics for evaluating the scenario such as Work Day Trip Miles per Driver and the Annual Trip miles per Vehicle. Note that we have ordered the scenarios in order of highest annual cost to lowest annual cost.

Table 2 Idaho Department of Health and Welfare Non-Emergency Transportation Cost Evaluation Summary of Bottom-Up Scenario Results								
	Number of Vehicles	Annual Trip miles per Vehicle	Number of Drivers	Work Day Trip miles per Driver	Drivers / Vehicle	Total Annual Cost	PMPM	Cost/Mile
Scenario 1	931	14,463	838	62	0.90	\$34,462,149	\$9.98	\$2.56
Scenario 2	931	14,463	745	69	0.80	\$31,535,936	\$9.13	\$2.34
Scenario 3	931	14,463	652	79	0.70	\$28,609,723	\$8.28	\$2.12
Scenario 4	931	14,463	559	92	0.60	\$25,683,509	\$7.43	\$1.91

The detailed summaries for each scenario are included in Exhibit 2a – 2d.

DATA RELIANCE AND VARIABILITY OF RESULTS

In performing our analysis, we relied on data and other information provided to us by IDHW. We have not audited or verified this data and other information. If the underlying data or information is inaccurate or incomplete, the results of our analysis may likewise be inaccurate or incomplete.

The attached results are based on Milliman research and on our experience in working with similar plans. Actual experience will vary from our estimates for many reasons, including differences in population health status, in reimbursement levels, and in the delivery of healthcare services, as well as other non-random and random factors. It is important that actual experience be monitored and that adjustments are made, as appropriate.

Our projected estimates are not predictions of the future; they are projections based on the assumptions. If the underlying data or other listings are inaccurate or incomplete, this analysis may also be inaccurate or incomplete. Emerging results should be carefully monitored with assumptions adjusted as appropriate.

Please call us with any questions or concerns. We appreciate the opportunity to work with you and your team!

Sincerely,



Benjamin J. Diederich, FSA, MAAA
Consulting Actuary

Attachments

cc: Dori Boyle, IDHW
Tiffany Kinzler, IDHW
Melissa Reseck, Milliman

Exhibit 1
 Idaho Department of Health and Welfare
 Non-Emergency Transportation Cost Evaluation
 Summary of Historical Data

Quarter	Member Months	Rides	Mileage	Paid	Miles/Ride	Miles/Member	Cost/Mile	PMPM
2012Q1	699,631	149,332	2,971,501	\$3,508,365	19.9	4.2	\$1.18	\$5.01
2012Q2	703,641	151,371	3,081,701	\$3,596,172	20.4	4.4	\$1.17	\$5.11
2012Q3	712,244	139,588	2,826,987	\$3,380,074	20.3	4.0	\$1.20	\$4.75
2012Q4	716,649	138,530	2,722,974	\$3,277,390	19.7	3.8	\$1.20	\$4.57
2013Q1	720,988	140,744	2,810,043	\$3,382,693	20.0	3.9	\$1.20	\$4.69
2013Q2	723,307	153,431	3,164,550	\$3,653,268	20.6	4.4	\$1.15	\$5.05
2013Q3	727,269	140,739	2,854,086	\$3,480,778	20.3	3.9	\$1.22	\$4.79
2013Q4	741,148	141,515	2,723,210	\$3,376,919	19.2	3.7	\$1.24	\$4.56
2014Q1	777,594	149,265	2,934,675	\$3,402,331	19.7	3.8	\$1.16	\$4.38
2014Q2	789,247	156,987	3,174,655	\$4,008,977	20.2	4.0	\$1.26	\$5.08
2014Q3	810,158	160,346	3,361,352	\$4,039,980	21.0	4.1	\$1.20	\$4.99
2014Q4	824,563	165,022	3,360,419	\$4,347,283	20.4	4.1	\$1.29	\$5.27
2015Q1	842,747	167,456	3,450,843	\$4,561,009	20.6	4.1	\$1.32	\$5.41
2015Q2	850,118	172,100	3,583,326	\$4,506,773	20.8	4.2	\$1.26	\$5.30
2015Q3	854,524	171,075	3,610,918	\$4,492,561	21.1	4.2	\$1.24	\$5.26
2015Q4	860,917	166,062	3,437,833	\$4,415,753	20.7	4.0	\$1.28	\$5.13
2016Q1	866,911	155,979	3,176,169	\$4,387,339	20.4	3.7	\$1.38	\$5.06
2016Q2	879,265	152,683	3,100,774	\$4,454,545	20.3	3.5	\$1.44	\$5.07
2016Q3	896,829	292,457	3,041,736	\$0	10.4	3.4	\$0.00	\$0.00
2016Q4	912,141	308,516	3,222,633	\$0	10.4	3.5	\$0.00	\$0.00
2017Q1	898,087	306,742	3,353,217	\$5,630,886	10.9	3.7	\$1.68	\$6.27
2017Q2	903,451	315,626	3,588,925	\$5,885,353	11.4	4.0	\$1.64	\$6.51
2017Q3	901,636	295,411	3,462,345	\$5,592,235	11.7	3.8	\$1.62	\$6.20
2017Q4	905,713	298,089	3,320,905	\$5,583,515	11.1	3.7	\$1.68	\$6.16

Exhibit 2a
 Idaho Department of Health and Welfare
 Non-Emergency Transportation Cost Evaluation
 Detailed Bottom-Up Scenario Results

	Scenario #1 Estimated <u>Per Vehicle Annual Costs</u>
Driver Wages (1)	\$24,598
Vehicle Maintenance	\$1,567
Fuel	\$1,971
Vehicle Purchase Cost	\$2,052
Vehicle Insurance	\$2,000
Administrative Costs	\$4,828
Total per Vehicle Annual Cost	\$37,016
Total Annual Trip Miles	13,464,805
Number of Vehicles	931
Number of Full Time Drivers	838
Total Annual Cost	\$34,462,149
Total Annual Medicaid Membership	3,454,810
PMPM Cost	\$9.98
Per Mile Cost	\$2.56

(1) Assumes driver has trips totaling 62 miles per work day

Exhibit 2b
 Idaho Department of Health and Welfare
 Non-Emergency Transportation Cost Evaluation
 Detailed Bottom-Up Scenario Results

	Scenario #2 Estimated <u>Per Vehicle Annual Costs</u>
Driver Wages (1)	\$21,865
Vehicle Maintenance	\$1,567
Fuel	\$1,971
Vehicle Purchase Cost	\$2,052
Vehicle Insurance	\$2,000
Administrative Costs	\$4,418
Total per Vehicle Annual Cost	\$33,873
Total Annual Trip Miles	13,464,805
Number of Vehicles	931
Number of Full Time Drivers	745
Total Annual Cost	\$31,535,936
Total Annual Medicaid Membership	3,454,810
PMPM Cost	\$9.13
Per Mile Cost	\$2.34

(1) Assumes driver has trips totaling 69 miles per work day

Exhibit 2c
 Idaho Department of Health and Welfare
 Non-Emergency Transportation Cost Evaluation
 Detailed Bottom-Up Scenario Results

	Scenario #3 Estimated <u>Per Vehicle Annual Costs</u>
Driver Wages (1)	\$19,132
Vehicle Maintenance	\$1,567
Fuel	\$1,971
Vehicle Purchase Cost	\$2,052
Vehicle Insurance	\$2,000
Administrative Costs	\$4,008
Total per Vehicle Annual Cost	\$30,730
Total Annual Trip Miles	13,464,805
Number of Vehicles	931
Number of Full Time Drivers	652
Total Annual Cost	\$28,609,723
Total Annual Medicaid Membership	3,454,810
PMPM Cost	\$8.28
Per Mile Cost	\$2.12

(1) Assumes driver has trips totaling 79 miles per work day

Exhibit 2d
 Idaho Department of Health and Welfare
 Non-Emergency Transportation Cost Evaluation
 Detailed Bottom-Up Scenario Results

	Scenario #4 Estimated <u>Per Vehicle Annual Costs</u>
Driver Wages (1)	\$16,399
Vehicle Maintenance	\$1,567
Fuel	\$1,971
Vehicle Purchase Cost	\$2,052
Vehicle Insurance	\$2,000
Administrative Costs	\$3,598
Total per Vehicle Annual Cost	\$27,587
Total Annual Trip Miles	13,464,805
Number of Vehicles	931
Number of Full Time Drivers	559
Total Annual Cost	\$25,683,509
Total Annual Medicaid Membership	3,454,810
PMPM Cost	\$7.43
Per Mile Cost	\$1.91

(1) Assumes driver has trips totaling 92 miles per work day