AGENDA ITEM DETAILS

Subject: Consideration of the 2022 Asset-Liability Study

RECOMMENDED ACTION:

Move that the Investment Advisory Committee recommend that the Board of Trustees approve the Strategic Asset Allocation Parameters of ***Mix B*** as described in exhibit B for inclusion in the Investment Policy Statement.

Contingent upon adoption of the above motion by the Investment Advisory Committee, staff recommends the following motion to the Board of Trustees:

Move that the Board of Trustees adopt the Strategic Asset Allocation Parameters of ***Mix B*** as described in exhibit B for inclusion in the Investment Policy Statement.

Background:

The 2022 Asset-Liability Study (A-L Study) was conducted to evaluate the long-term funding and liquidity profile of the Trust, including the potential effects of SB321 (including the series of legacy payments to the Trust and the creation of Group 4 on September 1, 2022) on the Trust's liquidity position and strategic asset allocation parameters. The goal of the Asset-Liability Study is to examine the long-term dynamics of Trust assets together with the associated liabilities, including how they interact over time to determine the financial status of the Trust.

Such a process can be clearly distinguished from an actuarial experience study according to their purpose and methodology. In an Asset-Liability Study, the potential future trajectories of the Trust are modeled by taking the actuarial assumptions as given and varying the investment return assumptions to produce a range of scenarios for the assets of the System. In contrast, an actuarial experience study models the potential future trajectories of the Trust by taking the investment return assumptions as given and varying the actuarial assumptions to produce a range of scenarios for the liabilities of the System.

ERS worked with NEPC, the general investment consultant, on the study. NEPC incorporated actuarial projections of key long-term trends including contribution levels, pension liabilities, and asset returns. NEPC used multiple models to evaluate the expected progress of liabilities and cash flows, which were then used to assess the suitability of the current asset allocation parameters and their ability to balance long-term growth with the provision of liquidity to pay benefits.

The A-L Study process began in early 2022, and during the May meeting NEPC provided a draft set of findings to the Board. The schedule called for NEPC to provide the final report in August, and the delivery of this report completes the process. Sam Austin and Rob Goldthwaite from NEPC will present the report and discuss the key conclusions with the Board and IAC. Investment Staff will present their analysis of the report and make recommendations to the Board and IAC regarding potential adjustments to the asset allocation parameters.

STAFF REVIEW OF FINAL ASSET-LAIBLITY STUDY

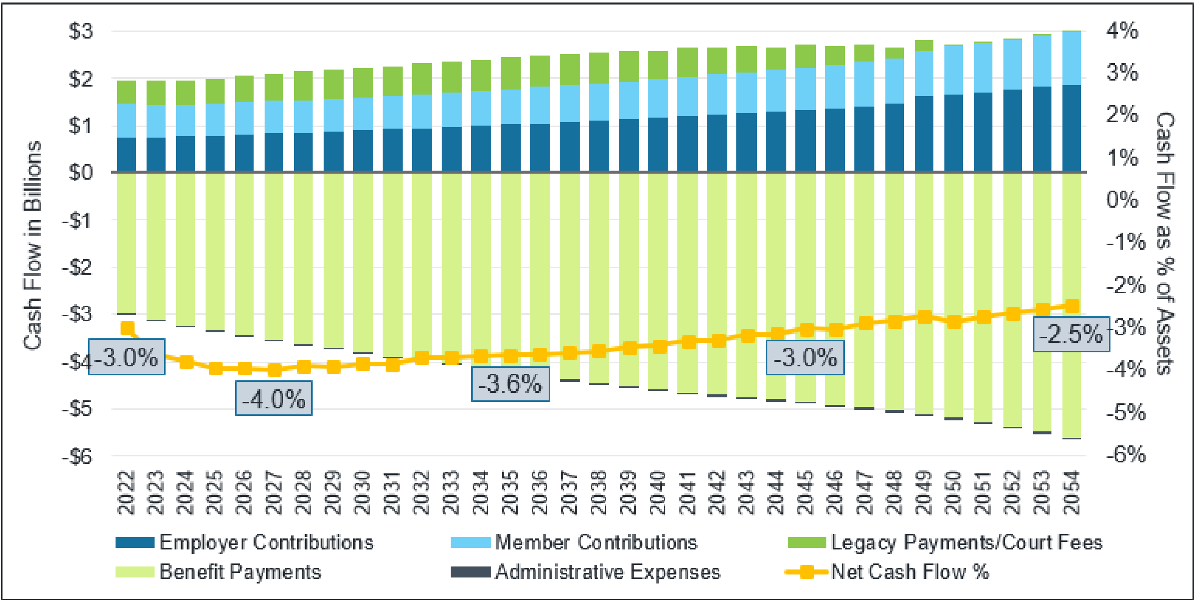
Since the presentation of the initial draft of the A-L Study in May, meaningful changes have occurred in the capital markets including the rapid and significant increase in US interest rates. These changes have also influenced the assumptions from NEPC on which the report is based, which has in turn produced a material increase in the long-term expected returns of the current Policy Benchmark.

	May	August
Expected Return on Assets (10 years)	5.4%	6.8%
Expected Return on Assets (30 years)	6.6%	7.3%
Asset Volatility	12.4%	12.5%

Since April, NEPC has continued to work with consulting pension actuary Gabriel Roeder Smith and Company (GRS) to refine the actuarial projections, including those for the nascent Group 4, which resulted in updates to the long-term cash flow forecasts for the Trust. In resulting analysis concluded that the short-term liquidity demands on the Trust are expected to be modestly better than previously forecast, though these demands will still amount to almost 4% of the Trust annually. However, over the long-term, the liquidity demands are expected to be significantly higher than was previously the case.

	May	August
Net Cash Flow 2030 (% of Trust assets)	-3.9%	-3.8%
Net Cash Flow 2040 (% of Trust assets)	-3.2%	-3.4%
Net Cash Flow 2050 (% of Trust assets)	-1.4%	-2.8%

In short, the Asset-Liability study continues to expect a long-term trajectory toward full funding for the ERS plan, though this is not the case for LECOS or JRS2. As a result, the significant and rising liquidity demands to meet the near-term benefit obligations of the Trust will continue even as the ERS plan experiences steady improvement in its funded status. Even in 2054, the net cash outflow from the Trust is expected to remain around 2.5% of its asset value. This figure is typical for a mature plan and does not represent a source of significant concern, though it should inform portfolio construction for the Trust.



Indeed, the expected net outflows from the Trust are forecast to rise from 3% of assets annually in 2022 to around 4% over the next five years and to remain at those levels for several more years. It is only with the advent of the 2030s that these liquidity demands begin a gradual return to the 3% level of net outflows in 2045 and reach 2.5% by 2054.

STAFF SAA PARAMETERS: MIX B IN THE A-L STUDY

To align the Trust with an expectation for substantial liquidity needs in the coming decade, Staff proposes to revise the Strategic Asset Allocation parameters for the Trust as shown below. These parameters are modeled by NEPC in the A-L Study as **Mix B**. Such revisions would allow for greater liquidity and reduced equity risk while increasing the expected return of the Trust relative to current policy by:

- Increasing the strategic target weight to Private Equity to 16% from 13% which would reduce the need to drastically scale back that well-performing program from the ~20% level currently.
- Increasing the level of risk-reducing assets in the Trust to 20%, including a 1% increase to each of the three constituent asset classes, to provide for increased liquidity in coming years.
- Adding a standing allocation to Private Credit since the allocations within that ~$1B portfolio are large enough and long-lived enough to no longer be considered opportunistic.
- Redefining the Special Situations category to seek opportunities that improve the risk-return profile of the Trust through high diversification potential, rather than being risk seeking.

These proposed revisions are summarized in the table below, which shows those assets characterized as return seeking in green and those characterized as risk reducing in purple.

	CURRENT		PROPOSED	
	ACTUAL	TARGET	TARGET	CHANGE
Public Equity	32.9%	37.0%	35.0%	-2.0%
Private Equity	19.7%	13.0%	16.0%	3.0%
Real Estate - Public	2.8%	3.0%	3.0%	0.0%
Real Estate - Private	11.0%	9.0%	9.0%	0.0%
Private Infrastructure	5.2%	7.0%	5.0%	-2.0%
Global Credit (Public)	7.0%	10.0%	9.0%	-1.0%
Global Credit (Private)	2.8%	3.0%	3.0%	0.0%
Special Situations	1.1%	1.0%	0.0%	-1.0%
Hedge Funds	4.8%	5.0%	6.0%	1.0%
Rates	11.1%	11.0%	12.0%	1.0%
Cash	1.7%	1.0%	2.0%	1.0%
TOTAL	**100.0%**	**100.0%**	**100.0%**	**0.0%**

As shown in the table below, these proposed changes would move the Trust from a target of 83% risk seeking assets to 80%, a somewhat more conservative stance that would align more closely with growth-oriented institutional peers. The proposed target allocation to liquid assets of 52% would be consistent with the current target to remain at appropriate levels, and would represent an increase over time from current Trust positioning below 50%. The proposed target allocation to private markets of 33% would increase slightly versus the current target of 32% to remain at suitable levels, though this figure would represent a meaningful reduction over time from current Trust positioning of almost 39%.

	CURRENT		PROPOSED	
	ACTUAL	TARGET	TARGET	CHANGE
Risk Seeking	82.4%	83.0%	80.0%	-3.0%
Risk Reducing	18.7%	17.0%	20.0%	3.0%
Public Markets	61.3%	68.0%	67.0%	-1.0%
Private Markets*	38.7%	32.0%	33.0%	1.0%
*assumes private credit target at 3%				
Liquid	48.4%	52.0%	52.0%	0.0%
Semi-Liquid*	11.7%	16.0%	15.0%	-1.0%
Illiquid	38.7%	32.0%	33.0%	1.0%
*semi-liquid assets includes public credit and hedge funds				
Expected return - 10 years	6.95%	6.76%	6.90%	0.14%
Expected return - 30 years	7.49%	7.33%	7.47%	0.14%
Expected volatility	13.2%	12.5%	13.0%	0.5%

Relative to the current target, analysis from NEPC that was reviewed by investment staff suggests that Mix B would increase the expected return of the Trust by 14 basis points over both a 10-year and 30-year horizon. Relative to the current Trust positioning, Mix B exhibits an expected return that is lower by only five basis points and two basis points over a 10-year or 30-year horizon respectively.

STAFF ANALYSIS OF A-L STUDY ASSET MIXES

As part of the A-L Study, NEPC analyzed five alternative asset mixes for the Trust and provided summary statistics for key measures such as expected return and volatility. For this analysis, investment staff has also developed comparable metrics for the Current Portfolio, which reflects Trust positioning as of June 30, 2022.

	Current Portfolio	Current Policy	Lower Risk	Mix A	Mix B	Mix C	Higher Risk
Expected Return - 10 years	6.95%	6.76%	6.49%	6.70%	6.90%	6.96%	7.02%
Expected Return - 30 years	7.49%	7.33%	7.02%	7.27%	7.47%	7.52%	7.63%
Standard Deviation	13.3%	12.5%	11.1%	12.3%	13.0%	12.8%	13.9%

To evaluate these various asset mixes relative to the strategic purpose and long-term goals of the Trust, investment staff established five key criteria for further analysis:

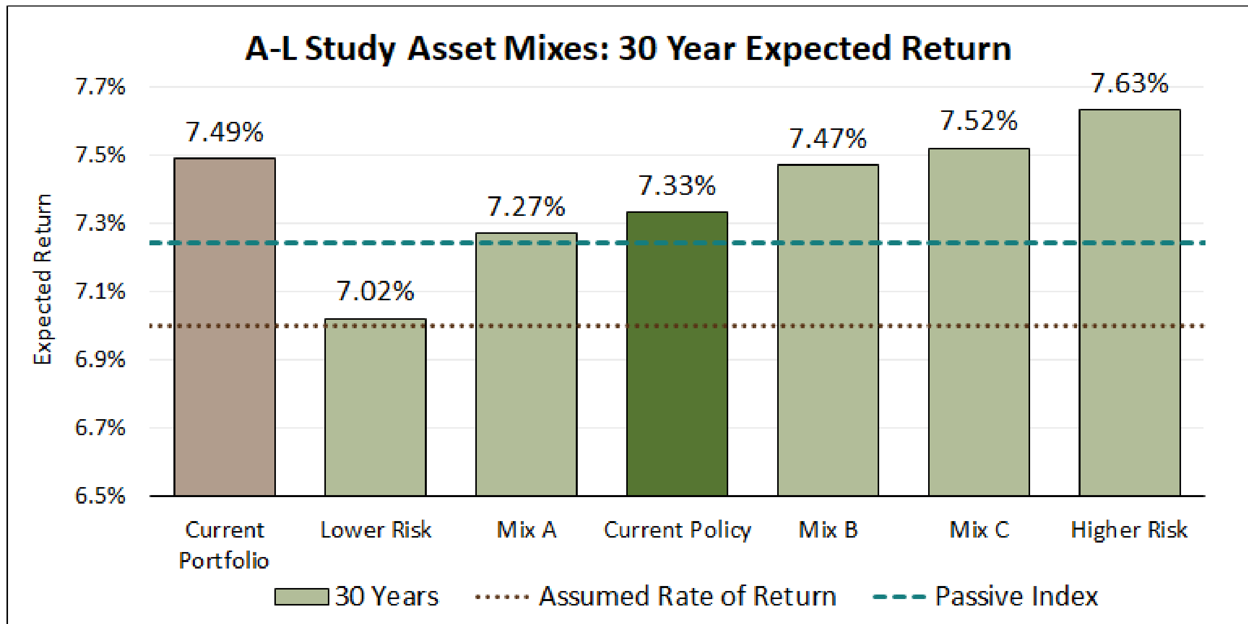
- RETURN: Would the portfolio grow enough to support the goals of ERS?
- RISK: Would the portfolio avoid undue concentration in any asset type?
- EFFICIENCY: Would the expected risk level be reasonably compensated?
- LIQUIDITY: Would the portfolio regularly meet payment obligations?
- TURNOVER: Would significant reallocation be needed to reach the targets?

Return

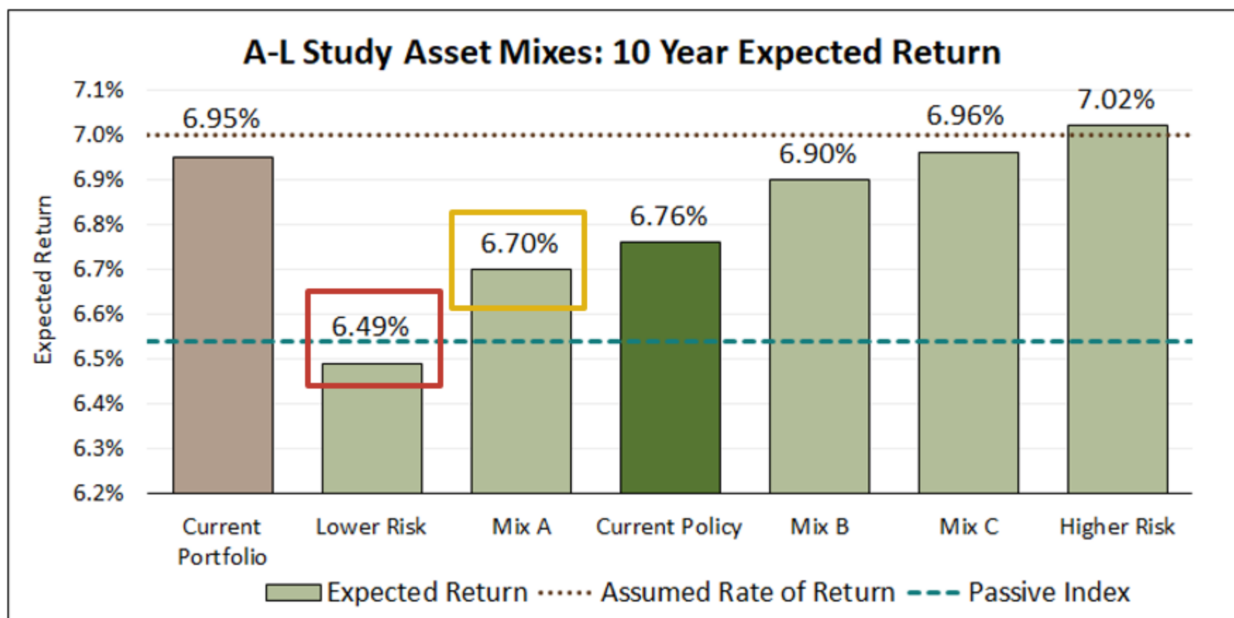
Examining the 30-year expected returns for these asset mixes shows that most are expected to be above the actuarially assumed rate of return (ARR) as well as the Passive Index. Both of these criteria are important since the first assesses the ability of the portfolio to grow at 7% or more consistently in order to fulfill the payment obligations of the Trust, while the second assesses whether the market returns of the diversified asset mix can add value over those of a passive mix of only stocks and bonds.

The Lower Risk asset mix is the only one that falls short of the 7.24% expected from the Passive Index, which is not surprising given that it allocates 70% to risk-seeking assets whereas the index allocates

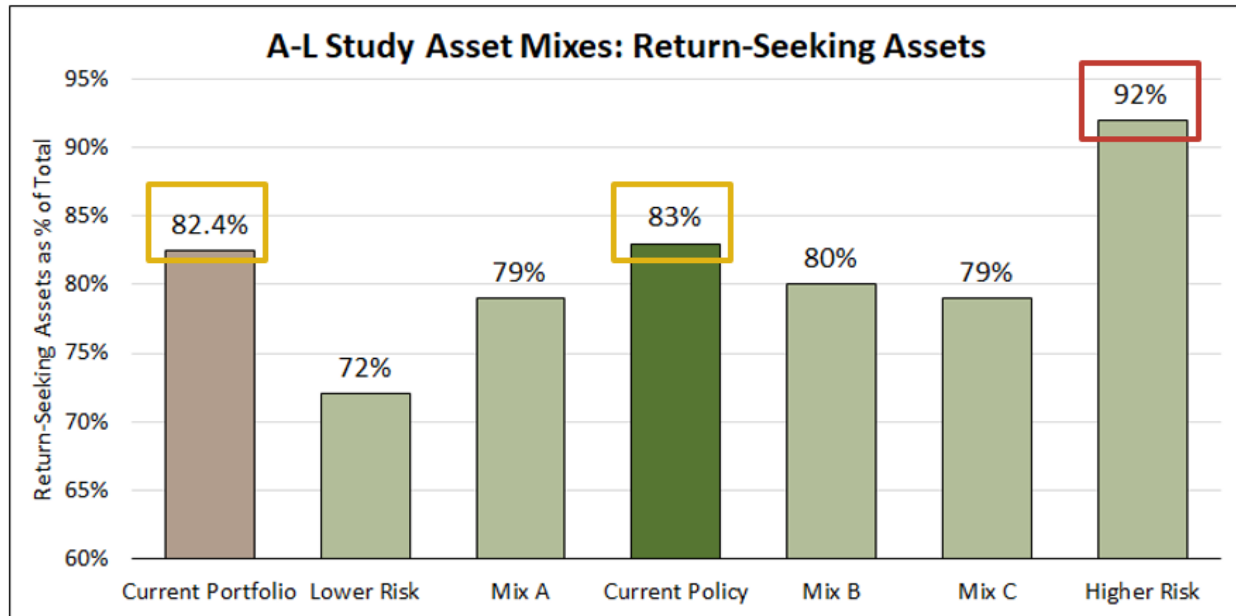
80%. Even so, it is important to note that these figures represent only the market return and assume no implementation gains from the efforts of investment staff to select better performing investments. That is, the ability of staff to add value above the market return through asset allocation and/or security selection could still allow mixes with lower expected returns to outperform the Passive Index and/or ARR.



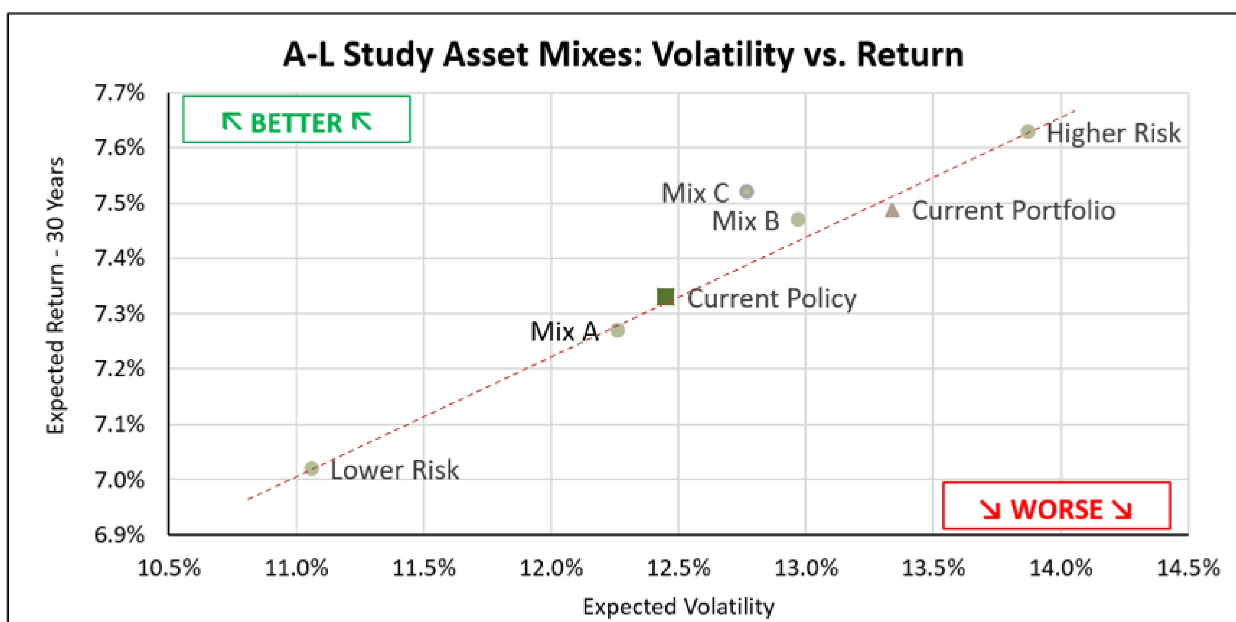
Examining the 10-year expected returns for these mixes shows that most are below the ARR but above the 6.54% return expected from the Passive Index. This suggests that each of the asset mixes is expected to add significant value above the passive 80/20 mix, with the exception of the Lower Risk mix that, as noted earlier, includes only a 70% allocation to return-seeking assets. However, only the Higher Risk mix would be expected to deliver performance above the ARR, and as a result, most of these mixes would rely on implementation gains to achieve or exceed 7% annual returns for the medium term. The magnitude of such gains required to exceed the ARR would be 5-30 basis points, which is within the historical range of implementation gains and below the long-term average of 35 basis points.



Risk
To assess the risk profile of the various mixes, one simple approach is to compare the target allocation to what the ERS framework defines as return-seeking assets. In doing so, it can be seen that the Higher Risk mix is well above ~80% return-seeking assets, which is above the level that investment staff would consider to be consistent with institutional peers that maintain growth-oriented portfolios. The Current Policy and the Current Portfolio are also slightly above that level, and the Lower Risk mix is well below.

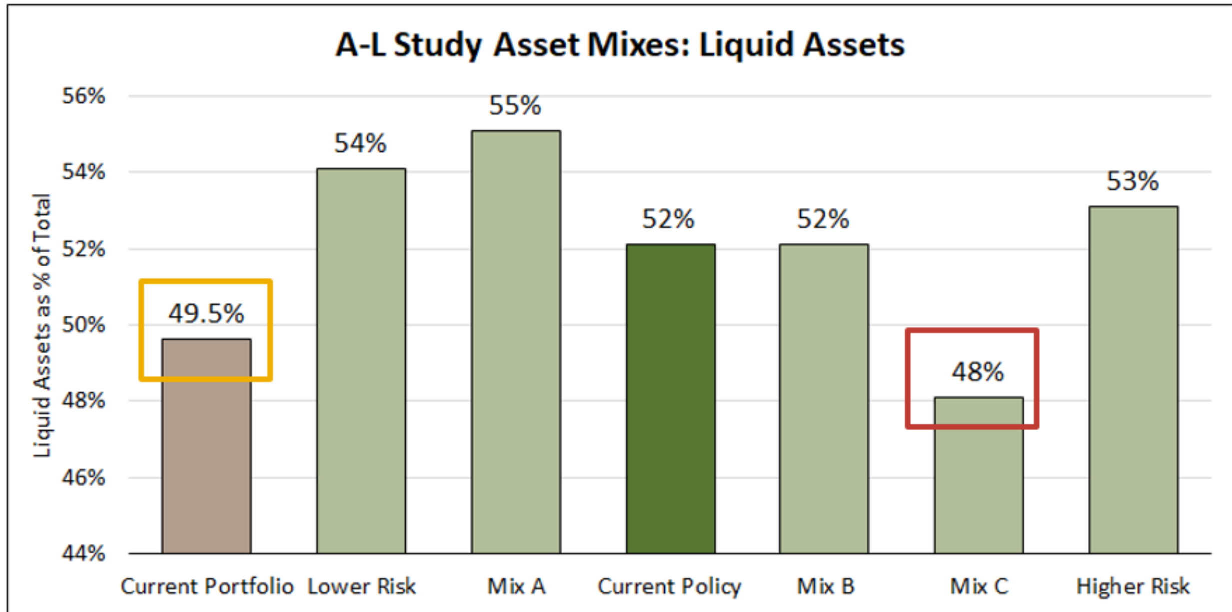


Efficiency
To evaluate the relative balance between risk and return, investment practitioners consider an "efficient" portfolio to be one where the portfolio earns a reasonable return relative to the market risk it bears. The exhibit below compares the asset mixes according to their expected returns and expected risk, with superior portfolios charting toward the upper left and inferior portfolios charting toward the lower right. A regression line is included in the chart to show that all of the portfolios offer reasonable compensation for risk. Even so, some distinctions are evident in that Mix B and Mix C offer compensation for risk that is 5-10 basis points above the expected value for their risk level while the Current Portfolio offers slightly less.



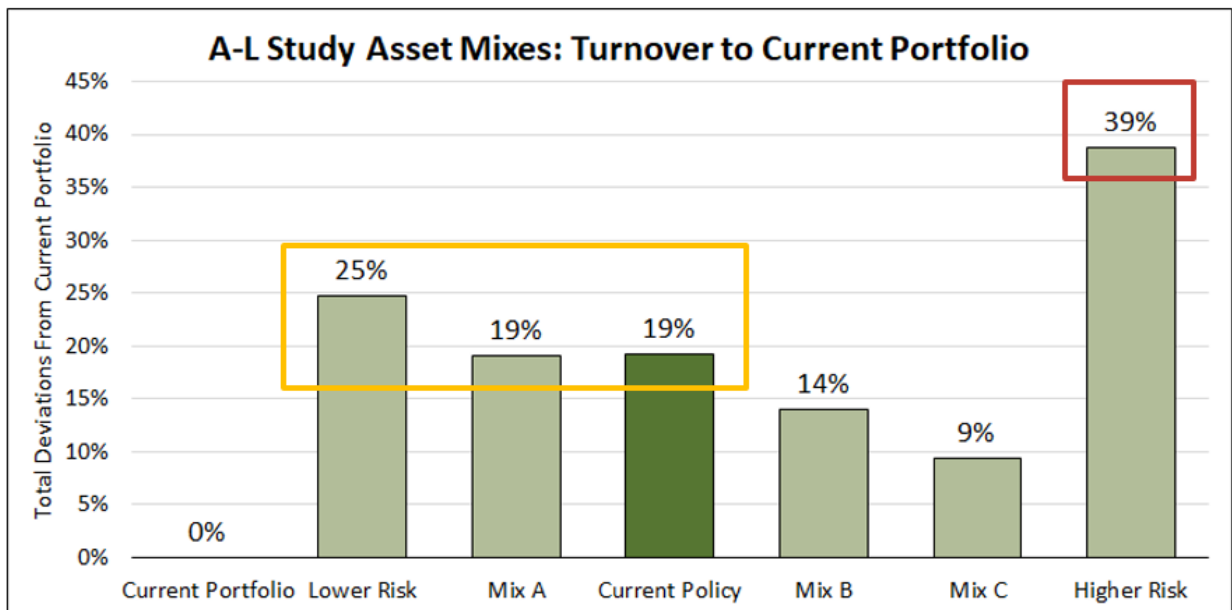
Liquidity

To assess the ability of these mixes to provide liquidity and meet the long-term payment obligations of the Trust, the level of liquid assets can serve as a useful proxy. For this analysis, liquid assets are defined as publicly traded stocks (including public real estate) as well as US Treasuries and cash. The chart below shows that Mix C includes a level of liquid assets that is below both the Current Policy and the Current Portfolio, which represents its most significant drawback within this evaluation overall. The Higher Risk mix screens well on this metric since it owns significantly more public equity than other mixes do, and Mix A also looks good due to its large allocation to Treasuries.



Turnover

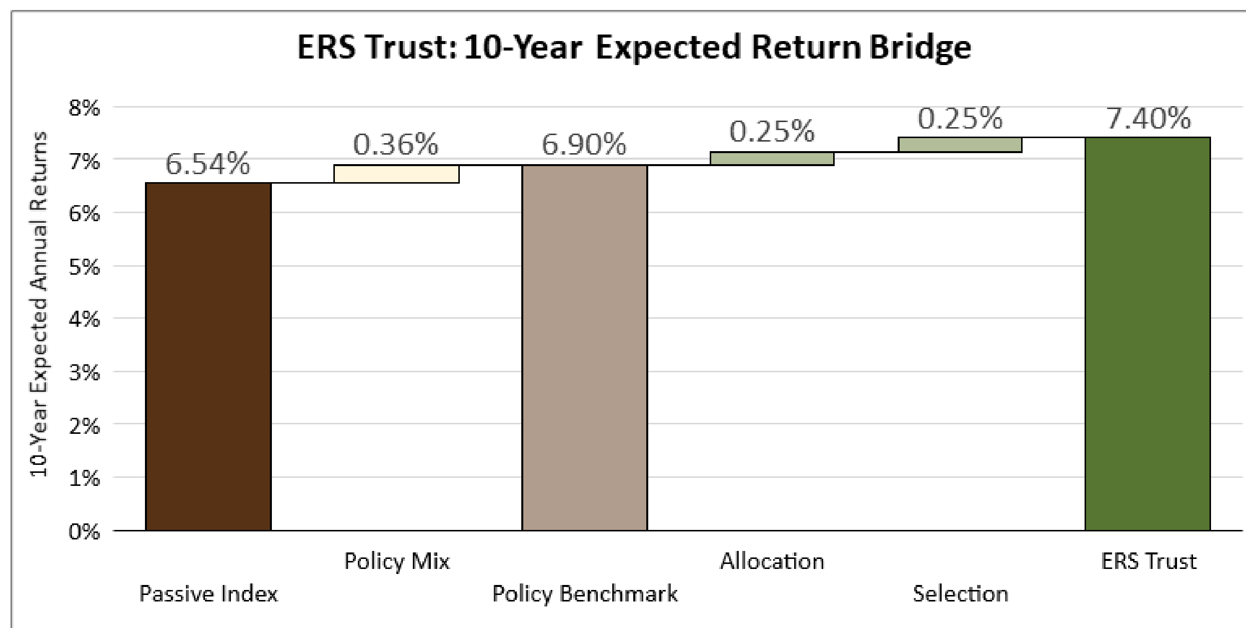
Another important aspect of the choice of future asset mix for the Trust is the amount of portfolio turnover that would be required to reach the new target. For this analysis, turnover is defined as the total amount of the portfolio that would need to be both bought and sold to arrive at the new target, which is different from some turnover computations that consider one or the other. As shown below, some mixes such as Higher Risk would require significant turnover to achieve targets, and indeed even the Current Policy is somewhat distant from the target due to an overallocation to private equity of nearly 7%.



Overall
To evaluate the asset mixes across each of the key criteria relative to the others, staff uses a scorecard approach. As shown below, most of the asset mixes have significant drawbacks such as low expected returns, excessive risk, low liquidity and/or high turnover. However, **Mix B** screens quite well across these criteria and features good expected returns that are well compensated for the expected risk level, suitable levels of liquidity to meet the future payment obligations of the Trust, and a relatively low amount of turnover required to achieve the targets over time. Such an outcome is the result of diligent portfolio construction to arrive at SAA parameters that carefully balance each of the evaluation criteria.

	Current Portfolio	Lower Risk	Mix A	Current Policy	Mix B	Mix C	Higher Risk
Return	✓	✗	✗	✓	✓	✓	✓
Risk	✗	✓	✓	✗	✓	✓	✗
Efficiency	✓	✓	✓	✓	✓	✓	✓
Liquidity	✗	✓	✓	✓	✓	✗	✓
Turnover	✓	✗	✗	✗	✓	✓	✗

As discussed earlier, the expected return of 6.90% annually for **Mix B** over the next 10 years accounts only for the market return. As shown below, these returns are expected to be 36 basis points above those of the Passive Index, and the addition of 50 bps of implementation gains annually through the efforts of investment staff would further augment these gains to provide for a target return of 7.4%. Investment staff aims to achieve these incremental returns through a balanced mix of allocation (i.e., allocating to asset classes that are relatively more attractive) and selection (i.e., owning to securities that are relatively more attractive).



STAFF RECOMMENDATION

Staff recommends the adoption of the Strategic Asset Allocation parameters of ***Mix B*** for inclusion in the draft Investment Policy Statement proposed in the next agenda item.

ATTACHMENTS:

1. Exhibit A – 2022 Asset Liability Study for ERS
2. Exhibit B - ALTERNATIVE ASSET ALLOCATION MIXES
3. Slides – Asset Liability Study