UNITED STATES SECURITIES AND EXCHANGE COMMISSION

20549 WASHINGTON, D.C.

FORM 11-K

X ANNUAL REPORT PURSUANT TO SECTION 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2023

TRANSITION REPORT PURSUANT TO SECTION 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the Transition Period From _____ to _____

Commission File No. 001-32269

A. Full title of the plan and the address of the plan, if different from that of the issuer named below:

Extra Space Management, Inc. 401(k) Plan

B. Name of issuer of the securities held pursuant to the plan and the address of its principal executive office:

Extra Space Storage, Inc. 2795 East Cottonwood Parkway, Suite 300 Salt Lake City, Utah 84121

Extra Space Management, Inc. 401(k) Plan Financial Statements and Supplemental Schedules As of December 31, 2023 and 2022 and for the Year Ended December 31, 2023

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Plan Administrators Extra Space Management, Inc. 401(k) Plan

Opinion on the Financial Statements

We have audited the accompanying statements of assets available for benefits of the Extra Space Management, Inc. 401(k) Plan (the Plan) as of December 31, 2023 and 2022, the related statement of changes in assets available for benefits for the year ended December 31, 2023, and the related notes to financial statements (collectively referred to as the financial statements). In our opinion, the financial statements present fairly, in all material respects, the assets available for benefits of the Plan as of December 31, 2023, and the changes in assets available for benefits for the year ended December 31, 2023, in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

These financial statements are the responsibility of the Plan's management. Our responsibility is to express an opinion on the Plan's financial statements based on our audit. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Plan in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Plan is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audit, we are required to obtain an understanding of internal control over financial reporting, but not for the purpose of expressing an opinion on the effectiveness of the Plan's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audit also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Supplemental Information

The Schedule of Assets (Held at End of Year) (the supplemental schedule) has been subjected to audit procedures performed in conjunction with the audit of the Plan's 2023 financial statements. The supplemental schedule is the responsibility of the Plan's management. Our audit procedures included determining whether the supplemental schedule reconciles to the financial statements or the underlying accounting and other records, as applicable, and performing procedures to test the completeness and accuracy of the information presented in the supplemental schedule.

In forming our opinion on the supplemental schedule, we evaluated whether the supplemental schedule, including its form and content, is presented in conformity with the Department of Labor's Rules and Regulations for Reporting and Disclosure under the Employee Retirement Income Security Act of 1974, as amended. In our opinion, the supplemental schedule is fairly stated, in all material respects, in relation to the financial statements as a whole.

We have served as the Plan's auditor since 2023. /s/ Tanner LLC Salt Lake City, Utah June 27, 2024

Extra Space Management, Inc. 401(k) Plan Statements of Assets Available for Benefits

| | December 31, | | | | |
|---------------------------------------|--------------|-------------|----|------------|--|
| | 2023 | | | 2022 | |
| Assets | | | | | |
| | | | | | |
| Investments, at fair value: | | | | | |
| Money market fund | \$ | — | \$ | 121 | |
| Common collective trusts | | 7,632,228 | | 4,331,760 | |
| Mutual funds | | 116,556,723 | | 81,676,304 | |
| Brokerage account holdings | | 1,513,711 | | _ | |
| Extra Space Storage Inc. common stock | | 7,698,781 | | 6,180,617 | |
| | | | | | |
| Total investments | | 133,401,443 | | 92,188,802 | |
| | | | | | |
| Receivables: | | | | | |
| Notes receivable from participants | | 3,028,130 | | 2,140,753 | |
| | | | | | |
| Total receivables | | 3,028,130 | | 2,140,753 | |
| | | | | | |
| Total assets available for benefits | \$ | 136,429,573 | \$ | 94,329,555 | |

See accompanying notes to financial statements.

Extra Space Management, Inc. 401(k) Plan Statement of Changes in Assets Available for Benefits

| | For the Year Ended December 31, 2023 | | |
|---|--------------------------------------|-------------|--|
| Additions: | | | |
| Investment income: | | | |
| Net appreciation in fair value of investments | \$ | 16,271,622 | |
| Interest and dividends | | 3,030,662 | |
| Total investment income, net | | 19,302,284 | |
| Interest income from notes receivable from participants | | 156,079 | |
| Contributions: | | | |
| Participants | | 14,246,608 | |
| Sponsor | | 6,547,775 | |
| Rollover | | 14,426,597 | |
| Total contributions | | 35,220,980 | |
| Total additions | | 54,679,343 | |
| Deductions: | | | |
| Benefits paid to participants | | 12,279,134 | |
| Administrative expenses | | 300,191 | |
| Total deductions | | 12,579,325 | |
| Increase in assets available for benefits | | 42,100,018 | |
| Assets available for benefits: | | | |
| Beginning of the year | | 94,329,555 | |
| End of the year | \$ | 136,429,573 | |

See accompanying notes to financial statements.

Extra Space Management, Inc. 401(k) Plan Notes to Financial Statements

1. DESCRIPTION OF PLAN

The following description of the Extra Space Management, Inc. 401(k) Plan (the "Plan") provides only general information. Participants should refer to the Plan document, adoption agreement, and summary plan description for a more complete description of the Plan's provisions.

General

The Plan is a qualified 401(k) defined contribution plan, covering all employees of Extra Space Management, Inc. ("Sponsor") who have reached age 18. Employees are eligible after three months of service. The Plan is subject to the provisions of the Employee Retirement Income Security Act of 1974, as amended ("ERISA").

Extra Space Storage, Inc. (the "Company") appoints a committee to administer the Plan (the "Plan Administrative Committee"). As of December 31, 2023, the Plan Administrative Committee was comprised of three members of management, with Fidelity Management Trust Company ("Fidelity" or "Trustee") acting as Trustee.

Contributions

Contributions are made to the Plan by both employees and the Sponsor. Employee contributions to the Plan are deferrals of the employee's compensation made through a direct reduction of compensation in each payroll period. Participating employees may contribute a percentage of their annual compensation up to 60% of eligible compensation, subject to the limitations of the Internal Revenue Code (IRC). The Plan also provides participants who are age 50 or older by the end of the calendar year, and who are making deferral contributions to the Plan, the option to make catch-up contributions, subject to the limitations of the IRC. The Sponsor matches 100% of the first 3% of the participant's eligible contribution and 50% of the next 2%. The Sponsor, at its discretion, may make an additional matching contribution, not to exceed 4% of the employee's compensation. Participants direct the investment of their contributions and the Sponsor's match into various investment options offered by the Plan.

Participants may also contribute to the Plan amounts representing distributions from other qualified plans.

Participant Accounts

Each participant's account is adjusted for the participant's contributions, the Sponsor's matching contributions, expenses, and earnings and losses specifically identified with the participant's investment account. The benefit to which a participant is entitled is the benefit that can be provided from the participant's vested account.

Vesting

Participants are immediately vested in their contributions and the Sponsor's matching contributions.

Notes Receivable from Participants

Participants may borrow from their Plan accounts a minimum of \$1,000 and up to a maximum of the lesser of \$50,000 or 50% of their account balance. These loans are subject to a repayment period of no more than five years, unless the loan is withdrawn for the purchase of a participant's primary residence, in which case the repayment period may not extend beyond 10 years. Certain loans exceed the 10-year repayment period for participants who came over to the Plan as part of an acquisition, which allowed loans with a longer repayment period. All loans are secured by the balance in the participant's account, and principal and interest payments are paid ratably by the participant through payroll deductions.

1. DESCRIPTION OF PLAN - Continued

Plan Termination

Although it has not expressed any intent to do so, the Sponsor has the right under the Plan to terminate the Plan, subject to the provisions of ERISA. In the event the Plan is terminated, all participant accounts would be distributed among the participants in accordance with the terms set forth in the Plan.

Payment of Benefits

Upon termination of service due to death, disability, or retirement, a participant may receive a lump-sum amount equal to the vested benefits in his or her account. Under certain circumstances, including financial hardship, participants may withdraw their contributions prior to the occurrence of these events. The Trustee makes determinations related to hardship withdrawals. Vested accounts for terminated employees which do not exceed \$5,000 but are greater than \$1,000 are automatically rolled over into an individual retirement account. Accounts which are less than \$1,000 are automatically distributed in a lump sum.

Forfeitures

As of December 31, 2023 and 2022, there was a balance in the forfeiture account related to unallocated amounts of excess employer contributions totaling \$30,526 and \$35,174, respectively. These amounts will be used to reduce employer contributions or pay administrative expenses of the Plan. During the year ended December 31, 2023, excess contributions totaled \$7,483.

Administrative Expenses

The Sponsor pays all administrative expenses of the Plan, except for loan processing fees, record keeping fees and the fees associated with additional participant services provided by Global Retirement Partners, LLC ("Advisor"). The fees associated with loan processing, record keeping and additional services by the Advisor are paid by the participant's account. Total administrative fees paid by the Plan were \$300,191 for the year ended December 31, 2023.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Investment Options

The Plan's assets are invested in various investment options offered by the Trustee and in stock of the Sponsor, as directed by Participants. Participants may change their investment options at will.

Basis of Accounting

The accompanying financial statements of the Plan are prepared using the accrual method of accounting in accordance with U.S. generally accepted accounting principles ("U.S. GAAP").

Estimates

The preparation of financial statements in conformity with U.S. GAAP requires the plan administrators to make estimates and assumptions that affect certain reported amounts and disclosures. Accordingly, actual results may differ from those estimates.

Extra Space Management, Inc. 401(k) Plan Notes to Financial Statements - Continued

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES - Continued

Investment Valuation and Income Recognition

Money market funds: Valued at approximately one dollar per share. The administrator of the fund normally invests a majority of the fund's total assets in cash, U.S. Government securities and/or repurchase agreements that are collateralized fully (i.e., collateralized by cash or government securities).

Common collective trusts: The Great Gray Collective Investment Trust and the Great Gray Collective Investment Trust II (collectively, the "Great Gray Trusts") are common collective trusts maintained by Great Gray Trust Company LLC ("Great Gray"), the trustee. Great Gray generally determines the fair value of the Great Gray Trusts' units each day the New York Stock Exchange is open for trading. The NAV per unit is computed based on the fair value of the underlying assets owned by the fund, minus its liabilities, divided by the number of units outstanding at the time of such computation. The Trusts have (1) no unfunded commitments, (2) a daily redemption frequency, and (3) no redemption notice period as of December 31, 2023 and 2022.

Mutual funds: Valued at the quoted net asset value ("NAV") of shares held by the Plan at year-end or the last reported sales on an active market prior to close of the Plan year. The mutual funds held by the Plan are deemed to be actively traded.

Common stocks: The Plan's valuation methodology used to measure the fair value of common stocks was derived from quoted market prices as all of these instruments have active markets.

Brokerage account holdings: These are composed of money market funds, mutual funds, and common stocks. The valuation for these is consistent with the above mentioned items.

The methods described above may produce a fair value calculation that may not be indicative of net realizable value or reflective of future fair values. Furthermore, while the Plan believes its valuation methods are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the fair value of certain financial instruments could result in a different fair value measurement at the reporting date.

Net appreciation in the fair value of investments includes realized and unrealized gains (losses) on investments, and is recognized in income currently. Net unrealized gains (losses) represent the difference between the book value (which represents the prior year ending fair value, or cost if the investment was purchased during the year) and the fair value of investments held at year-end. Purchases and sales of securities are recorded on a trade-date basis. Interest income is recorded on the accrual basis. Dividends are recorded on the ex-dividend date. Dividends and interest are reinvested as earned.

Payment of Benefits

Benefits are recorded when paid by the Plan.

Notes Receivable from Participants

Notes receivable from participants are recorded at their unpaid principal balance plus any accrued but unpaid interest. Interest income is recognized over the terms of the notes at the rate specified in the loan documents. As of December 31, 2023, outstanding loans totaled \$3,028,130 with interest rates ranging from 4.25% to 10.25% and maturity dates ranging from January 2024 to June 2052. Fees related to notes receivable from participants are recorded as administrative expenses when incurred. If a participant defaults, the carrying amount of the note receivable from the participant is eliminated and a benefit payment is recorded at the time the participant has a distributable event. Notes receivable from participants are considered delinquent when payments are not made in accordance with the terms of the note and are evaluated to determine if they are in default.

Extra Space Management, Inc. 401(k) Plan Notes to Financial Statements - Continued

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES - Continued

Fair Value Measurements

The Plan reports investments in accordance with established authoritative guidance, which requires a three-level valuation hierarchy for disclosure of fair value measurements. The valuation hierarchy is based upon the transparency of inputs to the valuation of an asset or liability as of the measurement date.

The three levels are defined as follows:

Level 1 inputs are unadjusted quoted market prices in active markets for identical assets or liabilities that are accessible at the measurement date.

Level 2 inputs are from other than quoted market prices included in Level 1 that are observable for the asset or liability, either directly or indirectly, such as quoted prices for similar assets or liabilities in active markets, quoted prices in markets that are not active, or other inputs that are observable or can be corroborated by observable market date.

Level 3 inputs are unobservable and significant to the valuation methodology.

The asset or liability's fair value measurement level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement. Valuation techniques used need to maximize the use of observable inputs and minimize the use of unobservable inputs.

The following tables classify the investment assets measured at fair value by level within the fair value hierarchy as of December 31, 2023 and 2022:

| | Fair Value Measurement as of December 31, 2023 | | | | | | | |
|---------------------------------|--|-------------|----|---------|----|---------|----|-----------------------------------|
| | | Level 1 | | Level 2 | | Level 3 | | Fair Value as of ecember 31, 2023 |
| Mutual funds | \$ | 116,556,723 | \$ | _ | \$ | : | \$ | 116,556,723 |
| Common stock of Plan Sponsor | | 7,698,781 | | — | | — | | 7,698,781 |
| Brokerage account holdings | | 1,513,711 | | — | | — | | 1,513,711 |
| Investments at net asset value* | | — | | — | | — | | 7,632,228 |
| Total Investments | | | | | | | \$ | 133,401,443 |

| | Fair value measurement as of December 31, 2022 | | | | | | |
|---------------------------------|--|----|---------|----|---------|------|------------------------------------|
| | Level 1 | | Level 2 | | Level 3 | | Fair Value as of December 31, 2022 |
| Mutual funds | \$ 81,676,304 | \$ | — | \$ | - | - \$ | 81,676,304 |
| Common stock of Plan Sponsor | 6,180,617 | | — | | - | _ | 6,180,617 |
| Money market | 121 | | — | | - | _ | 121 |
| Investments at net asset value* | — | | — | | - | _ | 4,331,760 |
| Total Investments | | | | | | \$ | 92,188,802 |

Eair Value Measurement as of December 21, 2022

statements of assets available for benefits.

^{*} The investment in common collective trusts are measured at fair value using the net asset value per share (or its equivalent) practical expedient and has not been categorized in the fair value hierarchy. The fair value amounts presented in this table are intended to permit reconciliation of the fair value hierarchy to the amounts presented in the

Extra Space Management, Inc. 401(k) Plan Notes to Financial Statements - Continued

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES - Continued

Subsequent Events

The plan administrator has evaluated subsequent events through June 27, 2024, the date the financial statements were available to be issued. No subsequent events were noted during this evaluation that require recognition or disclosure in these financial statements.

3. EXEMPT PARTY-IN-INTEREST TRANSACTIONS

As of December 31, 2023, the Plan's assets consisted of mutual funds issued by the Trustee and participant loans extended to participants. The Trustee is considered a party-in-interest because it manages the Plan's assets. Participants are also considered parties-in-interest. Both of these transactions are considered exempt party-in-interest transactions.

Transactions associated with the shares of common stock of the Sponsor are also considered exempt party-in-interest transactions. As of December 31, 2023, the brokerage account holdings account included \$555,004 of the Sponsor's common stock. As of December 31, 2023, the Plan held 51,456 shares of the Sponsor's common stock, including the amounts held within the brokerage account holdings account. Total outstanding number of shares of common stock of the Sponsor as of December 31, 2023 was 211,278,803 shares.

4. RISKS AND UNCERTAINTIES

The Plan provides for investment in various investment securities. In general, these securities are exposed to various risks, such as interest rate, market, and credit in addition to changes in economic conditions. Due to the level of risk associated with certain investment securities, it is reasonably possible that changes in the values of investment securities will occur in the near term and that such change could materially affect the amounts reported in the accompanying statements of assets available for benefits.

5. INCOME TAX STATUS

The Plan has adopted a non-standardized prototype plan for which the Internal Revenue Service has issued an opinion letter dated March 31, 2008, covering the qualification of the Plan under the appropriate sections of the Internal Revenue Code. The plan administrators believe that the Plan continues to operate in accordance with the requirements to qualify for tax-exempt status. Accordingly, no provision for income taxes is included in the accompanying financial statements.

Management evaluates tax positions taken by the Plan and recognizes a tax liability (or asset) if the Plan has taken an uncertain position that more likely than not would be sustained upon examination by taxing authorities. Plan management has concluded that as of December 31, 2023, there are no uncertain tax positions that require either recognition or disclosure in the financial statements. The Plan is subject to routine audits by taxing authorities for tax years for which the applicable statutes of limitations have not expired. To the plan administrator's knowledge there are currently no audits for any tax periods in progress.

6. SECURE 2.0

In December 2022, Securing a Strong Retirement Act (SECURE 2.0) was passed into law. The provisions of SECURE 2.0 continue the themes and reforms that began with the 2019 CARES Act. All mandatory SECURE 2.0 provisions have been put into effect in 2024. One optional provision has been implemented that increased the cashout limit from \$5,000 to \$7,000.

Extra Space Management, Inc. 401(k) Plan Schedule H, Line 4i Schedule of Assets (Held at End of Year)

December 31, 2023 Employer Identification Number: 87-0405300 Plan Number: 001

| (a) Party in | (b) | (c) Description | | (e) |
|-----------------|--|---|------|---------------|
| Interest | Identity of Issue | of Investment | | Current Value |
| * | FID 500 INDEX | Mutual Fund | \$ | 15,810,199 |
| * | FID FDM IDX 2040 PRM | Mutual Fund | Ŧ | 10,582,361 |
| * | FID FDM IDX 2050 PRM | Mutual Fund | | 9,887,510 |
| * | FID FDM IDX 2045 PRM | Mutual Fund | | 9,854,159 |
| | JPM LG CAP GROWTH R6 | Mutual Fund | | 8,748,142 |
| * | FID FDM IDX 2030 PRM | Mutual Fund | | 8,430,684 |
| * | EXTRA SPACE STOCK | Common Stock | | 7,698,781 |
| * | FID FDM IDX 2035 PRM | Mutual Fund | | 7,542,570 |
| * | FID FDM IDX 2055 PRM | Mutual Fund | | 7,294,533 |
| | J H ENTERPRISE N | Mutual Fund | | 5,466,978 |
| * | FID BALANCED | Mutual Fund | | 4,016,227 |
| * | FID FDM IDX 2025 PRM | Mutual Fund | | 3,923,937 |
| | PGIM TOT RET BOND U | Collective Trust | | 3,832,901 |
| | GG G RETIRE INC F35 | Collective Trust | | 3,799,327 |
| * | FID FDM IDX 2060 PRM | Mutual Fund | | 3,681,155 |
| | AF EUROPAC GROWTH R6 | Mutual Fund | | 3,545,121 |
| | CONESTOGA SM CAP IS | Mutual Fund | | 2,833,495 |
| | VICTORY S EST VAL R6 | Mutual Fund | | 2,704,080 |
| | JPM EQUITY INCOME R6 | Mutual Fund | | 2,638,071 |
| * | FID SM CAP IDX | Mutual Fund | | 2,329,438 |
| | BROKERAGELINK | Various | | 1,513,711 |
| * | FID FDM IDX 2020 PRM | Mutual Fund | | 1,149,345 |
| * | FID INTL INDEX | Mutual Fund | | 1,144,374 |
| * | FID FDM IDX 2065 PRM | Mutual Fund | | 1,080,547 |
| * | FID MID CAP IDX | Mutual Fund | | 779,835 |
| * | FID FDM IDX 2015 PRM | Mutual Fund | | 738,664 |
| | UM BEHAVIORAL VAL R6 | Mutual Fund | | 699,318 |
| | PGIM ST CORP BOND R6 | Mutual Fund | | 587,341 |
| | PIM COM REAL RET I | Mutual Fund | | 266,971 |
| * | FID FDM IDX 2005 PRM | Mutual Fund | | 226,346 |
| * | FID FDM IDX 2010 PRM | Mutual Fund | | 221,971 |
| | INVS DEVELOP MKT Y | Mutual Fund | | 214,188 |
| * | FID FDM IDX INC PRM | Mutual Fund | | 159,008 |
| * | FID GOVT MMKT K6 | Mutual Fund | | 155 |
| * | Loans to participants, at cost, which ap 10.25% and maturities ranging from Ja | pproximates fair value, at interest rates of 4.25% nuary 2024 to June 2052. | 6 to | 3.028.130 |
| | | | \$ | 136,429,573 |

* Denotes a party-in-interest as defined by ERISA.

Note: Column (d), cost, has been omitted as all investments are participant directed

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, as amended, the trustees (or other persons who administer the employee benefit plan) have duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

Extra Space Management, Inc. 401(k) Plan

Date: June 27, 2024

/s/ P. Scott Stubbs

P. Scott Stubbs Executive Vice President and Chief Financial Officer (Principal Financial Officer)

Consent of Independent Registered Public Accounting Firm

Extra Space Management, Inc. 401(k) Plan Salt Lake City, Utah

We hereby consent to the incorporation by reference in the Registration Statement on Form S-8 (333-157559) of Extra Space Storage, Inc. of our report dated June 27, 2024, relating to the financial statements and supplemental schedule of Extra Space Management, Inc. 401(k) Plan which appear in this Form 11-K for the year ended December 31, 2023.

/s/ Tanner LLC Salt Lake City, Utah

June 27, 2024