



State Comptroller of Israel | Local Government
Audit Report | 2023

Planning, Building, and Infrastructure

Road Maintenance by Local Authorities



Road Maintenance by Local Authorities

Background

Local authorities' laws determine their duty and powers to develop, pave, and maintain the public roads within its jurisdiction. A paved road is subjected to physical pressures from traffic loads and is affected by the weather. The method of road maintenance should be determined based on indicators that reflect the nature of the roads and the level of service required from them. These indicators reflect the scope of damages caused to the roads over the years, the type of damages, and their severity. Effective road maintenance requires ongoing routine maintenance, not just intervention when detecting a malfunction. The fundamental principle behind investing in maintenance is that financial expenditure on maintenance in the present saves more significant expenses in the future. As the condition of the property deteriorates, the cost of the work required to restore it to its original condition increases.

In recent years, local authorities in Israel have been dealing with sinkhole damage on the roads. In 2022–2023, sinkholes formed in several cities in the center of Israel: Tel Aviv, Ramat Gan, Holon, Hod HaSharon, and Ra'anana. Ongoing monitoring of municipal infrastructures in general and road segments that have undergone preventive maintenance in particular – may contribute to the early identification of areas prone to damage, to the maintenance of the infrastructures ahead of time, and to the prevention of failures and damage that lead, among other things, to urban sinkholes.



Key Figures

57%

of all public roads in Israel (11,523 km out of 20,239 km of the road network in Israel) are under the local authorities' jurisdiction and responsibility

34,180

roads condition complaints received in 2019–2021 at the call centers of **Givatayim, Holon, Zikhron Ya'akov, and Lev HaSharon** municipalities. **Kafr Bara** has no municipal call center and no documented information about complaints received

only about
16 out of about 695 km

of the examined authorities' roads went through scrubbing and stratification in 2019–2021. At 0%–6% (depending on the various local Authorities) compared to the rate required according to the Transportation Projects Procedure¹ – 30%.

0.04% to 0.31%

of the average total current budget allocated for road maintenance in 2019–2020. In **Kafr Bara** (0.31%; NIS 104,600), **Givatayim** (0.28%; NIS 1,207,500), **Holon** (0.12%; NIS 1,806,000), **Zikhron Ya'akov** (0.12%; NIS 207,500) and **Lev HaSharon** (0.04%; NIS 92,500)

2.7% to 20.7%

of the funds transferred from development funds to invest in road maintenance projects in 2019–2021. In the **Givatayim, Holon, Zikhron Ya'akov, and Lev HaSharon** local authorities (in descending order). In **Kafr Bara** – none

89% to 100%

of the road maintenance projects were self-financed in 2019–2021. In the **Lev HaSharon, Holon, Givatayim, and Zikhron Ya'akov** local authorities (in descending order). In **Kafr Bara** – the entire project was financed by the Ministry of Interior

NIS 6–540 thousand

the average total investment in maintenance and rehabilitation of urban roads in 2019–2021, per 1 km of road. In the **Givatayim, Holon, Kafr Bara, Zikhron Ya'akov, and Lev HaSharon** local authorities (in descending order)


NIS 63–520

the average total investment in maintenance and rehabilitation of urban roads in 2019–2021 per resident. In the **Givatayim, Holon, Kafr Bara, Zikhron Ya'akov, and Lev HaSharon** local authorities (in descending order)

¹ The Transportation Projects Procedure (PRAT Procedure) was published by the Ministry of Finance and the Ministry of Transport at the beginning of 1997, and its latest version was published in 2021. The procedure provides tools to check the viability of transportation projects and guidance in this regard. The procedure classifies carriageways into four groups according to the traffic load, and determines for each group the frequency required for scrubbing and stratification of the carriageway and the thickness of the stratification.





Audit Actions


 From June to December 2022, the State Comptroller's Office audited the maintenance of public roads in 2019–2021 under the jurisdiction of the **Givatayim** and **Holon** municipalities, the **Zikhron Ya'akov** and **Kafr Bara** local authorities, and the **Lev HaSharon** regional council (the authorities examined). The audit used professional consulting services to examine 14 road maintenance projects carried out by the examined local authorities. Completion examinations were conducted at the Ministry of Interior, Transport and Road Safety, and National Transportation Infrastructure Company Ltd.

Key Findings



 **The Regulation of Road Maintenance in the Local Authorities** – although urban roads are over half of the roads in Israel, no government body regulates and supervises local authorities' road maintenance. The local authorities are obligated by law to maintain the roads within their jurisdiction; however, in the absence of planning and management norms, each of the local authorities determines for itself the manner of road maintenance within its jurisdiction and the scope of maintenance without any supervision and control and without transversal standards.

 **Carrying Out a Carriageways Survey and Managing the Roads Condition Database** – the **Givatayim** and **Holon** municipalities and the **Zikhron Ya'akov** and **Kafr Bara** local authorities did not conduct a carriageways survey of all their roads in the last decade. In the **Givatayim** and **Holon** municipalities, in the **Zikhron Ya'akov** and **Kafr Bara** local authorities, and in the **Lev HaSharon** regional council, there is no database on their road condition based on a carriageways survey; no information on the development and road maintenance works that have been carried out; and on complaints and lawsuits filed against the local authority.

 **Use of Technological Tools to Collect and Manage Information** – in the **Givatayim** and **Holon** municipalities, in the **Zikhron Ya'akov** and **Kafr Bara** local authorities, and the **Lev HaSharon** regional council, there is no carriageways management system, nor a computerized system for managing the roads condition database; The GIS systems found in the **Givatayim** municipality, in the **Zikhron Ya'akov** and **Kafr Bara** local authorities and the **Lev HaSharon** regional council are not used for road maintenance; A Customer Relationship Management System (CRM) is being used in the municipal call centers in the **Givatayim** and **Holon** municipalities, in



the **Zikhron Ya'akov** local authority and the **Lev HaSharon** regional council, however, the CRM system is not linked to other systems such as the GIS system, and the road maintenance work plans are not based on the information contained therein. As for the **Kafr Bara** local authority, it does not have a CRM system.



Long-Term Planning and an Annual Plan – the **Givatayim** and **Holon** municipalities, the **Zikhron Ya'akov** and **Kafr Bara** local authorities, and the **Lev HaSharon** regional council did not establish or regulate a work plan, as defined by the Ministry of Interior, for the maintenance of their roads. The priorities for carrying out the works were not determined based on the analysis of the engineering condition of the carriageways and sidewalks. The **Holon** municipality did not prepare a work plan that defines the segments where maintenance works are planned; The **Givatayim** municipality planned to carry out works on segments of seven streets in 2020–2021, but of these, it carried out only four, and works were also carried out on two segments for which works were not planned under the work plan. The prioritization of the works carried out in the **Givatayim** municipality was mainly based on the work plans of other infrastructures, such as water and sewage infrastructures; The **Zikhron Ya'akov** local authority planned to carry out road maintenance in segments of four roads in 2019–2021, but the works were carried out in segments of seven other roads.




Handling Complaints Received at the Municipal Call Center – the **Givatayim** municipality – despite the existence of a service level agreement, the Infrastructure Division does not comply with the standard of handling of malfunctions for which it is responsible and does not document their handling. However, in 2021, an improvement was noted in the municipality's compliance with the standard times compared to the previous two years: the compliance rate of its Transportation and Infrastructure Development Department with the standard times was less than 1% in 2019–2020 and about 31% in 2021. The **Holon** municipality – the compliance rate of the Roads Department was about 87%. The file of inquiries to the call center, does not indicate how the Roads Department handled each malfunction. The **Zikhron Ya'akov** local authority – its inquiries file has no basic details on how malfunctions are handled, the duration of the handling and the status of the handling. In the absence of a service level agreement that defines standard times, verifying the rates of compliance with the standard is impossible. The **Kafr Bara** local authority – has no municipal call center. The **Lev HaSharon** regional council – its service level agreement does not address the standard times for handling complaints, and it is impossible to generate a report detailing the duration of handling inquiries about road maintenance in the inquiries system.





Scope of Preventive Maintenance Works – the **Givatayim** and **Holon** municipalities, the **Zikhron Ya'akov** and **Kafr Bara** local authorities, and the **Lev HaSharon** regional council performed in 2019–2021 scrubbing and stratification works on only about 16 km out of a total of 695 km of the roads under their jurisdiction (at 0%–6% of the length of the roads therein), compared to the required rate – 30% (under




the requirement in the Transportation Projects Procedure to carry out such works at least once every ten years).

 **Quality and Proper Execution of the Works** – the examination of the quality and proper execution of the scrubbing and stratification of carriageways or of paving of sidewalks in 14 road maintenance projects in the examined authorities in 2019–2021, raised the following findings: in the **Givatayim** municipality – deficiencies were found in two of the three projects examined; In the **Holon** municipality – deficiencies were found in one of the five projects that were examined; In the **Zikhron Ya'akov** local authority – the works in the three projects that were examined were not carried out according to the provisions of the law about accessibility for persons with disabilities; In the **Kafr Bara** local authority – deficiencies were found in specific repairs on two roads; on some roads, it used non-standard plastic speed bumps; The **Lev HaSharon** regional council – performed scrubbing and stratification in only two segments with a total length of 881 meters out of all the roads in the authority, a length of 236,000 meters; In one of them, work was carried out only on one side of the carriageway and the sidewalk.

 **The Authorities' Expenditures on Road Maintenance** – investment differences in road maintenance in 2019–2021 were found in the scope of hundreds to thousands of percent per 1 km of road between the examined authorities, in descending order: **Givatayim** – average investment of NIS 540 thousand; **Holon** – NIS 222 thousand; **Kafr Bara** – NIS 131 thousand; **Zikhron Ya'akov** – NIS 46 thousand and **Lev HaSharon** – NIS 9 thousand.

 **Reporting Within the Framework of the Current Budget** – in the examined local authorities, the scope of budgeting for road maintenance out of the total current budget is marginal to nil. In 2019–2021, the average scope of budgeting did not reach a third of a percent of the current budget, and in descending order: **Kafr Bara** – 0.31% of the current budget was invested in road maintenance (an average expenses of NIS 104.6 thousand out of an average annual budget of NIS 33,330 thousand); **Givatayim** – 0.28% (NIS 1,207.5 thousand out of NIS 433,848 thousand); **Holon** – 0.12% (NIS 1,806 thousand out of NIS 1,453,977 thousand); **Zikhron Ya'akov** – 0.12% (NIS 207.5 thousand out of NIS 167,952 thousand), and **Lev HaSharon** – 0.04% (NIS 92.5 thousand out of NIS 228,082 thousand).

 **The Funding Sources in the Non-Current Budget** – according to the transfer of the examined authorities' development funds in the audited years – including a Road Construction Fund, Sidewalk Fund, and Betterment Levy Receipts Fund – the average rate of investment in road maintenance projects out of the total transferred funds in 2019–2021 ranges from no investment to about a fifth of the total transferred funds, in descending order: **Givatayim** – 20.68% of the transferred funds out of the development funds were invested in projects (NIS 38,865,278 out of NIS 187,961,953); **Holon** – 16.43% (NIS 64,881,755 out of NIS 394,956,665); **Zikhron Ya'akov** – 11.24% (NIS 5,357,000 out of NIS 47,664,527); **Lev HaSharon** – 2.66% (NIS 1,217,000 out of NIS



45,794,349); In **Kafr Bara** – no development funds were invested in projects in those years.



Carrying Out Work as Part of the Preparations for the Opening of the School Year – the audit team tours on the roads adjacent to various educational institutions in the jurisdictions of the **Givatayim** and **Holon** municipalities, the **Zikhron Ya'akov** and **Kafr Bara** local authorities and the **Lev HaSharon** regional council raised that there is a safety circle around the educational institutions in the jurisdictions of all the authorities, to contend with the safety hazards on the way to and from the educational institution. Thus, among other things, crossings were marked at intersections and on wide roads in the vicinity of educational institutions; Parking bays were marked for dropping off and picking up students near the educational institutions; There are safety railings near the entrance to the educational institutions and at the bus stops or shuttle sheds near them; There are traffic moderation arrangements and speed reduction road signs for drivers; And there is road safety signage, intended for students.

Key Recommendations



It is recommended that the Ministry of Transport establish a knowledge center on the local authorities' road maintenance pooling the standards and guidelines and serve as a regulating and guiding factor for the local authorities on the subject. It is further recommended that the Ministry of Transport assist the Ministry of Interior, as necessary, in establishing such a knowledge center and in disseminating the knowledge.



To get a complete situation report of the state of the carriageways under their jurisdiction, it is recommended that the **Givatayim** and **Holon** municipalities, the **Zikhron Ya'akov** and **Kafr Bara** local authorities, and the **Lev HaSharon** regional council carry out a comprehensive carriageways survey of all their roads. Moreover, they should use dedicated equipment and, based on professional, uniform, and accepted indicators, determine the actions required for the maintenance and restoration works and the priority for their execution. Furthermore, it is recommended that the Ministry of Transport examine the road maintenance methods of National Transportation Infrastructure Company Ltd. and determine indicators for road maintenance in the local authorities.



It is recommended that the **Givatayim** and **Holon** municipalities, the **Zikhron Ya'akov** and **Kafr Bara** local authorities, and the **Lev HaSharon** regional council consider using a carriageways management system for collecting and managing data on the condition of their roads to optimally prioritize the work required to rehabilitate the roads and prevent their deteriorating. Furthermore, it is recommended that they use the Geographic Information System (GIS) to map all the information about the roads, for example, on the



maintenance and infrastructure works carried out thereon, and adapt the Customer Relationship Management System (CRM) to work with the GIS system. After mapping the information above, it is recommended to make the information accessible, according to permissions, so that the employees of the local authority, the execution contractors, and the general public can use or view it.



It is recommended that the **Givatayim** and **Holon** municipalities, the **Zikhron Ya'akov** and **Kafr Bara** local authorities, and the **Lev HaSharon** regional council formulate a multi-year work plan for the maintenance and restoration of their carriageways and sidewalks, according to the Ministry of Interior instructions. It is further recommended to base this work plan on the state of the roads' current data and to prioritize based on this data. Moreover, it should address the upgrade plans of the water corporation and other infrastructure entities. It is further recommended that the local authorities conduct maintenance according to their work plan, and if it is necessary to change them, it is recommended that they document and justify the reasons for the changes.



To prevent a carriageway deterioration, it is recommended that the **Givatayim** and **Holon** municipalities, the **Zikhron Ya'akov** and **Kafr Bara** local authorities, and the **Lev HaSharon** regional council carry out scrubbing and stratification of at least 10% of the length of their roads each year, as per the guidelines of the Transportation Projects Procedure, according to the number of vehicles passing on the roads per day.



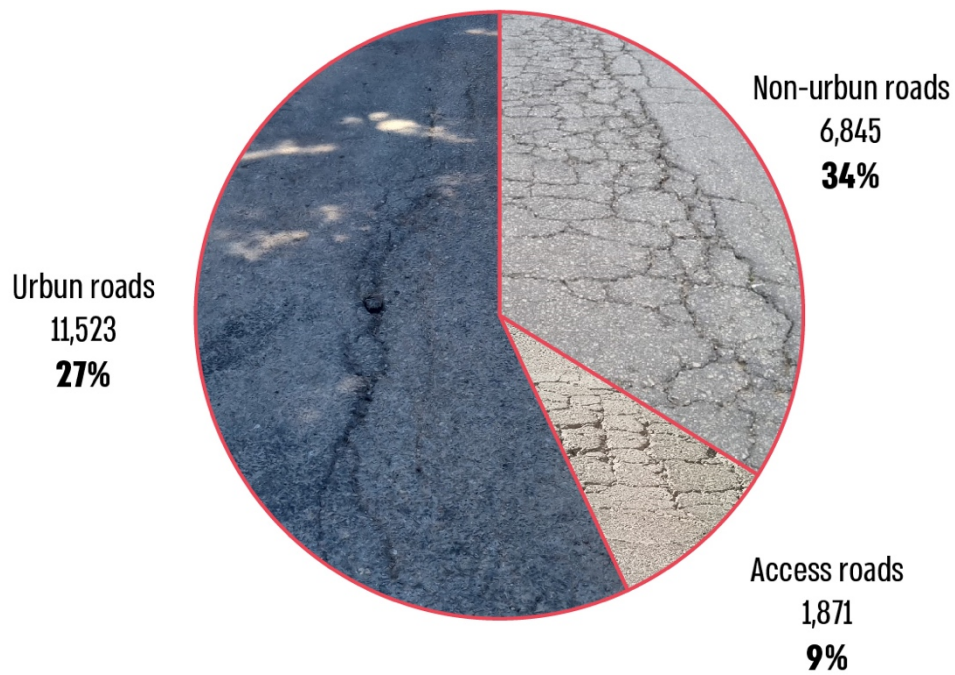
The **Givatayim** and **Holon** municipalities and the **Zikhron Ya'akov** and **Kafr Bara** local authority should monitor the execution quality of the road maintenance works and ensure that they comply with the plans and estimates prepared, and if changes are required, they should document the reasons for the change; The **Holon** municipality and the **Zikhron Ya'akov** local authority should ensure compliance with the instructions of the accessibility of crosswalks, sidewalks, and public transportation stations; The **Kafr Bara** local authority should use standard materials for road maintenance; It is recommended that the examined authorities when working on a specific road section, work on all components of the road that require maintenance, especially components that may endanger the public.



Given the low level of the examined local authorities' current budget on road maintenance, and considering all the aspects related to their current activities and their activities in maintenance and development, it is recommended that the **Givatayim** and **Holon** municipalities, the **Zikhron Ya'akov** and **Kafr Bara** local authorities and the **Lev HaSharon** regional council examine the allocated budget out of their non-current budgets compared to the needs required for periodic works and projects, to maintain an optimal level of maintenance of the roads within their jurisdiction.



The Length of Paved Roads in Israel in 2020 (in km), Broken Down by Types



According to the CBS data processed by the State Comptroller's Office.



The Total Investment in Road Maintenance, Compared to the Length of the Paved Roads in the Examined Authorities, 2019–2021

The local authority	Implementation in practice (in NIS thousands)			The length of the paved roads in the authority (in km) *	Average investment per 1 km of road (in NIS thousands)
	Current budget	Non-Current budgets	Total investment		
The Givatayim Municipality	2,829	28,943	31,772	58.8	540
The Holon Municipality	5,251	59,609	64,860	292.7	222
The Zikhron Ya'akov Local Authority	609	3,935	4,544	99.5	46
The Kafr Bara Local Authority	417	618	1,035	7.9	131
The Lev HaSharon Regional Council	308	1,798	2,106	236	9



Summary

Ongoing maintenance of roads is fundamental to maintain the resilience and quality of the roads and the safety and quality of road users' lives, as well as ensuring low costs in the long term. The local authorities must maintain the public roads under their jurisdiction regularly. The **Givatayim** and **Holon** municipalities, the **Zikhron Ya'akov** and **Kafr Bara** local authorities, and the **Lev HaSharon** regional council should carry out fracture maintenance urgent maintenance of discovered malfunctions – but the scope of the preventive maintenance works they conduct is very low. In 2019–2021, the examined authorities performed maintenance work on about 16 out of 695 km of roads within their jurisdiction (2.3%), with a financial scope of NIS 103,711 thousand. The **Kafr Bara** local authority does not perform any preventive maintenance. The examined authorities do not perform regular preventative maintenance based on the engineering condition of the carriageways, sidewalks, and maintenance needs.

It is recommended that the **Givatayim** and **Holon** municipalities, the **Zikhron Ya'akov** and **Kafr Bara** local authorities, and the **Lev HaSharon** regional council periodically conduct a carriageways survey of all the roads under their jurisdiction and update the database about the maintenance work performed. An updated database regarding the state of the roads based on a road survey, documenting the development works and the road maintenance works that have been carried out, and on complaints and lawsuits filed against the local authority, will enable the authorities to prepare a long-term investment plan for road maintenance and to prioritize the execution of the works, thereby maximizing the benefits of performing preventive maintenance and saving costs for the long term.

It is recommended that the Ministry of Interior and the Ministry of Transport jointly regulate the local authorities' road maintenance, formulate detailed procedures for maintaining the public roads under the jurisdiction of the local authorities, and supervise said maintenance work.