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May 20, 2019

Ms. Leslie Thomas, MBA, CPA  
Chief Financial Officer  
Mid-State Health Network  
530 West Ionia Street, Suite F  
Lansing, MI 48933

*[Sent via email to: leslie.thomas@midstatehealthnetwork.org]*

**Re: Results of ISF Analysis for Medicaid and HMP Mental Health / Substance Abuse Services**

Dear Leslie:

We completed our funding analysis for the Mid-State Health Network (MSHN) Internal Services Fund (ISF) related to its shared risk contract with the State of Michigan to provide mental health and substance abuse services. This analysis should assist MSHN by illustrating the annual ISF balances that may be required to adequately protect against potential future deficits and the additional capital funding that may be required to maintain these balances.

**Note, in this letter we refer to “Medicaid” costs, revenue amounts, and member months. These “Medicaid” amounts referenced are the combined Medicaid and Healthy Michigan Plan (HMP) amounts. In addition, our use of “mental health” in this report encompasses both mental health and substance abuse services.**

The ISF is intended to reasonably protect MSHN from unexpected cost fluctuations related to its risk contract with the State. MSHN’s agreement with the State limits its risk under this program to 7.5% of its related income from the State. The appropriate level of the ISF should reflect this contractual arrangement and the level of risk MSHN is willing to accept.

Our analysis assumes any surplus made by MSHN in a given year will be used as savings or added to the ISF and be used to offset higher than expected treatment costs in future years. Similarly, we assumed any loss sustained by MSHN in a given year will be offset using prior year savings or funds from the ISF, to the extent the funds are available.

**RESULTS**

**The scenarios we tested imply that the Medicaid ISF should continue to be funded at a level that MSHN’s annual surpluses will support. Therefore, we recommend all available Medicaid surpluses be used to fund the ISF, keeping in mind the maximum allowable levels.**

These funding levels are also justified by the possibility that the State of Michigan may request a portion of the current ISF be segregated and used for the identified population of Saginaw CMH’s 298 pilot. These results are dependent on the projection assumptions contained in this letter. Different assumptions will lead to different results; therefore, this letter should only be considered in its entirety.

The remainder of this letter discusses the process used to determine the recommended ISF funding level, the components of the financial analysis performed, and three scenarios of future potential outcomes that MSHN should consider when making ISF funding decisions.

### SETTING INTERNAL SERVICE FUND LEVEL

In order to fund the ISF for future Medicaid mental health costs, MSHN will have to decide how much risk it wants to assume. To help MSHN make this decision, we analyzed the distribution of costs for Medicaid mental health and substance abuse services.

Table 1 includes the average per enrollee per month (PEPM) mental health treatment costs between October 2016 and September 2017 (\$97.24). Using the distribution of claims in the 24-month period between October 2015 and September 2017, we also included in Table 1 the estimated PEPM amounts for which there was a 70.0%, 80.0%, 90.0%, 95.0% or 97.5% probability that actual mental health treatment costs would not have exceeded these levels in the October 2016 and September 2017 time period.

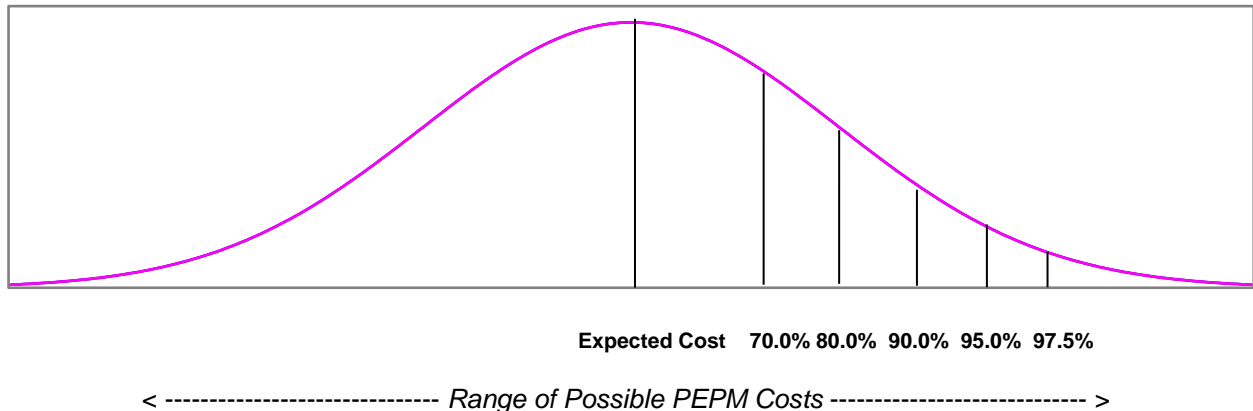
These PEPM amounts were translated into percentages of expected treatment costs, which can be used in future years as the expected PEPM claim costs change (e.g., due to utilization trends and changes in cost per procedure). Administrative costs are NOT included in Table 1.

| <b>Table 1</b><br><b>Mid-State Health Network</b><br><b>Medicaid Mental Health Services</b><br><b>Thresholds for Various Levels of Risk in Funding Internal Services Fund</b><br><b>October 2016 through September 2017</b> |                             |  |
|---|-----------------------------|--|
| <b>Probability Threshold</b>  | <b>PEPM Treatment Costs</b> | <b>Percentage of Average Treatment Costs</b> |
| Average Cost (i.e., 50% threshold)  | \$97.24                     | 100.0%                                       |
| 70.0% Threshold   | 97.68                       | 100.5%                                       |
| 80.0% Threshold   | 97.97                       | 100.7%                                       |
| 90.0% Threshold*  | 98.43                       | 101.2%                                       |
| 95.0% Threshold   | 98.98                       | 101.8%                                       |
| 97.5% Threshold   | 99.89                       | 102.7%                                       |

\* For example, based on the experience period from October 2016 through September 2017, there was approximately a 90.0% probability that MSHN’s actual Medicaid mental health and substance abuse costs would have been below 101.2% of the average cost for the year.

The following graph illustrates the distribution of expected mental health costs presented in Table 1. We used the shape of the normal probability distribution for illustrative purposes. The horizontal axis contains the range of possible PEPM costs from smallest (left side) to largest (right side). The vertical axis contains the probabilities that each of the possible PEPMs actually occurs.

The taller the line, the greater the chance that the corresponding PEPM will occur. The area underneath the curve represents all the possible PEPM results. In other words, the total area underneath the curve is equivalent to a probability of 100%.



The vertical line in the middle of the graph indicates the expected PEPM cost for the distribution. The Table 1 cost associated with this point on the horizontal axis is \$97.24 PEPM. For future years, the costs associated with this point will be 100% of the expected PEPM treatment costs for the year. By definition, it is almost as likely for actual costs to be *above* the expected cost as it is for them to be *below* the expected cost.

This is illustrated by the size of the area underneath the curve to the left of the expected cost line (where actual costs are lower than expected costs) being about 50% of the total area underneath the curve. Therefore, the size of the area underneath the curve to the right of the expected cost line (where actual costs are higher than expected costs) is also approximately 50% of the total area underneath the curve.

The lines labeled 70.0%, 80.0%, 90.0%, 95.0%, or 97.5% represent the points at which 70.0%, 80.0%, 90.0%, 95.0%, or 97.5% of the area underneath the curve is to the left of the line. The values associated with these points are the PEPMs at which there is a 70.0%, 80.0%, 90.0%, 95.0%, or 97.5% chance that actual costs on a PEPM basis will be below these values. For example, based on the Table 1 data, there is a 90% probability that the actual Medicaid mental health cost will be below 101.2% of the expected PEPM treatment cost for the year.

The PEPM values in Table 1 are only appropriate for the 12-month experience period ending September 30, 2017. Amounts for future periods should be increased by an assumed trend level. The scenarios contained in Appendix 1 are based on the trend and other assumptions contained in Exhibit 1. The shape of the cost distribution is unlikely to change significantly from year to year, but should be monitored periodically.

Depending on the desired level of risk that MSHN wants to take, the PEPM costs at the 70.0%, 80.0%, 90.0%, 95.0%, or 97.5% levels for the projection year may be used to determine the required ISF contribution for the current year.

## **COMPONENTS OF FINANCIAL ANALYSIS**

Our financial analysis consists of three different scenarios of varying annual eligible counts, revenue increases, treatment cost increases, and administration cost increases from the present through FY 2022. Exhibit 1 contains a summary of the critical assumptions for each scenario.

In general, each scenario in Appendix 1 contains the following:

### **Eligible Months Exposed**

The FY 2017 and FY 2018 eligible months of 4,594,123 and 4,621,228, respectively, were provided by MSHN. The FY 2018 eligible months are projected to future years based on varying assumptions.

### **Gross Revenue PEPM**

Gross Medicaid revenue for FY 2017 and FY 2018 equaled \$461,881,799 (\$100.54 PEPM) and \$549,765,266 (\$118.97 PEPM), respectively, per the FY 2017 Financial Status Report (FSR) and FY 2018 FSR provided by MSHN. The FY 2018 revenue is projected to future years based on varying assumptions.

### **Medicaid Use / Claims Tax PEPM**

The Medicaid Use / Claims Tax for FY 2017 and FY 2018 equaled \$11,015,440 (\$2.40 PEPM) and \$5,162,951 (\$1.12 PEPM), respectively, per the FY 2017 FSR and FY 2018 FSR provided by MSHN. The Medicaid Use tax was eliminated beginning January 1, 2017 and the HICA tax ended October 1, 2018.

### **Gross Revenue Dollars**

Gross revenue dollars equal the eligible months exposed times gross revenue PEPM.

### **Medicaid Use / Claims Tax Dollars**

Medicaid Use / Claims Tax dollars equal the eligible months exposed times the Medicaid Use / Claims Tax PEPM.

### **Revenue Available for Total Costs PEPM**

The revenue available for total costs PEPM equals the gross revenue dollars PEPM minus the Medicaid Use / Claims Tax dollars PEPM.

### **Revenue Available for Total Costs**

The revenue available for total costs equal the eligible months exposed times the revenue available for total costs PEPM.

### **Administration Cost**

Administration costs related to Medicaid mental health equaled \$19,655,564 and \$21,797,416 in FY 2017 and FY 2018, respectively, per the FY 2017 and FY 2018 FSR and Medicaid Utilization and Net Cost (MUNC) reports provided by MSHN. The FY 2019 mental health administration cost is projected to increase \$400,000 to reflect more staff being added and then change in FY 2020 and beyond based on varying assumptions.

### **Non-Mental Health Costs**

Non-mental health costs, which reflect Medicaid outreach, accruals, and indirect activities, equaled \$872,445 in FY 2017. Since these costs account for a very small percentage of MSHN's total Medicaid costs (less than 0.5%), the FY 2017 non-mental health costs are projected to stay level in future years for simplicity.

### **Revenue Available for Mental Health Treatment Costs**

Revenue available for mental health treatment costs equals revenue available for total costs less MSHN administrative costs.

### **Mental Health Treatment Cost PEPM**

Total Medicaid mental health treatment costs (including costs for Medicaid services and the Psychiatric Hospital Rate Adjuster) equaled \$446,724,916, or \$97.24 PEPM, per the FY 2017 FSR and MUNC report provided by MSHN.

This amount is reported as the "expected" treatment cost for FY 2017 in Appendix 1 and is used to project expected treatment costs for future years. Given the expected costs for each year, Appendix 1 also contains the PEPM cost levels for which there is a 70.0%, 80.0%, 90.0%, 95.0%, or 97.5% probability that actual mental health costs will not exceed these levels in a given year.

### **Total Mental Health Treatment Costs**

Total mental health and substance abuse costs equal the eligible months exposed times the mental health and substance abuse cost PEPM.

### **Surplus / Deficit**

The surplus / deficit amounts equal the net revenue less the respective treatment cost, adjusted, as necessary, based on MSHN's risk arrangement with the State. MSHN's risk arrangement with the State leaves it fully responsible for the first 5% of treatment costs and expenses over revenue (up to 105%) and 50% responsible for the next 5% over revenue (from 105% to 110%).

### **Projected Savings / ISF Balance**

The starting FY 2017 projected savings / ISF balance of \$28,708,697 equals the FY 2017 ISF balance of \$19,559,448 plus the FY 2017 savings of \$9,149,249. The projected savings / ISF balance for future years assumes (1) all surpluses for the given year are added to the prior year's savings / ISF balance, (2) all deficits for the given year are subsidized by the prior year's savings / ISF balance, (3) all the surpluses and deficits for prior years are assumed to be at expected levels, and (4) neither the projected savings nor the ISF balance exceed 7.5% of the projected revenue (i.e., the sum of these amounts cannot exceed 15% of projected revenue).

Note, our projections do not include any future funds being directed to the Autism benefit. Any future funds directed to the Autism benefit would result in a reduction to this amount in the year it was directed.

### Suggested ISF Balance

The suggested ISF balance for any given year equals the minimum of (1) the projected savings / ISF balance for the year at the given probability threshold and (2) the maximum allowable ISF balance (one year liability) for the year. **BOLD** means additional sources of capital would be needed to adequately fund the ISF for the next year assuming expected surpluses or deficits for the next year.

### Maximum Liability

The maximum liability amounts equal 7.5% for the projected revenue for the next year.

## SCENARIO ANALYSES

We examined three scenarios to help quantify the economic impact of changing assumptions. The base scenario (Scenario 1) is based on information from the State or based on Milliman's best estimate of what may happen in the near future in terms of changes in eligible count, revenue, treatment costs, and administration costs. The other scenarios reflect different patterns of changes, one more optimistic (Scenario 2) and one more pessimistic (Scenario 3).

In each scenario, we assumed that an increase in eligible count would result in a corresponding increase in treatment costs. The results may change significantly if we assumed there is capacity available for MSHN's contracted providers to absorb a portion of the increase in treatment costs.

### Scenario 1 – Base Scenario

MSHN's Medicaid eligible month counts indicate a 0.6% increase in eligible months from FY 2017 to FY 2018. For the base scenario, we assumed eligible months would increase 2% annually beginning in FY 2019. This assumption was based on the average increase we observed in eligible months over the last few years.

Total Medicaid revenue for FY 2017 and FY 2018 was provided to us by MSHN. The overall Medicaid revenue PEPM increased approximately 20.1% from FY 2017 and FY 2018. We assumed a 1.0% annual increase in net Medicaid revenue PEPM beginning with FY 2019 for the base scenario.

Estimated FY 2018 treatment costs were provided to us by MSHN and reflected an approximately 12.2% increase on a PEPM basis from FY 2017. Based on general growth of the cost of Medicaid mental health services, we estimated treatment costs would continue to increase 3.0% annually on a PEPM basis, reflecting both the change in cost and utilization of services and the impact of the continued growth of the HMP population.

Based on the FY 2019 cost estimates provided by MSHN, we reflected a \$400,000 increase in administration costs from FY 2018 to FY 2019. In this scenario, we assumed no annual increase beginning in FY 2020.

The treatment cost and MSHN administrative cost trend assumptions are independent of the revenue available in any given year to fund these costs. In other words, we assumed projected costs for a given year could be greater than the revenue received from the State in that year.

Based on the data provided by MSHN, FY 2018 is estimated to have a surplus. If actual eligible counts, revenue, treatment costs, and administration costs are all at the assumed base scenario levels, annual deficits are estimated to begin in 2020. Given this, we recommend continuing to fund the ISF with all available surpluses.

### **Scenario 2 – Optimistic Trend Scenario**

Under this scenario, Medicaid eligible month counts were increased 5% for FY 2019 and beyond. This level of membership increase could strengthen the financial position of MSHN, as compared to the base scenario, from the perspective of having revenue from more eligibles over which to spread fixed costs.

Similar to the base scenario, we reflected the 20.1% increase in Medicaid revenue PEPM for FY 2018. For FY 2019 and beyond, we assumed a 4.0% annual increase in revenue PEPM for the optimistic scenario.

For the optimistic scenario, we reflected the estimated 12.2% increase in treatment costs PEPM for FY 2018 and then assumed no increase in treatment costs PEPM beginning in FY 2019. However, to realize no change in treatment costs PEPM, MSHN must be able to limit or avoid increases in both utilization and provider fee levels each year.

We assumed administration costs would increase \$400,000 from FY 2018 to FY 2019 and then decrease 3.0% per year (which could result from the elimination of unnecessary administration costs) beginning in FY 2020 for the optimistic scenario. Similar to the base scenario, the treatment cost and MSHN administrative cost trend assumptions for the optimistic scenario are independent of the revenue available in any given year to fund these costs.

If actual eligible counts, revenue, treatment costs, and administration costs are at the assumed optimistic scenario levels; annual surpluses are projected to begin in 2018 through 2022. Under this scenario, no additional ISF contributions would be required.

### **Scenario 3 – Pessimistic Trend Scenario**

Under this scenario, Medicaid eligible month counts were decreased 1% for FY 2019 and beyond. This level of membership increase could weaken the financial position of MSHN, as compared to the base scenario, from the perspective of having revenue from less eligibles over which they can spread fixed costs.

Similar to the base scenario, we reflected the 20.1% increase in Medicaid revenue PEPM for FY 2018. For FY 2019 and beyond, we assumed a 2.0% annual decrease in revenue PEPM for the pessimistic scenario.

For the pessimistic scenario, we reflected the estimated 12.2% decrease in treatment costs PEPM for FY 2018 and then assumed a 6.0% increase in treatment costs PEPM beginning in FY 2019. This assumption allows for a 2.5% to 3.5% annual increase in both utilization and provider fee levels.

We assumed administration costs would increase \$400,000 from FY 2018 to FY 2019 and then increase 3.0% per year (which could result from adding staff or increases in other non-staff related administration expenses) beginning in FY 2020 for the pessimistic scenario. Similar to the base scenario, the treatment cost and MSHN administrative cost trend assumptions for the pessimistic scenario are independent of the revenue available in any given year to fund these costs.



If actual eligible counts, revenue, treatment costs, and administration costs are all at the assumed Milliman pessimistic scenario levels, annual deficits will begin in FY 2019, with the prior year savings and ISF balance at the end of FY 2019 being inadequate to cover the projected deficit in FY 2020. Given this, we recommend continuing to fund the ISF with all available surpluses.

### **ISF FUNDING POLICY**

The scenarios we tested imply that the Medicaid mental health and substance abuse ISF should continue to be funded at a level that MSHN's annual surpluses will support. Therefore, we recommend all available Medicaid mental health surplus be used to fund the ISF, keeping in mind the maximum allowable levels.

These funding levels are also justified by the possibility that the State of Michigan may request a portion of the current ISF be segregated and used for the identified population of Saginaw CMH's 298 pilot. You should review and evaluate the assumptions in each scenario. Other assumption scenarios may be appropriate. We can evaluate additional scenarios at your request.

### **CAVEATS AND LIMITATIONS**

The information in this letter is intended to support our ISF analysis for MSHN. It may not be appropriate for other purposes and is intended for MSHN's internal use only. Therefore, please do not distribute this letter outside of MSHN or its auditors without Milliman's written permission. In any event, this information is not intended to benefit any third parties.

We accepted the data provided by MSHN without audit, though we reviewed the information provided for reasonableness. The claim and eligibility files provided by MSHN were used to estimate the probability distribution of expected aggregate treatment costs. Our estimates may change with additional data or if the data provided changes or is inaccurate or incomplete.

The values contained in this letter are estimates based on the information provided by MSHN. Actual results will vary from these estimates. The estimates should be updated periodically as additional experience becomes available.

Please keep in mind that the probabilities estimated in this letter represent only the statistical chance of actual results being different than expected results. These probabilities assume all the income and expense assumptions are accurate and appropriate. For example, actual utilization and cost trends could differ from our assumptions.

Guidelines issued by the American Academy of Actuaries require actuaries to include their professional qualifications in all actuarial communications. I am a member of the American Academy of Actuaries, and I meet the qualification standards for performing the analyses in this correspondence.

This letter and its use are subject to the terms of our Consulting Services Agreement with MSHN effective September 3, 2014.







Ms. Leslie Thomas, MBA, CPA  
Mid-State Health Network  
May 20, 2019  
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Leslie, please call me at 262 796 3433 at your convenience if you would like to discuss these results.

Sincerely,

A handwritten signature in black ink that reads "Eric Goetsch".

Eric P. Goetsch, FSA, MAAA  
Principal and Consulting Actuary

EPG/dlk

Attachments



## EXHIBIT 1

**Exhibit 1**  
**Mid-State Health Network**  
**Medicaid Mental Health and Substance Abuse**  
**Financial Analysis**  
**Summary of Scenario Assumptions**

|                                       | <b>Scenario 1<br/>Milliman Base</b>                                       | <b>Scenario 2<br/>Milliman Optimistic</b>                                   | <b>Scenario 3<br/>Milliman Pessimistic</b>                                  |
|---------------------------------------|---|---|---|
| <b>Medicaid Eligible Months</b>       | 2.0% annual increase beginning in FY 2019                                 | 5.0% annual increase beginning in FY 2019                                   | 1.0% annual decrease beginning in FY 2019                                   |
| <b>Revenue Available per Eligible</b> | 20.1% increase for FY 2018<br>1.0% annual increase beginning in FY 2019   | 20.1% increase for FY 2018<br>4.0% annual increase beginning in FY 2019     | 20.1% increase for FY 2018<br>2.0% annual decrease beginning in FY 2019     |
| <b>MSHN Total Administration Cost</b> | \$400,000 increase for FY 2019<br>No annual increase beginning in FY 2020 | \$400,000 increase for FY 2019<br>3.0% annual decrease beginning in FY 2020 | \$400,000 increase for FY 2019<br>3.0% annual increase beginning in FY 2020 |
| <b>Treatment Cost per Eligible</b>    | 12.2% increase for FY 2018<br>3.0% annual increase beginning in FY 2019   | 12.2% increase for FY 2018<br>No annual increase beginning in FY 2019       | 12.2% increase for FY 2018<br>6.0% annual increase beginning in FY 2019     |

## **APPENDIX 1**

**Appendix 1  
Scenario 1  
Mid-State Health Network  
Base Trend Scenario**

|  | Historical          | Projected          |                |                |                |                |
|--|---------------------|--------------------|----------------|----------------|----------------|----------------|
|  | FY 2017             | FY 2018            | FY 2019        | FY 2020        | FY 2021        | FY 2022        |
| A. Eligible Months Exposed                                   | 4,594,123           | 4,621,228          | 4,713,653      | 4,807,926      | 4,904,085      | 5,002,167      |
| B. Gross Revenue PEPM <sup>1</sup>                           | \$100.54            | \$118.97           | \$119.03       | \$120.22       | \$121.42       | \$122.63       |
| C. Medicaid Use / Claims Tax PEPM <sup>2</sup>               | (\$2.40)            | (\$1.12)           | \$0.00         | \$0.00         | \$0.00         | \$0.00         |
| D. Gross Revenue Dollars (A x B)                             | 461,881,799         | 549,765,266        | 561,066,117    | 578,008,864    | 595,454,001    | 613,415,739    |
| E. Medicaid Use / Claims Tax Dollars (A x C)                 | <u>(11,015,440)</u> | <u>(5,162,951)</u> | <u>0</u>       | <u>0</u>       | <u>0</u>       | <u>0</u>       |
| F. Revenue Available for Total Costs PEPM (B + C)            | \$98.14             | \$117.85           | \$119.03       | \$120.22       | \$121.42       | \$122.63       |
| G. Revenue Available for Total Costs (A x F)                 | \$450,866,359       | \$544,602,315      | \$561,066,117  | \$578,008,864  | \$595,454,001  | \$613,415,739  |
| H. Administration Cost                                       | 19,655,564          | \$21,797,416       | \$22,197,416   | \$22,197,416   | \$22,197,416   | \$22,197,416   |
| I. Non-MH/SA Costs   | <u>872,445</u>      | <u>872,445</u>     | <u>872,445</u> | <u>872,445</u> | <u>872,445</u> | <u>872,445</u> |
| J. Revenue Available for MH / SA Treatment Costs (G - H - I) | \$430,338,350       | \$521,932,454      | \$537,996,255  | \$554,939,002  | \$572,384,139  | \$590,345,878  |
| K. MH / SA Treatment Cost PEPM                               |                     |                    |                |                |                |                |
| 1. Expected (50% Probability Threshold)                      | \$97.24             | \$109.14           | \$112.42       | \$115.79       | \$119.26       | \$122.84       |
| 2. 70.0% Probability Threshold                               |                     | 109.64             | 112.93         | 116.31         | 119.80         | 123.39         |
| 3. 80.0% Probability Threshold                               |                     | 109.96             | 113.26         | 116.66         | 120.15         | 123.76         |
| 4. 90.0% Probability Threshold                               |                     | 110.48             | 113.80         | 117.21         | 120.72         | 124.35         |
| 5. 95.0% Probability Threshold                               |                     | 111.10             | 114.43         | 117.86         | 121.39         | 125.04         |
| 6. 97.5% Probability Threshold                               |                     | 112.12             | 115.48         | 118.94         | 122.51         | 126.19         |
| L. Total MH / SA Treatment Costs (A x K) <sup>1</sup>        |                     |                    |                |                |                |                |
| 1. Expected (50% Probability Threshold)                      | \$446,724,916       | \$504,379,850      | \$529,908,870  | \$556,709,752  | \$584,861,177  | \$614,466,194  |
| 2. 70.0% Probability Threshold                               |                     | 506,671,438        | 532,312,833    | 559,209,873    | 587,509,383    | 617,217,386    |
| 3. 80.0% Probability Threshold                               |                     | 508,150,231        | 533,868,339    | 560,892,647    | 589,225,813    | 619,068,188    |
| 4. 90.0% Probability Threshold                               |                     | 510,553,269        | 536,413,711    | 563,537,006    | 592,021,141    | 622,019,466    |
| 5. 95.0% Probability Threshold                               |                     | 513,418,431        | 539,383,313    | 566,662,158    | 595,306,878    | 625,470,962    |
| 6. 97.5% Probability Threshold                               |                     | 518,132,083        | 544,332,648    | 571,854,718    | 600,799,453    | 631,223,454    |
| M. Surplus / Deficit (J - L, subject to contract limits)     |                     |                    |                |                |                |                |
| 1. Expected (50% Probability Threshold)                      | (\$16,386,566)      | \$17,552,604       | \$8,087,385    | (\$1,770,750)  | (\$12,477,038) | (\$24,120,316) |
| 2. 70.0% Probability Threshold                               |                     | 15,261,016         | 5,683,422      | (4,270,871)    | (15,125,244)   | (26,871,508)   |
| 3. 80.0% Probability Threshold                               |                     | 13,782,223         | 4,127,916      | (5,953,645)    | (16,841,674)   | (28,722,310)   |
| 4. 90.0% Probability Threshold                               |                     | 11,379,185         | 1,582,544      | (8,598,004)    | (19,637,002)   | (31,172,188)   |
| 5. 95.0% Probability Threshold                               |                     | 8,514,023          | (1,387,058)    | (11,723,156)   | (22,922,739)   | (32,897,936)   |
| 6. 97.5% Probability Threshold                               |                     | 3,800,371          | (6,336,393)    | (16,915,716)   | (28,415,314)   | (35,774,182)   |
| N. Projected Savings / ISF Balance <sup>3,4</sup>            |                     |                    |                |                |                |                |
| 1. Expected (50% Probability Threshold)                      | \$28,708,697        | \$46,261,301       | \$54,348,686   | \$52,577,936   | \$40,100,899   | \$15,980,583   |
| 2. 70.0% Probability Threshold                               |                     | 43,969,713         | 51,944,723     | 50,077,815     | 37,452,693     | 13,229,391     |
| 3. 80.0% Probability Threshold                               |                     | 42,490,920         | 50,389,217     | 48,395,041     | 35,736,263     | 11,378,589     |
| 4. 90.0% Probability Threshold                               |                     | 40,087,882         | 47,843,845     | 45,750,682     | 32,940,935     | 8,928,711      |
| 5. 95.0% Probability Threshold                               |                     | 37,222,720         | 44,874,243     | 42,625,530     | 29,655,198     | 7,202,963      |
| 6. 97.5% Probability Threshold                               |                     | 32,509,068         | 39,924,908     | 37,432,970     | 24,162,623     | 4,326,717      |
| O. Suggested ISF Balance <sup>5</sup>                        |                     |                    |                |                |                |                |
| 1. Expected (50% Probability Threshold)                      | \$19,559,448        | \$41,232,395       | \$42,079,959   | \$43,350,665   | \$40,100,899   |                |
| 2. 70.0% Probability Threshold                               |                     | 41,232,395         | 42,079,959     | 43,350,665     | 37,452,693     |                |
| 3. 80.0% Probability Threshold                               |                     | 41,232,395         | 42,079,959     | 43,350,665     | 35,736,263     |                |
| 4. 90.0% Probability Threshold                               |                     | 40,087,882         | 42,079,959     | 43,350,665     | 32,940,935     |                |
| 5. 95.0% Probability Threshold                               |                     | 37,222,720         | 42,079,959     | 42,625,530     | 29,655,198     |                |
| 6. 97.5% Probability Threshold                               |                     | 32,509,068         | 39,924,908     | 37,432,970     | 24,162,623     |                |
| P. One Year Maximum Liability                                | \$34,641,135        | \$41,232,395       | \$42,079,959   | \$43,350,665   | \$44,659,050   |                |

<sup>1</sup> Reflects all Medicaid related components including mental health, substance abuse, and psychiatric hospital rate adjuster and use / claims tax.

<sup>2</sup> The Medicaid Use / Claims tax was equal to 2.4% of combined Medicaid and Healthy Michigan revenue for FY 2017 and 0.9% of combined Medicaid and Healthy Michigan revenue for FY 2018. The Medicaid Use tax was eliminated January 1, 2017 and the HICA tax was eliminated October 1, 2018. Funding available for treatment costs is assumed to not be impacted by the elimination of the Medicaid Use / Claims tax percentage (i.e., gross revenue is assumed to change consistently with the change in Medicaid Use / Claims tax).

<sup>3</sup> The year-end FY 2017 projected savings / ISF balance of \$28,708,697 equals the FY 2017 ISF balance of \$19,559,448 plus the FY 2017 savings of \$9,149,249.

<sup>4</sup> The projected savings / ISF balance for any given year assumes (1) all surpluses for the year are added to the prior year's savings / ISF balance, (2) all deficits for the year are subsidized by the prior year's savings / ISF balance, (3) all the surpluses and deficits for prior years are assumed to be at expected levels, and (4) neither the projected savings nor the ISF balance exceed 7.5% of the projected revenue (i.e., the sum of these amounts cannot exceed 15% of projected revenue).

<sup>5</sup> The suggested ISF balance for any given year equals the minimum of (1) the projected savings / ISF balance for the year at the given probability threshold and (2) the maximum allowable ISF balance for the year. **BOLD** means additional sources of capital would be needed to adequately fund the ISF for the next year assuming expected surpluses or deficits for the next year.

**Assumptions:**

-- A 2.0% annual increase in member months beginning in 2019.

-- A 20.1% increase in Medicaid revenue PEPM for FY 2018 and a 1.0% annual increase in Medicaid revenue PEPM beginning in FY 2019.

-- A \$400,000 increase in administration costs for FY 2019 and no annual increase in administration costs beginning in FY 2020.

-- A 12.2% increase in Medicaid treatment costs PEPM in FY 2018 due to general utilization and unit cost trends and a 3.0% annual increase in Medicaid treatment costs PEPM beginning in FY 2019.

**Appendix 1  
Scenario 2  
Mid-State Health Network  
Optimistic Trend Scenario**

|  | Historical     | Projected     |               |               |               |               |
|--|----------------|---------------|---------------|---------------|---------------|---------------|
|  | FY 2017        | FY 2018       | FY 2019       | FY 2020       | FY 2021       | FY 2022       |
| A. Eligible Months Exposed                                   | 4,594,123      | 4,621,228     | 4,852,289     | 5,094,903     | 5,349,648     | 5,617,130     |
| B. Gross Revenue PEPM <sup>1</sup>                           | \$100.54       | \$118.97      | \$122.56      | \$127.46      | \$132.56      | \$137.86      |
| C. Medicaid Use / Claims Tax PEPM <sup>2</sup>               | (\$2.40)       | (\$1.12)      | \$0.00        | \$0.00        | \$0.00        | \$0.00        |
| D. Gross Revenue Dollars (A x B)                             | 461,881,799    | 549,765,266   | 594,696,540   | 649,396,336   | 709,149,339   | 774,377,542   |
| E. Medicaid Use / Claims Tax Dollars (A x C)                 | (11,015,440)   | (5,162,951)   | 0             | 0             | 0             | 0             |
| F. Revenue Available for Total Costs PEPM (B + C)            | \$98.14        | \$117.85      | \$122.56      | \$127.46      | \$132.56      | \$137.86      |
| G. Revenue Available for Total Costs (A x F)                 | \$450,866,359  | \$544,602,315 | \$594,696,540 | \$649,396,336 | \$709,149,339 | \$774,377,542 |
| H. Administration Cost                                       | \$19,655,564   | \$21,797,416  | \$22,197,416  | \$21,531,494  | \$20,885,549  | \$20,258,983  |
| I. Non-MH/SA Costs   | 872,445        | 872,445       | 872,445       | 872,445       | 872,445       | 872,445       |
| J. Revenue Available for MH / SA Treatment Costs (G - H - I) | \$430,338,350  | \$521,932,454 | \$571,626,679 | \$626,992,397 | \$687,391,345 | \$753,246,113 |
| K. MH / SA Treatment Cost PEPM                               |                |               |               |               |               |               |
| 1. Expected (50% Probability Threshold)                      | \$97.24        | \$109.14      | \$109.14      | \$109.14      | \$109.14      | \$109.14      |
| 2. 70.0% Probability Threshold                               |                | 109.63        | 109.63        | 109.63        | 109.63        | 109.63        |
| 3. 80.0% Probability Threshold                               |                | 109.96        | 109.96        | 109.96        | 109.96        | 109.96        |
| 4. 90.0% Probability Threshold                               |                | 110.48        | 110.48        | 110.48        | 110.48        | 110.48        |
| 5. 95.0% Probability Threshold                               |                | 111.09        | 111.09        | 111.09        | 111.09        | 111.09        |
| 6. 97.5% Probability Threshold                               |                | 112.11        | 112.11        | 112.11        | 112.11        | 112.11        |
| L. Total MH / SA Treatment Costs (A x K) <sup>1</sup>        |                |               |               |               |               |               |
| 1. Expected (50% Probability Threshold)                      | \$446,724,916  | \$504,360,824 | \$529,578,821 | \$556,057,713 | \$583,860,583 | \$613,053,568 |
| 2. 70.0% Probability Threshold                               |                | 506,625,226   | 531,956,443   | 558,554,216   | 586,481,910   | 615,805,962   |
| 3. 80.0% Probability Threshold                               |                | 508,150,231   | 533,557,698   | 560,235,534   | 588,247,294   | 617,659,615   |
| 4. 90.0% Probability Threshold                               |                | 510,553,269   | 536,080,889   | 562,884,883   | 591,029,111   | 620,580,522   |
| 5. 95.0% Probability Threshold                               |                | 513,372,219   | 539,040,785   | 565,992,774   | 594,292,396   | 624,006,972   |
| 6. 97.5% Probability Threshold                               |                | 518,085,871   | 543,990,120   | 571,189,575   | 599,749,037   | 629,736,444   |
| M. Surplus / Deficit (J - L, subject to contract limits)     |                |               |               |               |               |               |
| 1. Expected (50% Probability Threshold)                      | (\$16,386,566) | \$17,571,630  | \$35,891,342  | \$48,704,725  | \$53,186,200  | \$58,078,316  |
| 2. 70.0% Probability Threshold                               |                | 15,307,228    | 34,702,531    | 48,704,725    | 53,186,200    | 58,078,316    |
| 3. 80.0% Probability Threshold                               |                | 13,782,223    | 33,901,904    | 48,704,725    | 53,186,200    | 58,078,316    |
| 4. 90.0% Probability Threshold                               |                | 11,379,185    | 32,640,308    | 48,288,665    | 53,186,200    | 58,078,316    |
| 5. 95.0% Probability Threshold                               |                | 8,560,235     | 31,160,360    | 46,734,720    | 53,186,200    | 58,078,316    |
| 6. 97.5% Probability Threshold                               |                | 3,846,583     | 27,636,559    | 44,136,319    | 53,186,200    | 58,078,316    |
| N. Projected Savings / ISF Balance <sup>3,4</sup>            |                |               |               |               |               |               |
| 1. Expected (50% Probability Threshold)                      | \$28,708,697   | \$46,280,327  | \$82,171,669  | \$97,409,450  | \$106,372,401 | \$116,156,631 |
| 2. 70.0% Probability Threshold                               |                | 44,015,925    | 80,982,858    | 97,409,450    | 106,372,401   | 116,156,631   |
| 3. 80.0% Probability Threshold                               |                | 42,490,920    | 80,182,230    | 97,409,450    | 106,372,401   | 116,156,631   |
| 4. 90.0% Probability Threshold                               |                | 40,087,882    | 78,920,635    | 97,409,450    | 106,372,401   | 116,156,631   |
| 5. 95.0% Probability Threshold                               |                | 37,268,932    | 77,440,687    | 97,409,450    | 106,372,401   | 116,156,631   |
| 6. 97.5% Probability Threshold                               |                | 32,555,280    | 73,916,885    | 97,409,450    | 106,372,401   | 116,156,631   |
| O. Suggested ISF Balance <sup>5</sup>                        |                |               |               |               |               |               |
| 1. Expected (50% Probability Threshold)                      | \$19,559,448   | \$41,232,395  | \$44,602,240  | \$48,704,725  | \$53,186,200  | \$58,078,316  |
| 2. 70.0% Probability Threshold                               |                | \$41,232,395  | \$44,602,240  | \$48,704,725  | \$53,186,200  | \$58,078,316  |
| 3. 80.0% Probability Threshold                               |                | \$41,232,395  | \$44,602,240  | \$48,704,725  | \$53,186,200  | \$58,078,316  |
| 4. 90.0% Probability Threshold                               |                | \$40,087,882  | \$44,602,240  | \$48,704,725  | \$53,186,200  | \$58,078,316  |
| 5. 95.0% Probability Threshold                               |                | \$37,268,932  | \$44,602,240  | \$48,704,725  | \$53,186,200  | \$58,078,316  |
| 6. 97.5% Probability Threshold                               |                | \$32,555,280  | \$44,602,240  | \$48,704,725  | \$53,186,200  | \$58,078,316  |
| P. One Year Maximum Liability                                | \$34,641,135   | \$41,232,395  | \$44,602,240  | \$48,704,725  | \$53,186,200  | \$58,078,316  |

<sup>1</sup> Reflects all Medicaid related components including mental health, substance abuse, and psychiatric hospital rate adjuster and use / claims tax.

<sup>2</sup> The Medicaid Use / Claims tax was equal to 2.4% of combined Medicaid and Healthy Michigan revenue for FY 2017 and 0.9% of combined Medicaid and Healthy Michigan revenue for FY 2018. The Medicaid Use tax was eliminated January 1, 2017 and the HICA tax was eliminated October 1, 2018. Funding available for treatment costs is assumed to not be impacted by the elimination of the Medicaid Use / Claims tax percentage (i.e., gross revenue is assumed to change consistently with the change in Medicaid Use / Claims tax).

<sup>3</sup> The year-end FY 2017 projected savings / ISF balance of \$28,708,697 equals the FY 2017 ISF balance of \$19,559,448 plus the FY 2017 savings of \$9,149,249.

<sup>4</sup> The projected savings / ISF balance for any given year assumes (1) all surpluses for the year are added to the prior year's savings / ISF balance, (2) all deficits for the year are subsidized by the prior year's savings / ISF balance, (3) all the surpluses and deficits for prior years are assumed to be at expected levels, and (4) neither the projected savings nor the ISF balance exceed 7.5% of the projected revenue (i.e., the sum of these amounts cannot exceed 15% of projected revenue).

<sup>5</sup> The suggested ISF balance for any given year equals the minimum of (1) the projected savings / ISF balance for the year at the given probability threshold and (2) the maximum allowable ISF balance for the year. **BOLD** means additional sources of capital would be needed to adequately fund the ISF for the next year assuming expected surpluses or deficits for the next year.

**Assumptions:**

-- A 5.0% annual increase in member months beginning in 2019.

-- A 20.1% increase in Medicaid revenue PEPM for FY 2018 and a 4.0% annual increase in Medicaid revenue PEPM beginning in FY 2019.

-- A \$400,000 increase in administration costs for FY 2019 and a 3.0% annual decrease in administration costs beginning in FY 2020.

-- A 12.2% increase in Medicaid treatment costs PEPM in FY 2018 due to general utilization and unit cost trends and a 0.0% annual increase in Medicaid treatment costs PEPM beginning in FY 2019.



**Appendix 1  
Scenario 3  
Mid-State Health Network  
Pessimistic Trend Scenario**

|  | Historical          | Projected          |                     |                |                |                |
|--|---------------------|--------------------|---------------------|----------------|----------------|----------------|
|  | FY 2017             | FY 2018            | FY 2019             | FY 2020        | FY 2021        | FY 2022        |
| A. Eligible Months Exposed                                   | 4,594,123           | 4,621,228          | 4,575,016           | 4,529,266      | 4,483,973      | 4,439,133      |
| B. Gross Revenue PEPM <sup>1</sup>                           | \$100.54            | \$118.97           | \$115.49            | \$113.18       | \$110.92       | \$108.70       |
| C. Medicaid Use / Claims Tax PEPM <sup>2</sup>               | (\$2.40)            | (\$1.12)           | \$0.00              | \$0.00         | \$0.00         | \$0.00         |
| D. Gross Revenue Dollars (A x B)                             | 461,881,799         | 549,765,266        | 528,368,598         | 512,622,326    | 497,362,285    | 482,533,757    |
| E. Medicaid Use / Claims Tax Dollars (A x C)                 | <u>(11,015,440)</u> | <u>(5,162,951)</u> | <u>0</u>            | <u>0</u>       | <u>0</u>       | <u>0</u>       |
| F. Revenue Available for Total Costs PEPM (B + C)            | \$98.14             | \$117.85           | \$115.49            | \$113.18       | \$110.92       | \$108.70       |
| G. Revenue Available for Total Costs (A x F)                 | \$450,866,359       | \$544,602,315      | \$528,368,598       | \$512,622,326  | \$497,362,285  | \$482,533,757  |
| H. Administration Cost                                       | 19,655,564          | 21,797,416         | 22,197,416          | 22,863,338     | 23,549,238     | 24,255,715     |
| I. Non-MH/SA Costs   | <u>872,445</u>      | <u>872,445</u>     | <u>872,445</u>      | <u>872,445</u> | <u>872,445</u> | <u>872,445</u> |
| J. Revenue Available for MH / SA Treatment Costs (G - H - I) | \$430,338,350       | \$521,932,454      | \$505,298,737       | \$488,886,543  | \$472,940,602  | \$457,405,597  |
| K. MH / SA Treatment Cost PEPM                               |                     |                    |                     |                |                |                |
| 1. Expected (50% Probability Threshold)                      | \$97.24             | \$109.14           | \$115.69            | \$122.63       | \$129.99       | \$137.79       |
| 2. 70.0% Probability Threshold                               |                     | 109.63             | 116.21              | 123.18         | 130.58         | 138.41         |
| 3. 80.0% Probability Threshold                               |                     | 109.96             | 116.56              | 123.55         | 130.96         | 138.82         |
| 4. 90.0% Probability Threshold                               |                     | 110.48             | 117.11              | 124.14         | 131.59         | 139.48         |
| 5. 95.0% Probability Threshold                               |                     | 111.09             | 117.76              | 124.82         | 132.32         | 140.26         |
| 6. 97.5% Probability Threshold                               |                     | 112.11             | 118.84              | 125.97         | 133.53         | 141.54         |
| L. Total MH / SA Treatment Costs (A x K) <sup>1</sup>        |                     |                    |                     |                |                |                |
| 1. Expected (50% Probability Threshold)                      | \$446,724,916       | \$504,360,824      | \$529,283,601       | \$555,423,890  | \$582,871,650  | \$611,668,136  |
| 2. 70.0% Probability Threshold                               |                     | 506,625,226        | 531,662,609         | 557,914,986    | 585,517,194    | 614,420,399    |
| 3. 80.0% Probability Threshold                               |                     | 508,150,231        | 533,263,865         | 559,590,814    | 587,221,104    | 616,240,443    |
| 4. 90.0% Probability Threshold                               |                     | 510,553,269        | 535,780,124         | 562,263,081    | 590,046,007    | 619,170,271    |
| 5. 95.0% Probability Threshold                               |                     | 513,372,219        | 538,753,884         | 565,342,982    | 593,319,307    | 622,632,795    |
| 6. 97.5% Probability Threshold                               |                     | 518,085,871        | 543,694,901         | 570,551,638    | 598,744,915    | 628,314,885    |
| M. Surplus / Deficit (J - L, subject to contract limits)     |                     |                    |                     |                |                |                |
| 1. Expected (50% Probability Threshold)                      | (\$16,386,566)      | \$17,571,630       | (\$23,984,864)      | (\$38,446,674) | (\$37,302,171) | (\$36,190,032) |
| 2. 70.0% Probability Threshold                               |                     | 15,307,228         | (26,363,872)        | (38,446,674)   | (37,302,171)   | (36,190,032)   |
| 3. 80.0% Probability Threshold                               |                     | 13,782,223         | (27,191,779)        | (38,446,674)   | (37,302,171)   | (36,190,032)   |
| 4. 90.0% Probability Threshold                               |                     | 11,379,185         | (28,449,909)        | (38,446,674)   | (37,302,171)   | (36,190,032)   |
| 5. 95.0% Probability Threshold                               |                     | 8,560,235          | (29,936,789)        | (38,446,674)   | (37,302,171)   | (36,190,032)   |
| 6. 97.5% Probability Threshold                               |                     | 3,846,583          | (32,407,297)        | (38,446,674)   | (37,302,171)   | (36,190,032)   |
| N. Projected Savings / ISF Balance <sup>3,4</sup>            |                     |                    |                     |                |                |                |
| 1. Expected (50% Probability Threshold)                      | \$28,708,697        | \$46,280,327       | \$22,295,462        | (\$16,151,212) | (\$53,453,384) | (\$89,643,415) |
| 2. 70.0% Probability Threshold                               |                     | 44,015,925         | 19,916,454          | (16,151,212)   | (53,453,384)   | (89,643,415)   |
| 3. 80.0% Probability Threshold                               |                     | 42,490,920         | 19,088,547          | (16,151,212)   | (53,453,384)   | (89,643,415)   |
| 4. 90.0% Probability Threshold                               |                     | 40,087,882         | 17,830,418          | (16,151,212)   | (53,453,384)   | (89,643,415)   |
| 5. 95.0% Probability Threshold                               |                     | 37,268,932         | 16,343,538          | (16,151,212)   | (53,453,384)   | (89,643,415)   |
| 6. 97.5% Probability Threshold                               |                     | 32,555,280         | 13,873,029          | (16,151,212)   | (53,453,384)   | (89,643,415)   |
| O. Suggested ISF Balance <sup>5</sup>                        |                     |                    |                     |                |                |                |
| 1. Expected (50% Probability Threshold)                      | \$19,559,448        | \$41,232,395       | <b>\$22,295,462</b> | <b>\$0</b>     | <b>\$0</b>     |                |
| 2. 70.0% Probability Threshold                               |                     | \$41,232,395       | <b>\$19,916,454</b> | <b>\$0</b>     | <b>\$0</b>     |                |
| 3. 80.0% Probability Threshold                               |                     | \$41,232,395       | <b>\$19,088,547</b> | <b>\$0</b>     | <b>\$0</b>     |                |
| 4. 90.0% Probability Threshold                               |                     | \$40,087,882       | <b>\$17,830,418</b> | <b>\$0</b>     | <b>\$0</b>     |                |
| 5. 95.0% Probability Threshold                               |                     | \$37,268,932       | <b>\$16,343,538</b> | <b>\$0</b>     | <b>\$0</b>     |                |
| 6. 97.5% Probability Threshold                               |                     | \$32,555,280       | <b>\$13,873,029</b> | <b>\$0</b>     | <b>\$0</b>     |                |
| P. One Year Maximum Liability                                | \$34,641,135        | \$41,232,395       | \$39,627,645        | \$38,446,674   | \$37,302,171   |                |

<sup>1</sup> Reflects all Medicaid related components including mental health, substance abuse, and psychiatric hospital rate adjuster and use / claims tax.

<sup>2</sup> The Medicaid Use / Claims tax was equal to 2.4% of combined Medicaid and Healthy Michigan revenue for FY 2017 and 0.9% of combined Medicaid and Healthy Michigan revenue for FY 2018. The Medicaid Use tax was eliminated January 1, 2017 and the HICA tax was eliminated October 1, 2018. Funding available for treatment costs is assumed to not be impacted by the elimination of the Medicaid Use / Claims tax percentage (i.e., gross revenue is assumed to change consistently with the change in Medicaid Use / Claims tax).

<sup>3</sup> The year-end FY 2017 projected savings / ISF balance of \$28,708,697 equals the FY 2017 ISF balance of \$19,559,448 plus the FY 2017 savings of \$9,149,249.

<sup>4</sup> The projected savings / ISF balance for any given year assumes (1) all surpluses for the year are added to the prior year's savings / ISF balance, (2) all deficits for the year are subsidized by the prior year's savings / ISF balance, (3) all the surpluses and deficits for prior years are assumed to be at expected levels, and (4) neither the projected savings nor the ISF balance exceed 7.5% of the projected revenue (i.e., the sum of these amounts cannot exceed 15% of projected revenue).

<sup>5</sup> The suggested ISF balance for any given year equals the minimum of (1) the projected savings / ISF balance for the year at the given probability threshold and (2) the maximum allowable ISF balance for the year. **BOLD** means additional sources of capital would be needed to adequately fund the ISF for the next year assuming expected surpluses or deficits for the next year.

**Assumptions:**

-- A 1.0% annual decrease in member months beginning in 2019.

-- A 20.1% increase in Medicaid revenue PEPM for FY 2018 and a 2.0% annual decrease in Medicaid revenue PEPM beginning in FY 2019.

-- A \$400,000 increase in administration costs for FY 2019 and a 3.0% annual increase in administration costs beginning in FY 2020.

-- A 12.2% increase in Medicaid treatment costs PEPM in FY 2018 due to general utilization and unit cost trends and a 6.0% annual increase in Medicaid treatment costs PEPM beginning in FY 2019.