



MEMORANDUM

To: John Roberts, The Natomas Basin Conservancy

From: Jamie Gomes, Allison Shaffer, and Sean Fisher

Subject: Endowment Fund Interest Earnings Scenario Analysis; EPS #222003

Date: July 12, 2022

The Natomas Basin Conservancy (TNBC) has requested that Economic & Planning Systems, Inc. (EPS) analyze the impact the annual real rate of return and the corresponding interest earnings for the Endowment and Supplemental Endowment Funds in any individual year has on the annual Natomas Basin Habitat Conservancy Plan Fee Update Model (Finance Model). The purpose of this analysis is to assess the potential impacts on the NBHCP Fee, as estimated in the Finance Model, of increases or decreases in the annual rate of return and associated interest earnings to the Endowment and Supplemental Endowment Funds.

Estimated Real Rate of Return Sensitivity Scenarios

EPS estimated the impact of shifts in the real rate of return experienced for both the Endowment and Supplemental Endowment Funds by adjusting the interest earnings for the model year, 2021, in the most recently completed Finance Model, dated November 23, 2021, and recalculating the estimated annual NBHCP Fee. All other assumptions are held constant with the existing Finance Model. EPS assessed the impact on the NBHCP Fee of three potential sensitivity scenarios.

The first scenario analyzed is a 30 percent decrease in the annual rate of return and corresponding interest earnings at the end of the year preceding the fee update for the Endowment and Supplemental Endowment Funds. Under this scenario, interest earnings for both funds remain positive with an approximately 5.2 percent real rate of return. As shown in **Table 1**, this scenario results in a minor increase to the estimated NBHCP fee of approximately \$170 per acre.

The second scenario analyzed is a 30 percent increase in the annual rate of return and corresponding interest earnings at the end of the year preceding the fee update for the Endowment and Supplemental Endowment Funds. Under this scenario, interest earnings for both funds remain positive with an approximately 9.7 percent real rate of return. As shown in **Table 1**, this scenario results in a minor decrease in the estimated NBHCP fee of approximately \$158 per acre.

The purpose of the initial two scenarios is to present the potential range of impacts of an increase or decrease to real rates of returns that could be experienced in a typical economy and represent the initial scenarios requested by the Natomas Basin Conservancy.

Expanding upon the initial question to understand the impacts of more drastic shift in real rates of return, EPS prepared an additional third scenario to represent a significant downturn in the economy. The third scenario reflects a rate of return of negative 30 percent, resulting in a 30 percent decrease in the Endowment and Supplement Endowment Fund balances. Under this scenario, the Finance Model would recommend an increase in the Annual NBHCP Fee of \$2,191 per acre.

Table 1 below shows the estimated impact of each rate adjustment scenario on the estimated NBHCP Fee. As shown, a 30 percent adjustment in the real rate of return for any given year would result in a minor adjustment to the NBHCP Fee.

Should the economy experience a significant downturn and the real rate of return were to drop as low as negative 30 percent, this would most likely result in a sizable impact on the NBHCP Fee.

Table 1
Finance Model Rate Sensitivity Analysis
Summary of Mitigation Fees Adjustments

Item	Existing Finance Model	30% Rate Decrease [1]		30% Rate Increase [2]		30% Fund Decrease [3]	
		Mitigation Fee	Difference	Mitigation Fee	Difference	Mitigation Fee	Difference
Mitigation Fee	\$43,968	\$44,138	\$170	\$43,810	(\$158)	\$46,159	\$2,191
Mitigation Fee (Less Land Acquisition)	\$27,718	\$27,888	\$170	\$27,560	(\$158)	\$29,909	\$2,191

Source: EPS.

[1] Represents a one-year 30 percent decrease in the real rate of return for Endowment and Supplemental Endowment Fund and associated decrease in annual interest revenues.

[2] Represents a one-year 30 percent increase in the real rate of return for Endowment and Supplemental Endowment Fund and associated increase in annual interest revenues.

[3] Represents a one-year adjustment of the the real rate of return for Endowment and Supplemental Endowment Fund to a rate of negative 30 percent, resulting in a net decrease in Endowment and Supplemental Endowment Fund balances of 30 percent.