As filed with the Securities and Exchange Commission on November 13, 2026

Registration No. 333-

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM S-8

REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

RAIL VISION LTD.

(Exact name of registrant as specified in its charter)

State of Israel	**Not applicable**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

7 Ha'Pnina St, Ra'anana, 4321547 Israel
(Address of Principal Executive Offices)

Rail Vision Ltd. Amended Share Option Plan
(Full title of the plan)

Puglisi & Associates
850 Library Ave., Suite 204, Newark, DE 19711
Tel: (302) 738-6680
(Name, Address and Telephone Number of Agent for Service)

COPIES TO:

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Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	☐	Accelerated filer	☐
Non-accelerated filer	☒	Smaller reporting company	☐
		Emerging growth company	☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act. ☒

EXPLANATORY NOTE

Rail Vision Ltd. (the "Company" or the "Registrant") previously filed with the Securities and Exchange Commission (the "Commission") a registration statement on Form S-8 (File No. 333-265968) to register under the Securities Act of 1933, as amended (the "Securities Act") an aggregate of 9,625 ordinary shares of the Registrant (the "Ordinary Shares") issuable under the Rail Vision Ltd. Amended Share Option Plan (the "Plan"). In August 2024, the Company filed another registration statement on Form S-8 (SEC File No. 333-281329) in connection with the registration of an additional 133,333 Ordinary Shares issuable under the Plan. In April 2025, the Company filed another registration statement on Form S-8 (SEC File No. 333-286652) in connection with the registration of an additional 166,667 Ordinary Shares issuable under the Plan. In September 2026, the Company filed another registration statement on Form S-8 (SEC File No. 333-298923) in connection with the registration of an additional 270,000 Ordinary Shares issuable under the Plan. The previously-filed registration statements are referred to herein as the "Prior Registration Statements."

On November 15, 2023, the Company effected a one-for-eight (1-for-8) reverse stock split of its ordinary shares (the "2023 Reverse Split") which adjusted the number of shares reserved under the Plan. On August 6, 2024, the Company's Board of Directors approved an amendment to the Plan in order to increase the number of shares reserved under the Plan to 142,958. On April 20, 2025, the Company's Board of Directors, approved an amendment to the Plan providing for an increase of 166,667 Ordinary Shares in the number of Ordinary Shares available for issuance under the Plan. On February 4, 2026, the Company effected a one-for-thirty (1-for-30) reverse stock split of its ordinary shares (the "2026 Reverse Split", and together with the 2023 Reverse Split, the "Reverse Splits") which adjusted the number of shares reserved under the Plan. On September 10, 2026, the Company's Board of Directors approved an amendment to the Plan providing for an increase of 270,000 Ordinary Shares in the number of Ordinary Shares available for issuance under the Plan, and on November 10, 2026, the Company's Board of Directors approved an amendment to the Plan providing for an increase of 110,000 Ordinary Shares in the number of Ordinary Shares available for issuance under the Plan. The number of shares issuable pursuant to Plan were adjusted proportionally as a result of the Reverse Splits. The number of Ordinary Shares registered pursuant to each of the Prior Registration Statements, as described above, has been adjusted to reflect the applicable Reverse Splits.

In accordance with General Instruction E to Form S-8, the Company is filing this registration statement on Form S-8 solely to register an additional 300,000 Ordinary Shares, which may be issued under the Plan over and above the number of Ordinary Shares issuable pursuant to the Plan that were registered under the Prior Registration Statements. Pursuant to General Instruction E to Form S-8, the contents of the Prior Registration Statements are hereby incorporated by reference in their entirety, with the exception of Items 3 and 8 of Part II of such Prior Registration Statements, each of which is amended and restated in its entirety herein.

PART II

ITEM 3. INCORPORATION OF DOCUMENTS BY REFERENCE

The following documents filed by Rail Vision Ltd., an Israeli company (the "**Registrant**"), with the U.S. Securities and Exchange Commission (the "**Commission**") are incorporated by reference into this Registration Statement:

(a) The Registrant's Annual Report on Form 20-F for the year ended December 31, 2025 filed with the SEC on March 31, 2026;

(b) The Registrant's Reports on Form 6-K filed with the Commission on January 6, 2026, January 14, 2026, January 15, 2026, January 30, 2026, February 6, 2026, February 11, 2026, February 23, 2026, February 24, 2026, March 6, 2026, March 16, 2026, March 24, 2026, March 31, 2026, May 20, 2026, May 29, 2026, June 3, 2026, June 24, 2026, August 26, 2026, September 3, 2026, September 9, 2026, September 17, 2026, November 9, 2026 and November 10, 2026 (File No. 001-41334) (to the extent expressly incorporated by reference into the Registrant's effective registration statements filed by us under the Securities Act); and

(c) The description of the Registrant's ordinary shares, no par value per share (the "**Ordinary Shares**"), which is contained in the Registrant's Registration Statement on Form 8-A filed with the Commission pursuant to the Securities Exchange Act of 1934, as amended (the "**Exchange Act**") on March 25, 2022 (File No. 001-41334), as amended by Exhibit 2.1 to the Registrant's Annual Report on Form 20-F for the year ended December 31, 2025, and including any further amendment or report filed for the purpose of updating such description.

In addition to the foregoing, all documents subsequently filed by the Registrant pursuant to Sections 13(a), 13(c), 14 and 15(d) of the Exchange Act, and all reports on Form 6-K subsequently filed by the Registrant which state that they are incorporated by reference herein, prior to the filing of a post-effective amendment which indicates that all securities offered hereunder have been sold or which deregisters all securities then remaining unsold, shall be deemed to be incorporated by reference herein and to be part hereof from the date of filing of such documents and reports.

Any statement contained in a document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded for purposes of this registration statement to the extent that a statement herein, or in any subsequently filed document which also is or is deemed to be incorporated by reference, modifies or supersedes such statement. Any statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this registration statement.

ITEM 8. EXHIBITS.

3.1	Amended and Restated Articles of Association of the Company, as currently in effect (included as Exhibit 99.1 to our Report on Form 6-K furnished to the Securities and Exchange Commission on September 30, 2024 and incorporated herein by reference).
5.1*	Opinion of Shibolet & Co., Israeli counsel to Rail Vision Ltd.
23.1*	Consent of Brightman Almagor Zohar & Co., independent registered public accounting firm, and a firm in the Deloitte Global Network.
23.2*	Consent of Shibolet & Co, Israeli counsel to Rail Vision Ltd. (included in the opinion filed as Exhibit 5.1 to this Registration Statement).
24.1*	Power of Attorney (included on signature page).
99.1	Rail Vision Ltd. Amended Share Option Plan, amended as of March 28, 2024 (filed as Exhibit 4.4 to our Report on Form 20-F furnished to the Securities and Exchange Commission on March 28, 2024 and incorporated herein by reference).
107*	Filing Fee Table.

* Filed herewith.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-8 and has duly caused this Registration Statement on Form S-8 to be signed on its behalf by the undersigned, thereunto duly authorized, in Ra'anana, State of Israel, on November 13, 2026.

RAIL VISION LTD.

By: */s/ David Ben David*
Name: David Ben David
Title: Chief Executive Officer

POWER OF ATTORNEY

We, the undersigned officers and directors of Rail Vision, Ltd., hereby severally constitute and appoint David Ben David and Ofer Naveh, and each of them individually, our true and lawful attorney to sign for us and in our names in the capacities indicated below any and all amendments or supplements, including any post-effective amendments, to this Registration Statement on Form S-8 and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorney full power and authority to do and perform each and every act and thing requisite or necessary to be done in and about the premises, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming our signatures to said amendments to this Registration Statement signed by our said attorney and all else that said attorney may lawfully do and cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act, this Registration Statement on Form S-8 has been signed below by the following persons in the capacities and on the dates indicated.

Signature	Title	Date
/s/ David Ben David David Ben David	Chief Executive Officer (principal executive officer)	November 13, 2026
/s/ Ofer Naveh Ofer Naveh	Chief Financial Officer (principal financial officer and principal accounting officer)	November 13, 2026
/s/ Eli Yoresh Eli Yoresh	Chairman of the Board	November 13, 2026
/s/ Oz Adler Oz Adler	Director	November 13, 2026
/s/ Yossi Daskal Yossi Daskal	Director	November 13, 2026
/s/ Ariel Dor Ariel Dor	Director	November 13, 2026
/s/ Hila Kiron-Revach Hila Kiron-Revach	Director	November 13, 2026
/s/ Shahar Hania Shahar Hania	Director	November 13, 2026

SIGNATURE OF AUTHORIZED REPRESENTATIVE IN THE UNITED STATES

Pursuant to the Securities Act of 1933, as amended, the undersigned, Puglisi & Associates, the duly authorized representative in the United States of Rail Vision Ltd., has signed this Registration Statement on Form S-8 on November 13, 2026.

Puglisi & Associates

Authorized U.S. Representative

/s/ Donald J. Puglisi

Name: Donald J. Puglisi
Title: Managing Director

Exhibit 5.1

SHIBOLET
LAW FIRM

Tou Towers - 4 Yitzhak Sadeh St. Tel Aviv
6777504, Israel | T. 972.3.3075000
F. 972.3.7778444 | www.shibolet.com

November 13, 2026

Rail Vision Ltd.
7 Ha'Pnina St.
Ra'anana, 4321547
Israel

Re: **Rail Vision Ltd. – Form S-8 Registration Statement**

We are acting as Israeli counsel for Rail Vision Ltd., an Israeli company (the "**Company**"), in connection with the preparation of a Registration Statement on Form S-8 on November 10, 2026 (the "**Registration Statement**") under the Securities Act of 1933, as amended (the "**Act**"), relating to the registration of 300,000 of the Company's ordinary shares, no par value (the "**Plan Shares**"), under the Rail Vision Amended Share Option Plan (the "**Plan**").

In rendering our opinion, we have examined, and have relied as to factual matters solely upon, originals or copies certified, or otherwise identified to our satisfaction, of such documents, corporate records or other instruments as we have deemed necessary or appropriate for the purposes of this opinion. In our examination we have assumed the genuineness of all signatures, the authenticity of all documents submitted to us as originals, and the conformity with the originals of all documents submitted to us as copies. We have, when relevant facts material to our opinion were not independently established by us, relied to the extent we deemed such reliance proper upon written or oral statements of officers and other representatives of the Company.

In giving the opinion expressed herein, no opinion is expressed as to the laws of any jurisdiction other than the State of Israel.

Based upon and subject to the foregoing, we are of the opinion that the Plan Shares, when issued pursuant to the terms of the Plan, and the terms of any agreements relating to such issuance, will be upon receipt of the consideration provided for in the Plan, validly issued, fully paid and non-assessable.

This opinion is intended solely for the benefit and use of the Company and other persons who are entitled to rely on the Registration Statement, and is not to be used, released, quoted, or relied upon by anyone else for any purpose (other than as required by law), without our prior written consent.

We hereby consent to the filing of this opinion as Exhibit 5.1 to the Registration Statement, and to the use of our name wherever appearing in the Registration Statement in connection with Israeli law. In giving such consent, we do not thereby admit that we are in the category of persons whose consent is required under Section 7 of the Act or the rules and regulations of the Securities and Exchange Commission promulgated thereunder.

Very truly yours,

/s/ Shibolet & Co.

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in this Registration Statement on Form S-8 of our report dated March 31, 2026, relating to the financial statements of Rail Vision Ltd. (the "Company"), appearing in the Company's Annual Report on Form 20-F for the year ended December 31, 2025.

/s/ Brightman Almagor Zohar & Co.

Brightman Almagor Zohar & Co.
Certified Public Accountants
A Firm in the Deloitte Global Network

Tel Aviv, Israel
November 13, 2026

Calculation of Filing Fee Tables

S-8

Rail Vision Ltd.

Table 1: Newly Registered Securities

	Security Type	Security Class Title	Fee Calculation Rule	Amount Registered	Proposed Maximum Offering Price Per Unit	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee
1	Equity	Ordinary shares, no par value, reserved for issuance under the Rail Vision Ltd. Amended Share Option Plan	Other	300,000	$ 2.44	$ 732,000.00	0.000087	$ 63.68
				Total Offering Amounts:		$ 732,000.00		$ 63.68
				Total Fee Offsets:				$ 0.00
				Net Fee Due:				$ 63.68

Offering Note

1

Pursuant to Rule 416(a) under the Securities Act of 1933, as amended (the "Securities Act"), this registration statement (the "Registration Statement") shall also cover any additional ordinary shares that become issuable under the Rail Vision Ltd. Amended Share Option Plan, as amended and ratified on March 28, 2024 (the "Plan") by reason of any stock dividend, stock split, recapitalization or other similar transaction.

Represents Ordinary Shares issuable upon vesting or exercise of awards granted under the Plan as well as future award grants under the Plan to which this Registration Statement relates.

The proposed maximum offering price per share is calculated in accordance with Rules 457(c) and 457(h) under the Securities Act, solely for purposes of calculating the registration fee on the basis of $2.44 per share, the average of the high and low price of the Registrant's ordinary shares as reported on the Nasdaq Capital Market on November 11, 2026.

Table 2: Fee Offset Claims and Sources ☑Not Applicable

	Registrant or Filer Name	Form or Filing Type	File Number	Initial Filing Date	Filing Date	Fee Offset Claimed	Security Type Associated with Fee Offset Claimed	Security Title Associated with Fee Offset Claimed	Unsold Securities Associated with Fee Offset Claimed	Unsold Aggregate Offering Amount Associated with Fee Offset Claimed	Fee Paid with Fee Offset Source
					Rule 457(p)						
Fee Offset Claims											
Fee Offset											

Sources											