Aksia

MEMORANDUM

TO: State of Wyoming Treasurer's Office Investment Division ("WSTO" or "Wyoming")

FROM: Aksia LLC ("Aksia")

DATE: March 24, 2025

RE: Real Estate Portfolio Benchmark Recommendation

Executive Summary & Recommendation

WSTO is seeking to reassess the benchmark utilized for the Real Estate Portfolio, which has historically utilized the National Council of Real Estate Investment Fiduciaries ("NCREIF") Open-Ended Diversified Core Equity Index ("ODCE") for both the Core and Non-Core sub-portfolios. Aksia notes broad challenges in portfolio benchmarking for private real estate portfolios (and private markets, generally), which has led to some variability in institutional portfolio benchmark selection. NCREIF ODCE remains the most institutionally accepted real estate portfolio benchmark amongst Aksia clients. Aksia recommends WSTO continue to utilize NCREIF ODCE as the basis for its portfolio benchmark, primarily due to its size, investbility, transparency, and suitability for the WSTO portfolio. However, **Aksia recommends WSTO revise the Real Estate Portfolio benchmark to a custom benchmark utilizing NCREIF ODCE (net) as the benchmark for the Core sub-portfolio and NCREIF ODCE (net) +100 bps per annum for the Non-Core sub-portfolio.** The +100 bps annual spread is intended to account for the risk premium associated with various Non-Core real estate strategies (e.g., core-plus, value-added and opportunistic). The custom benchmark should be weighted based on the invested market value of each sub-portfolio, adjusted quarterly. The current WSTO Real Estate Portfolio risk exposure is approximately 73% Core and 27% Non-Core (18% core-plus, 9% value-added, 0% opportunistic) as of February 2025.

Notable Private Real Estate Benchmark Options

There are numerous factors utilized to assess suitability of a portfolio benchmark. These factors include whether the benchmark is pre-specified, relevant, measurable, unambiguous, representative, accountable, investable, and complete. Due to the nature of private markets, there is no perfect benchmark for measuring portfolio performance. For institutional private real estate portfolios, Aksia identifies NCREIF ODCE, NCREIF Property Index (NPI), Cambridge and Burgiss/Private IQ as the most utilized options for portfolio benchmarks with key information summarized below:

Comparison of Institutional Private Real Estate Benchmarks

ODCE	NPI	Cambridge	Burgiss / PrivateIQ

• 25 large open-ended U.S. funds with aggregate RE GAV of over $278bn
• Diversified by U.S. region and property type, primarily stabilized with low leverage
• Capitalization-weighted, time-weighted return
• Pros:
  o Investible with transparent fund constituents
  o Standardized dataset and reporting timeline
  o Frozen index
  o Wide industry acceptance
  o Robust valuation processes
  o Strategic alignment to current WY STO Portfolio
• Cons:
  o Domestic (U.S.) only
  o Core only
	• 12,000 individual properties and $900 bn GAV held by institutional investors
	• Property level return index
	  o Unlevered, no fund fees or expenses
	• Capitalization-weighted, time-weighted return
	• Pros:
	  o Direct measure of property-level performance
	  o Standardized dataset and reporting timeline
	  o Frozen index
	• Cons:
	  o Domestic (U.S.) only
	  o Fees and leverage not accounted for
	  o Not investible
		• 1,300 funds classified as Value-Add or Opportunistic
		• Data sourced through GP submissions
		• Net quarterly and annual audited financial statements
		  o 1-quarter, 1-year, multi-year horizon IRRs ITD
		• Primarily utilized for individual holding benchmarking
		• Pros:
		  o Large sample size
		  o Fund history back to 1980s
		  o Frozen dataset
		• Cons:
		  o Survivorship bias
		  o No fund-level transparency
		  o No core or core+
		  o Not investible
			• 1,600 funds classified as Value-Add or Opportunistic
			• Data sourced through LPs fund investments
			• Single, pooled quarterly net return streams
			  o ITD IRRs, multiples, and cash flows
			• Primarily utilized for individual holding benchmarking
			• Pros:
			  o Large sample size
			  o Fund history back to 1980s
			  o LP data mitigates survivorship bias
			• Cons:
			  o Unfrozen dataset
			  o Limited transparency
			  o No core or core+
			  o Not investible

Non-Core Portfolio Benchmarks

Benchmarking of non-core real estate investments (core-plus, value-added and opportunistic) is particularly challenging due to the closed-end, drawdown structure of value-added and opportunistic funds. While Cambridge and Burgiss/Private IQ indices reflect only value-added and opportunistic fund data, key concerns in utilizing these indices include ambiguity, transparency and investibility. Specific to the WTSO portfolio, we also note lack of suitability of these indices as the WSTO portfolio is primarily (~91%) invested in core and core-plus strategies and almost entirely (~95%) invested in the U.S.

Aksia reviewed the non-core portfolio benchmarking methodologies utilized by other institutional clients and notes that approximately 75% utilize NCREIF ODCE (flat or plus nominal bps spread) and approximately 25% utilize Cambridge or Burgiss/Private IQ. However, we note many clients utilize Cambridge or Burgiss/PrivateIQ data when assessing the relative performance of non-core funds during initial due diligence and ongoing monitoring, but this data is typically not incorporated into portfolio benchmarks.