Asset Allocation:

- **How were land values developed? What valuation methods were used?**

  Assumption: Given the heading "Asset Allocation" the questions above are related to valuation of the land assets at the time of the asset allocation study.

  Timberland: The last valuation of timberland (2013) used the land expectation value method (LEV). LEV is based on a forecast sustainable real cash flow that will exist into perpetuity. This cash flow was discounted by a constant discount rate (4%).

  Rangeland - The last valuation of rangeland (2013) also used the land expectation value method based on a forecast sustainable real cash flow that will exist into perpetuity. This cash flow was discounted by a constant discount rate (1.25%).

  Farmland – Callan did not place a value on farmland which was deemed "de minimis holdings." The value is currently estimated using National Agriculture Statistics Service data for dry farmland in Idaho.

  Commercial Real Estate – Callan did not place a value on commercial real estate. Callan did recommend annual valuations of the assets. With the ongoing disposition of the portfolio, the Department has valued the assets via appraisal using an income approach and/or comparable sales data.

  Residential Real Estate – Callan did not place a value on residential real estate. These properties are valued via appraisal using comparable sales data.

  End of FY 2019 estimated value by asset class:

  Timberland: $1.22 billion

  Rangeland: $61 million

  Farmland: $25.3 million

  Residential Real Estate: $54 million

  Commercial Real Estate: $14.6 million

  Callan Methodology (2014)
  Forecasting returns, risks and diversification potential (correlations) for timber and grazing lands is challenging. Although historical and projected net income streams are available for both asset classes, the returns these income streams generate are dependent on the value of the underlying land. Land valuation under any circumstances involves art as well as science but art plays a particularly large role for Idaho timberland and grazing land due to both the size of the holding and State constitutional considerations. Appraisals based on comparable sales do not account for a number of factors including location, accessibility, improvements and the tremendous increase in supply that would result from a significant land sale (assuming that there were no restrictions on sales).

For the purposes of our asset allocation analysis it is useful to value the lands by discounting expected future cash flows for a variety of reasons. First, cash flows for these lands have been projected and using them makes the value of the land consistent with these forecasts. Second, the duration and frequency of the projections allows better estimation of standard deviations and correlations than appraisals which are conducted several years apart. Finally, stocks and bonds are generally valued based on discounted cash flows so there is consistency in the forecasting methods across asset classes.

The approach we used to value both the timberlands and the grazing lands in this analysis is the land expectation value method (LEV). LEV is based on a forecast sustainable real cash flow that will exist into perpetuity. This cash flow is discounted by a constant discount rate. The formula for LEV is:

LEV = Constant Real Annual Cash Flow / Real Annual Discount Rate

It is important to recognize what the land expectation value represents. The LEV is not an appraisal of the fair market value for all or any portion of the land. It does not attempt value individual tracts of land based on their specific characteristics. It does not take into account the revenues that might be generated from other potential uses. Unlike an appraisal, it is not intended to facilitate a transaction.

The LEV is a general estimate of the overall land value. It is constructed from the expected revenues reflecting current operations. Its purpose is to provide a necessary input to forecast returns for use in the asset allocation analysis and to determine the percentage weight of the lands in the existing asset allocation.

For timberland, the forecast cash flow is based on the volume of timber harvested, the price paid for the timber and non-timber income. For our purposes, we assume that the long-term sustainable yield (LTSY) for timber is 240 mmbf on an annual basis. We assume the stumpage price is $240 per mbf. Historically, non-timber income has run about 9% of total income. Direct program expense and managerial overhead assumptions are taken from the Endowment Lands Income Statement. Combining these values provides the estimated real dollar value of the LTSY.

The selection of the discount rate is somewhat subjective…For our purposes, we have chosen to discount the cash flows at a rate consistent with the expected return on institutionally-managed timber funds. Currently, institutional managers are forecasting 4% to 6% real returns. IDL manages its timber on the conservative end of the institutional range so a 4% real discount rate is appropriate. The selection of this discount rate is also consistent with the dividend and earnings yields of timber REITs. Using a 4% real discount rate translates into a real LEV for $1.17 billion for the timber assets. Dividing timberland holdings of 980,764 acres by the $1.17 LEV results in an estimated value of $1,174 per acre.

Grazing land (now rangeland) cash flows are forecast based on anticipated values for Animal Unit Months (AUMs) and the AUM grazing rate. We used the estimate of

285,000 AUMs from the March 2014 State Grazing Rate Review and kept it constant throughout the forecast period. We used the $6.77 / AUM Grazing Lease Rate for Calendar Year 2015. As was the case in the timberland forecasts, direct program expense and managerial overhead assumptions are from the Endowment Lands Income Statement discounted for inflation so that they are consistent with the real revenue forecasts.

Once again the selection of the discount rate is somewhat subjective…To estimate the discount rate we used the historical average of the 10-year bond equivalent yield for funding costs provided by the Farm Credit System Bank. The 10-year average for this rate is approximately 4% while the 5-year average is about 3%. We averaged these to get a nominal discount rate of 3.5%. Subtracting our inflation assumption of 2.25%, results in a forecast real discount rate of 1.25%. This real discount rate leads to a $61 million land expectation value for grazing land. This translates to $43/acre ($61 million value/1.4 million acres).

- **Was the inability to sell timberland and/or recreation income factored into the valuations?**

  The valuation for timberland was based on income from timber management (and an estimated 9% from other sources, based on historic data). Revenue from potential sale of timberland was not a consideration when establishing value. Additionally, appreciation is not included in the valuation due to the statutory prohibition on timberland sales. This aligns with the valuation of timberland for acquisition where a 3.5% net real hurdle rate is required for consideration.

  Recreation income, such as from commercial recreation use, would be part of the assumed 9% from other sources.

Lands Income:

- **Rate of return on all lands other than commercial and residential for each of the last 10 years.**

  Beginning in FY 2016, the Department has worked with Callan to calculate returns for the endowment land asset classes. FY 19 returns will be calculated by about November 1, 2019. The returns from the report produced at FY 2018 year-end are in the table immediately below. Please note that the returns shown in this table include appreciation for Farmland, Commercial Real Estate, and Residential Real Estate. Commercial and Residential have shown significant appreciation due to market-related increases over the past few years, which skews returns in their favor because we have not accounted for appreciation of timberland, for example.

Returns for Periods Ended June 30, 2018

	FY 18	Last 2 Years	Last 3 Years
Farmland	6.1%	4.01%	5.42%
Farmland (net)	5.23%	3.25%	4.66%
Commercial RE	30.91%	29.77%	22.03%
Commercial RE (net)	22.32%	23.40%	16.49%
Rangeland	4.95%	4.96%	4.97%
Rangeland (net)	2.19%	1.90%	1.94%
Residential RE	37.20%	20.77%	14.88%
Residential RE (net)	34.68%	18.88%	13.12%
Timberland	5.75%	5.70%	5.63%
Timberland (net)	3.75%	3.63%	3.66%
Total Land – no land bank	7.84%	6.90%	6.41%
Total Land – no land bank (net)	5.74%	4.77%	4.37%
Total Land Portfolio (Gross)	7.43%	6.60%	6.18%
Total Land Portfolio (Net Nominal)	5.48%	4.58%	4.23%
Total Land Portfolio (Net Real Return)	2.55%	2.29%	2.36%
Consumer Price Index (All Urban Cons)	2.87%	2.25%	1.83%

The next chart shows returns as income, appreciation, and total. This information provides a clearer picture regarding the income returns from the endowment land asset classes.

Income, Appreciation, and Total Returns for Periods Ended June 30, 2018

	FY 18 Income (%)	FY 18 Appreciation (%)	FY 18 Total (%)	Last 3 Yrs Income (%)	Last 3 Yrs Appreciation (%)	Last 3 Yrs Total (%)
Farmland (Net)	0.9	4.28	5.23	1.2	3.42	4.66
Commercial RE (Net)	2.25	20.78	23.32	3.49	12.67	16.49
Rangeland (Net)	2.19	**0**	2.19	1.94	**0**	1.94
Residential RE (Net)	1.38	32.85	34.68	2.41	10.48	13.12
Timberland (Net)	3.75	**0**	3.75	3.66	**0**	3.66
Total Land – No Land Bank (Net)	3.47	2.23	5.74	3.43	0.91	4.37
Total Land Portfolio (Net Nominal)	3.34	2.09	5.48	3.35	0.86	4.23

- **Same for timber if it can be calculated.**
  Note that timber returns are shown in the table above along with the other asset classes.

- **Lost land income from divestiture.**

It is important to clearly state that beginning with FY 16 the Department began tracking financial performance, income, and expenses by asset class rather than by activity. This provides a clearer picture regarding financial performance of each asset class.

Gross income from Residential Real Estate reached its maximum of $7.225 million in FY 15. In FY 19, gross income had decreased to $1.978 million, a total decrease to date of $5.274 million. Residential Real Estate gross income is forecast to decline to $1.042 million in FY 26 for an expected additional decrease of $0.936 million. Ongoing future revenues are dependent upon the future of cottage site leasing, an issue that has not been presented to or addressed by the Land Board.

Gross income from Commercial Real Estate reached its maximum of $5.244 million in FY 14. In FY 19, gross income had decreased to $1.015 million, a decrease to date of $4.229 million. Commercial Real Estate gross income is forecast to decline to $0.964 million in FY 20 for an expected additional decrease of $0.051 million. From that time forward the forecast shows relative stability and other commercial leasing opportunities may improve the forecast over time.

Combined, gross income from Commercial Real Estate and Residential Real Estate has declined from a peak of $11.563 million in FY 15 to $2.994 million in FY 19, for a total decrease to date of $8.569 million. Please note that gross revenue for each asset class reached its peak in a different fiscal year, thus there is a difference in the total decline depending on how it is viewed.

Net income for the two asset classes combined has declined from a peak of $8.0 million in FY 14 to $1.6 million in FY 18 for a total decline of $6.4 million.

- **Anticipated increase in income from the FAMP.**

  The previous Forest Asset Management Plan (FAMP) established an annual sale volume of 247 million board feet (mmbf). The FAMP revision has established an annual sale volume of 328 mmbf which is a 32.8% increase (approximately). Considering that as simply a statewide increase, without specific area by area analysis, gross income would be expected to increase by approximately the same ratio.

  Using five year average timberland receipts of $65.89 million, the new annual sale volume would be expected to increase gross income by about $21.6 million annually. The five year average net income ratio for timberland is 66.6%, resulting in average net income of $43.88 million. The Department has emphasized financial efficiency in the FAMP revision. As a result, of the increased gross income, it is expected that over 90% of the gross income increase from the FAMP revision will be realized as net income (based on five year average stumpage prices). Recent land acquisitions are responsible for about 10 mmbf of the increase in the annual sale volume.

  Under a more pessimistic ("worst case") scenario, if timber prices were to decline over an extended period by 30% (arbitrary assumption), gross income would decline to around $46.1 million annually. In that case, the FAMP increase would result in about $15 million in additional annual gross income.

Anticipated costs and overhead to administer the cottage site program going forward.

Administration of cottage site leases requires staff time from both bureau and area office staff. The future scale of the program is yet to be determined. The Department expects to present information to the Land Board in the future, including a recommendation regarding continued cottage site leasing.

After completion of the voluntary auction for ownership (VAFO) process, the Department's revenue forecast predicts Residential Real Estate (cottage site leasing) will generate about $1.0 million in gross income annually. Ongoing direct expenses and overhead are expected to be about $0.3 million annually, resulting in net income of about $0.7 million. The numbers are subject to change based on how many lessees participate in the VAFO process.

IDL efforts to identify and acquire farmland and timberland.

The primary objective for endowment land assets is to generate maximum long-term returns at prudent levels of risk using traditional land grant asset types. The acquisition of endowment assets aligns with the guidance provided and approved by the Land Board. With the recognition of a reinvestment opportunity, the Land Board approved Strategic Plans to provide guidelines for acquisitions in timberland and farmland with specific requirements to meet or exceed the hurdle rate for each asset type.

When timberland and/or farmland has been identified for acquisition, the asset must possess legal, transferable ownership; pose no significant risk; and meet the minimum return threshold. The overarching criteria that the land must meet is the asset class minimum return threshold for investment decisions. Again, timberland has a minimum return of 3.5% and farmland has a minimum return of 4.5%. In addition, the following criteria and considerations apply to all assets along with each asset being subjected to its own criteria:

- Whether the investment is in the approved asset class
- Income or potential income achieves or exceeds the target hurdle rate for the asset
- Whether the return revenue profile is sufficient relative to the risk taken
- Long-term financial return and risk to the endowment
- Low to moderate levels of risk, including consideration of the following:
    - Supply and demand of the property being considered (e.g., crop, location to market, uniqueness, value in the market place)
    - IDL's expertise in managing a particular asset type or the cost of outsourcing for the expertise needed
    - Market stability of the market sector to be served
    - Constraints or management issues related to environmental concerns
- Legal access to the asset
- No known environmental issues
- Clear and marketable title
- Asset management costs commensurate to industry standards
- Compliance with state and federal environmental requirements

To source potential acquisitions, the Department has used outreach including the Department website, direct mail, posted flyers, and communication with real estate professionals, other state agencies, and NGO's. The Department has a Land Board approved timberland acquisition advisor under contract (Northwest Management/Northwest Rural Properties) to assist with acquisition. The Department has also used the Land Board's approved land advisors for third party expert analysis of potential acquisitions.

The Department has established evaluation criteria for potential land acquisitions. The criteria are a means of screening transactions so that staff time and resources can be used on the most promising potential acquisitions. The criteria include:

- Strong market areas and proximity to mill(s)
- No known political or regulatory issues
- Expected to exceed the required financial hurdle rate
- No/minimal T&E species concerns

- Manageable forest health, no known regeneration issues
- Operability – prefer all season, limited to one season is a concern
- No known environmental or boundary issues
- Minimal Highest and Best Use (HBU) values (not in the path of immediate development)
- Desirable aspect/elevation range
- Lawful permanent access
- Proximity to good transportation system
- Sufficient size
- Proximity to endowment land

Potential acquisitions that pass the initial screening are analyzed rigorously, including financial analysis, to determine suitability for purchase by the endowments. All timberland acquisitions are analyzed by two independent third party experts using different modeling techniques to confirm the results.

The Department has evaluated several potential farmland acquisitions. To date, the Department has not been able to pursue farmland acquisition because transaction level analysis did not show that the acquisition would exceed the required 4.5% net real return on investment without including the disposition value in 10-20 years.

Packers 1: hurdle rate analysis (pre-sale) and post-sale assessment.

The acquisition was modeled and analyzed by two separate third-party experts to ensure that the potential acquisition would meet or exceed the established 3.5% net real hurdle rate for timberland. The two experts independently achieved very similar results which, indicated that the returns will comfortably exceed the hurdle rate.

The lands have been in endowment ownership for less than one year. Department staff are assessing the lands and planning/implementing projects such as planting or timber stand improvement as needed. In terms of actual measured returns, there is not yet data to analyze. However, the Department does know that the preliminary impact on the annual sale volume from the FAMP was about 10 mmbf, which will result in about $2.5 – 3.0 million in annual gross income.

Fire costs:

- **Annual cost to the general fund for fire suppression for each of the last 10 years.**

Fiscal Year	General Fund Expenditures (millions)
2019	$27.3
2018	$37.9
2017	$24.4
2016	$37.4
2015	$18.7
2014	$24.1
2013	$15.1
Total	$185.7
Average	$26.5

Data is readily available back to FY 13. Additional years would require additional time to compile the data.

NOTE: The amounts above are the fiscal year end total cash disbursements for expenses charged to the deficiency fund. These numbers do not represent or reflect the cost of firefighting in that particular year and will not align with the annual "Fire Season Cost" that we document in our annual reports for several reasons:

- When IDL fire staff members (and IDL equipment) are mobilized to fight fire, they will be paid from the deficiency fund regardless of who will ultimately be responsible for paying for that fire. Therefore, if IDL staff is fighting fire on USFS protection, we pay for some of the costs upfront and get reimbursed later.

- Similarly, when non-IDL staff and resources are used to suppress fire on land that is in IDL's protection boundaries, we will eventually be billed for those costs.

- In any given year, the expenses represented by the figures above may include: (1.) expenses incurred and owed for that year, (2.) expenses that were incurred but will be reimbursed later, and (3.) expenses that are owed but are being paid for previous years' fires.

- **Amount of fire costs attributable to IDL-managed timberland for each of the last 10 years, including FPA assessments and share of fire costs.**

  The endowments pay for fire suppression on timberland in the same way that private landowners pay – an annual assessment of $0.60 per acre per year. Endowment timberland ownership is just over 1 million acres, resulting in an annual payment of over $600,000.

  Landowners who pay the annual assessment do not pay suppression expenses unless the fire cause is determined to be negligence on their part. In a few instances, the endowments have been billed for fire suppression expenses when an investigation found negligence.

  Determining the share of fire expenses applicable to endowment lands is a significant challenge with existing data. Fires may start on adjacent lands and burn onto endowment lands, or vice-versa. The Department protects more than 6 million acres despite endowment ownership of only about 1 million acres of timberland. The Department protects other ownership and in some instances other entities protect endowment lands. Fire suppression is a cooperative effort by necessity. Changes to cooperative fire protection funding would likely necessitate changes to the structure and priorities of fire protection organizations.

  The endowments pay FPA assessments for their timberland ownership at the rate of $0.13 per acre, the same as private timberland owners. This assessment is for administration of the Forest Practices Act and is not related to fire suppression.

Impact on competition at IDL timber sales (i.e. mills, buyers, bidders) if IDL increases its share of the total non-federal timberland in Idaho.

The endowment timber program provides a consistent source of timber which helps support the forest products industry in Idaho. Endowment timberland is only 2.6% of the timberland in Idaho but produces about 25% of the timber for harvest. During the significant economic downturn around 2010 the Department continued to offer timber for harvest when other landowners did not. This was an important factor in retaining forest products industry infrastructure in Idaho and therefore has had long term benefits for the endowments. Endowment timber sales provide certainty and stability of supply that is important to the forest products industry.

Representatives of the forest products industry have informally expressed their support for the increased annual sale volume under the revised FAMP. Acquisition of additional lands would increase the annual sale volume further. Idaho still imports timber from neighboring states to supply existing mills. Additional timberland investment would give the endowments more available timber in closer proximity to existing mills, likely placing the endowments at an advantage over timber from other states.

The endowments would acquire lands that are already productive timberland. There is no increase in the timberland acreage in the state, but IDL management would provide stability, productivity, and certainty that could be lacking under a different potential owner.

Fully successful reinvestment into timberland would increase endowment timberland ownership by 10-15% with a corresponding increase in sustained yield of forest products. There are many factors that influence mills, buyers, and bidders for endowment timber sales. It seems unlikely that a 10-15% increase in annual sale volume due to acquisition of timberland would outweigh national and global economic factors.