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Ministry of Transportation and Road
Safety

The Service for Passengers of the Light Rail in Jerusalem – Follow- up Audit



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Background

Jerusalem is the largest city in Israel. According to data from the Central Bureau of Statistics, in 2020, the city's number of residents was about 950,000. To improve public transportation services for residents and tourists in the city, the government decided in 1999 to establish a mass transportation system¹. The first line of the Light Rail in Jerusalem (the Red Line) began operating in August 2011 and was operated for about ten years by a private concessionaire (the Previous Concessionaire). Starting in April 2021, it will be operated by a new concessionaire, who is also responsible for expanding the Light Rail lines. In 2021, about 37.33 million passengers traveled by Light Rail.

The State Comptroller's Office performed a follow-up audit regarding the rectifying of the deficiencies noted in the report "Service for Passengers of the Light Rail in Jerusalem" (the Previous Audit) published as part of a special report, "The Public Transportation Crisis," in March 2019. The main deficiencies noted included among other things, deficiencies in the frequency, deviations in the travel times Rail, lack of control over the level of passengers crowding on the Light Rail, failure to adapt the ticketing and validation devices to the requirements of the previous concession agreement and inability to provide real-time data to the Ministry of Transport. As part of the follow-up audit, in December 2021, the State Comptroller's Office conducted a public participation procedure (through a survey) and found that about 88% of Jerusalem residents use the Light Rail services as their main means of transportation.

1 See the State Comptroller, **Special Audit Report on the Public Transportation Crisis** (2019), "The Service for Passengers of the Light Rail in Jerusalem", pp. 479–527.



Key Figures

37.33
million

number of passengers who used the Light Rail in Jerusalem in 2021

156,000

estimated average daily passengers, on weekdays, who used the Light Rail in September 2021

88%

rate estimate of Jerusalem residents who use the Light Rail

44%

rate of passengers who were little satisfied with the crowding level in the Light Rail

between
97.5%
and
99.7%

current concessionaire's compliance rate with the Light Rail scheduled frequency in Jerusalem (every 6 minutes), on weekdays, between 7:00 a.m. and 7:00 p.m., the average train journey frequency ranges from 6.02 minutes (approximately 6 minutes and 1 second) to 6.15 minutes (6 minutes and 9 seconds)

between
1,559
and
1,833

telephone inquiries at the current concessionaire's call center from May to September 2021

NIS 2.42
million


the total fines imposed on the current concessionaire from April to September 2021; Compared to about NIS 1.21 million imposed on the Previous Concessionaire from 2018 to April 2021

107
passengers


the total excess of passengers in September 2021 (the maximum number of passengers allowed is 356 passengers, according to 2.75 passengers standing per square meter when all the seats are occupied)




Audit Actions

 From August 2021 to January 2022, the State Comptroller's Office performed a follow-up audit to rectify the deficiencies noted in the Previous Audit. The audit was conducted at the "Jerusalem Transportation Master Plan" Team (the Master Team)² and the Ministry of Transportation and Road Safety. Furthermore, the State Comptroller's Office conducted a public participation process regarding the satisfaction of passengers³ using the Light Rail with the level of service of the current concessionaire.

Key Findings

 **The Public Participation Process** – by the State Comptroller's Office survey, about 88% of Jerusalem residents use the Light Rail, and the passengers using the Light Rail are not satisfied by the sense of security and crowding. Nearly half of the passengers stated that they experienced a high sense of security during the Light Rail ride, 30% said that their sense of security was moderate, and 21% stated that they had a low sense of security. The passengers' sense of security while waiting at the stations is high for 52% of the respondents, moderate for 31%, and low for 17%. About 44% of the passengers stated that the level of passenger crowding is high, and about 27% said they are pretty satisfied with the level of passenger crowding. It should be noted that in the passenger satisfaction surveys from the Light Rail in Jerusalem conducted by the Master Team in December 2021 and March 2022, in the "travel density" parameter, only about 26% answered both surveys that they were satisfied with a "high" degree or more with the level of passengers crowding, and around 43% and 45% answered that they were satisfied to a "low" or "very low" degree with the level of passengers crowding.

 **The Level of Passengers Crowding on the Light Rail Cars** – the prolonged travel time of the Light Rail and the reduction of frequency – increases the crowding, especially during the peak hours. The Previous Audit noted, "The concession agreement states 'normal crowding' in the occupancy of the Light Rail is four passengers per meter. However, the [previous] concessionaire and the Engineer Unit [in the Master Team]

² The Master Team is a professional body operating under the guidance of the Ministry of Finance, the Ministry of Transport and the Jerusalem Municipality on the subject of planning and development of transportation in the Jerusalem metropolitan area.

³ The process was carried out through an external company, which prepared for the State Comptroller's Office the required survey for carrying out the process, and then analyzed the results obtained. The State Comptroller's Office published the results verbatim.



disagree with this calculation. According to the Engineer Unit, it is 456 passengers, and according to the concessionaire, it is 535 passengers". The Previous Audit further raised that "within the supervision and control of the Engineer's Unit of the Light Rail, there is no regular and periodic inspection of the crowding level in the railcars." In the follow-up audit, it was raised that the transportation Master Team began to monitor train overcrowding systematically. However, the measurement of compliance with the crowding indicators is still partial. According to the State Comptroller's Office calculations, based on the Master Team's data, in most measurements, the maximum number of passengers on the Light Rail in Jerusalem is over 356 passengers⁴, and over 320 passengers⁵ – the number of passengers, exceeding the maximum threshold established in terms of the new concession agreement, for a maximum level of comfort. In practice, there has been no improvement in the level of crowding of Light Rail passengers since the Previous Audit. The follow-up audit also found that the concessionaire submitted for the Master Team's approval a plan to manage the crowding level threshold as required by the terms of the new concession agreement. After the completion date of the follow-up audit (January 2022), and according to the Master Team's reply to the State Comptroller's Office from April 2022, the plan is under review. The follow-up audit found that the deficiency was rectified to a small extent.



Public Inquiries (Complaints) – the Previous Audit noted that "The Engineer Unit [in the Master Team], supervising the Light Rail service under the concession agreement, does not prepare a periodic report on the scope of public inquiries and complaints addressed to the Ministry of Transportation, the municipality and directly to the [previous] concessionaire, on the length of time the complaint was handled, on the results of the handling, on the characteristics of the complaints, on the rate of justified complaints, on recurring complaints and other indicators as needed." By the follow-up audit, the Master Team presents a monthly report on the number of public inquiries to the concessionaire's call center, whether made via phone or in writing, and categorizes them by subject. However, in the follow-up audit, the Master Team does not refer to the public's inquiries concerning the Light Rail addressed to the Ministry of Transportation and the Jerusalem Municipality in its monthly reports. Furthermore, the Master Team relies on the concessionaire's report regarding the public inquiries received at the call center and does not operate using the "hidden customer" method to assess the level of service independently.



Provision of Real-Time Data to the Ministry of Transportation – by the Previous Audit "At the [previous] audit completion, over three years after the Ministry of Transportation's request to transfer to it real-time data, this demand regarding the Light

4 This threshold is calculated based on 2.75 standing passengers per square meter, when all the seats are occupied. Since the standing area in the car is 44.36 square meters, and there are 56 seats in each car, the maximum number of passengers on the Light Rail (which consists of two cars) according to this threshold is 356 passengers.

5 This threshold is calculated based on 2.34 standing passengers per square meter, with all seats occupied. See also explanation in the previous footnote.



Rail has not yet been implemented and the state has not yet reached an agreement with the [previous] concessionaire on this subject, adversely affecting the passengers' service level." By The follow-up audit, the new concession agreement stipulates the concessionaire provide real-time data to the Ministry of Transportation by mid-2023. As of the follow-up audit end, the data is not being transferred to the Ministry of Transportation in real-time. However, it should be noted that this data is presented at the existing depot centers but not in real-time. The follow-up audit found that the deficiency was rectified to a small extent.



The Frequency of Travel of the Light Rail – by the Previous Audit "As of the audit end [the previous one in April 2018], the frequency of the Light Rail is every 6 minutes [during peak hours which are most of the hours of the day between 7:00 a.m. and 6:00 p.m.]". The Previous Audit also noted, "The number of weekly trips is 4 – less than the number stipulated in the concession agreement [296 instead of 300 in both directions]". By the follow-up audit, the deficiency was rectified to a large extent: the actual average frequency, on weekdays, during most operating hours of the Light Rail, between the hours of 7:00 a.m. and 7:00 p.m., was about the same as the planned frequency and was at about 6 minutes from May to September 2021. The follow-up audit also found that the number of scheduled daily trips of the Light Rail on weekdays (Sundays to Thursdays) increased from 296 to 307⁶ (according to an approved plan from April 2021), reflecting an increase of about 3.7% in the number of scheduled train travels on weekdays. The current concessionaire's compliance rate with the scheduled frequency of the Light Rail in Jerusalem (6 minutes), on weekdays, between 7:00 and 19:00, varies between 97.5% and 99.7%.

The Light Rail Travel Times – the Previous Audit noted that "The actual average travel time of the Light Rail is longer than stipulated in the concession agreement. The average travel time on normal weekdays in 2017, from the starting station at Pisgat Ze'ev to the final station at Mount Herzl, was 46 minutes. The journey in the opposite direction lasted 47 minutes, and the average time for a round trip⁷ was 93 minutes⁸. This is compared to the goal set in the concession agreement: 39 minutes from end to end in each direction and a round trip time of 78 minutes. The difference between the planned round trip and actual time was 15 minutes (about 19.2% more than planned)." The follow-up audit raised that the deficiency has been rectified to a large extent: the actual average travel time of the Light Rail in Jerusalem (from one end to the other) from each departure station from June to August 2021 was about 44 minutes; the actual total round trip time (round trip) was about 87.5 minutes. The follow-up audit also raised that the entire round trip time from June to August 2021 improved by about 5.2 minutes compared to the

6 And even increased to 319 on Thursdays, including night lines, during the summer months only (July and August).

7 The travel time from the departure station to the final station and back.

8 In 2016 the figures were the same.



same round trip time during the Previous Audit and improved by 11.1 minutes compared to the same round trip time in 2012.

Expansions and Extensions to the Existing Red Line and Building the Future Lines (the Green Line and the Blue Line) – the Previous Audit noted that "The continuation of the negotiation process between the Master Team and the concessionaire prevented the promotion of the alternatives presented and caused considerable delay in the construction of the expansions and extensions, as well as a delay in the service expansion of the Red Line to other neighborhoods and areas in Jerusalem"; And that the tender for the establishment of the Green Line is only in the early selection stage. Following the failure of the negotiations with the concessionaire, the operation of the expansions and extensions will be delayed by at least three years more than planned and will delay the expansion of the Red Line service to other neighborhoods and areas in Jerusalem and the provision and improvement of the service to tens of thousands more residents of the city. The follow-up audit found that the deficiency was fully rectified: the JNET Project⁹, which includes the existing Red Line, its extension, and the Green Line that will be established, has been launched under the steps outlined in the new concession agreement. On top of that, along the extended Red Line route, infrastructure work has already begun on all six of its additional work segments for its extension; The next scheduled date for the operation of the Red Line after its extension is June 2023. Regarding the Green Line, at the audit completion, infrastructure works were carried out to construct the Green Line in the work segments set for it.

The Non-Competition Stipulation in the Previous Concession Agreement – the Previous Audit stated that "The non-competition agreement limits the state's ability to improve the public service and respond to the needs of public transportation users according to the development of the city, the population increase, and the changing and updated needs of the passengers, especially due to the constant increase in the Light Rail passengers"; And that "In the agreement with the concessionaire, the state handed over a public resource to private hands, and did not maintain a level of flexibility required as part of the agreement that has been in effect for decades; limiting the implementation of a transportation policy of adding new bus lines and making changes to existing bus lines for the benefit of the public who use public transportation." The follow-up audit raised that the deficiency was fully rectified. In the new concession agreement, there is no non-competition stipulation; thus, there is no harm to the passenger service due to such a stipulation as was in the previous concession agreement. The follow-up audit also found that over a 15-year operating period, as stipulated in the new concession agreement, the state's savings, due to the absence of a non-competition stipulation in the new concession agreement, was estimated at NIS 270 million over the entire operating period.

9 JNET - Jerusalem Net.



The Accessibility of Information on the Website, Payment Applications, and the Accessibility of the Light Rail Facilities – the follow-up audit raised that the Light Rail in Jerusalem website, operated by the current concessionaire, is accessible to the public in Hebrew, Arabic, and English; It is possible to pay for the Light Rail ride using public transportation payment apps (two in number); There are accessibility arrangements for persons with disabilities at the Light Rail stations and inside the train cars.

The Payments Made to the Current Concessionaire for the Operation of the Light Rail Compared to the Payments to the Previous Concessionaire – by the State Comptroller's Office calculation, based on the payments to the current concessionaire for nine months in 2021, the estimated payments for a whole year (2021) was about NIS 73 million; a decrease of about 60% compared to the payments to the Previous Concessionaire – an average annual of about NIS 183 million for the operation of the Light Rail in 2019 and 2020.

Key Recommendations

- 💡 The State Comptroller's Office recommends that the Master Team approve the plan for managing the threshold level of passenger crowding on the Light Rail, submitted by the current concessionaire after the follow-up audit completion. If necessary, also approve the recovery plan presented by the concessionaire as the passengers on the Light Rail in Jerusalem exceeds 356 passengers, and upon the fulfillment of additional conditions, as stipulated in the new concession agreement. Moreover, the Master Team should reduce the train crowding level due to its effect on the travel experience and the quality of service for the passenger.
- 💡 The State Comptroller's Office recommends that the Ministry of Transportation and the Master Team consider the public using the Light Rail services and the needs raised from the State Comptroller's Office public participation process in December 2021. In particular, the crowding level on the Light Rail should be considered. It is further recommended that the Master Team monitor the passengers' level of security on the Light Rail and improve the security of the passengers, despite the high level of satisfaction on this subject in the surveys it conducted, due to the low or moderate degree of satisfaction among about half of the Light Rail passengers in the survey (public participation procedure). It is further recommended that the Master Team improve the communication channels with the operator and the coordination and integration between the buses and the Light Rail following the Master Team survey's results.
- 💡 The State Comptroller's Office recommends that the Master Team and the Ministry of Transportation prepare a centralized document of lessons learned and guidelines for the future, to potentially improve the state's planning and construction of future lines of the



Light Rail in Jerusalem and the execution of other infrastructural projects and for the improvement of service to passengers.



The State Comptroller's Office recommends that the Master Team and the Ministry of Transportation monitor the concessionaire's handling of public inquiries received at its call center, incorporate in its data the inquiries received from the Ministry of Transport and the Jerusalem Municipality, as well as examine the integration of a "hidden customer" audit on their behalf¹⁰, to ensure that the concessionaire handles public inquiries. This is alongside studying its reports on the subject. If necessary, the Master Team and the Ministry of Transportation will present to the current concessionaire the need to improve the response to inquiries.

¹⁰ It should be noted that the Master Team stated in its reply to the State Comptroller's Office in April 2022, that it adopts this recommendation, and that it will integrate a "hidden customer" audit on its behalf, in the set of controls it will perform in the future.



The Rectification Extent of The key Deficiencies Noted in the Previous Audit

The Audit Chapter	The Audited Body	The Deficiency/ Recommendation in the Previous Audit	The Rectification Extent of the Deficiency Noted the Follow-up Audit			
			Not Rectified	Slightly Rectified	Considerably Rectified	Completely Rectified
The travel time of the Light Rail exceeds the stipulated time in the concession agreement	The Ministry of Transportation and the Master Team	The actual average travel time of the Light Rail is longer than stipulated in the concession agreement. The average travel time on regular weekdays in 2017, from the starting station in Pisgat Ze'ev to the final station in Mount Herzl, was 46 minutes. The trip in the opposite direction took 47 minutes, and the average round-trip time was 93 minutes.				
The travel frequency of the Light Rail is not as stipulated in the concession agreement	The Ministry of Transportation and the Master Team	At the Previous Audit completion (April 2018), the frequency of the Light Rail is every 6 minutes (during peak hours which are most of the day, between 7:00 a.m. and 6:00 p.m.) under the plan. The number of trips on a weekday is 4 less than the number stipulated in the concession agreement (296 trips instead of 300 in both directions).				
The travel frequency of the Light Rail is not as stipulated in the concession agreement	The Ministries of Transportation and Finance and the Master Team	The Previous Concessionaire received hundreds of thousands of NIS financial benefits, especially considering the frequency it undertook to comply with the concession agreement. These benefits were expressed in reducing the frequency of trips, changes in the fines mechanism, and the definition of delays.				



The Audit Chapter	The Audited Body	The Deficiency/ Recommendation in the Previous Audit	The Rectification Extent of the Deficiency Noted the Follow-up Audit			
			Not Rectified	Slightly Rectified	Considerably Rectified	Completely Rectified
Level of crowding in the Light Rail	The Ministry of Transportation and the Master Team	The extension of the Light Rail's travel time and the frequency reduction inevitably cause an increase in crowding inside the train car, especially during peak hours. A satisfaction survey conducted by the Administration in 2015 indicates that about 39% of passengers expressed low to very low satisfaction with the crowding on the train.				
Level of crowding in the Light Rail	The Ministry of Transportation and the Master Team	As part of the supervision and control of the Engineer's Unit in the Master Team on the Light Rail, there is no regular and periodic inspection of the level of crowding in the train cars, and the service indicators report prepared by the Engineer's Unit and submitted to the Administration once a month does not include data on the measured crowding.				
Failure to adapt the ticketing and validation devices to the requirements of the concession agreement	The Ministry of Transportation and the Master Team	At the (Previous) Audit completion, over six years after the Light Rail began to operate, the state had not yet definitively approved the conformity of the ticketing system to the requirements of the agreement because a large part of the system tests performed by the concessionaire failed, or was partial or not acceptable to the state. As soon as the Light Rail was put into operation, operational problems and repeated malfunctions in the ticketing and validation devices were discovered, causing considerable harm to the quality of service for passengers.				



The Audit Chapter	The Audited Body	The Deficiency/ Recommendation in the Previous Audit	The Rectification Extent of the Deficiency Noted the Follow-up Audit			
			Not Rectified	Slightly Rectified	Considerably Rectified	Completely Rectified
The concessionaire does not submit data in real-time to the Ministry of Transport	The Ministry of Transportation and the Master Team	At the (Previous) Audit completion, over three years after the Ministry of Transportation requested the concessionaire to provide it with real-time data, this requirement had not yet been implemented, and the state had not yet reached an agreement with the concessionaire on this matter, thus affecting the level of service to the passengers.				
Non-execution of the tender for expansions and extensions to the Red Line	The Ministry of Transportation and the Master Team	In April 2016, the negotiation team reported to the then Director General of the Ministry of Transportation that the negotiations were in the final stages. Still, preparations were made to implement various alternatives in case of failure. Despite the negotiations taking place for two years and despite the substantial differences between the parties, the negotiations with the concessionaire continued for another year until failing, thus preventing the promotion of the presented alternatives and causing a considerable delay in the construction of the expansions and extensions, delaying the service expansion of the Red Line to other neighborhoods and areas in Jerusalem.				
The relationship between the state and the concessionaire	The Ministry of Transportation and the Master Team	The ongoing disputes and transfer of many issues to arbitration indicate poor basic management of the agreements between the Administration and the concessionaire and a poor relationship between them.				



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			Not Rectified	Slightly Rectified	Considerably Rectified	Completely Rectified
Lack of documentation for a shared lesson-learning process	The Ministry of Transportation and the Master Team	There are no references indicating that the Master Team, the Administration, and the Ministries of Transportation and Finance carried out a joint procedure of learning lessons regarding the engagement manner with the concessionaire, the operation of the Light Rail, and the improvement of the service, as well as in the areas of planning, engineering, management, and execution.				
Impairment of passenger service due to the non-compete agreement	The Ministry of Transportation and the Master Team	The non-competition agreement limits the state's ability to improve public service and respond to public transportation users' needs according to the city's development, the population increase, and the changing and updated passenger needs, mainly due to the constant rise in the Light Rail passengers.				



Summary

The Light Rail in Jerusalem is the primary means of transportation in the city. In April 2021, the concessionaire operating the Light Rail in Jerusalem was replaced, allowing the Ministry of Transportation and the Master Team to change essential features in the contract between the state and the concessionaire. As a result, the passengers' service on the Light Rail also changed. The follow-up audit found that most of the deficiencies noted in the Previous Audit were rectified to a large extent, and some were even fully rectified.

However, the crowding of passengers on the Light Rail in Jerusalem has not improved since the Previous Audit was completed, in April 2018, although the control performed by the Master Team on the level of crowding passengers on the Light Rail is conducted monthly. The Ministry of Transportation and the Master Team should improve the service and increase the frequency of the trains to reduce crowding therein. Furthermore, they should improve passengers' sense of security in the stations and trains.

