

Northern Green Line - Environmental Impact Report

Executive Summary

Chapter I Data of the existing environment-

1.0 introduction

The Green Line is one of the light rail lines (LRT), planned as part of a high-density transportation system of the Tel Aviv metropolis, as outlined in TMA 23 /a/ 4. The green line connects the parts The southern part of the Gush Dan metropolis (Holon and the outskirts of Rishon Lezion) with the city of Tel Aviv and its western part ,of Herzliya. The line is a central element in the skeleton of the mass transportation system being a longitudinal axis that communicates with All the other lines, contribute to the future development of the coastal strip between Tel Aviv and Herzliya and enable accessibility To the employment centers in Ramat Hay'il, Herzliya, Tel Aviv University, Holon and Rishon Lezion.

This review discusses the Subtalan 71 C plan for the northern section of the Green Line. The length of the Green Line route in the section- It is 18.5 km, where the route is divided into three main segments:

1. .A central section extends from Shi Agnon St. through Levy Eshkol St., Einstein St., Haim Levanon St .and Shalom St- Rosenfeld while crossing the Ayalon lanes and the Israel Railways in Gishor to the "Park" station" on Rokah The length of the section is about 6 km . -
2. ,Extension to Ramat Ha'il extends from the "Park" station to the end of the extension in Ramat Ha'il industrial area -AtidimThe length of this branch is about 4.5 km .. -
3. Extension to Herzliya The route of this extension depends on the evacuation of Sde Dov. Before the evacuation, the branch will start- From the intersection of Shi Agnon and Levi Eshkol streets, through Levi Eshkol Street, Einstein, and the continuation of Ibn Gvirol . And to the intersection of Abba Even and Naomi Shemer in Herzliya. After the evacuation of Sde Dov, the extension to Herzliya is planned . Start from Shi Agnon Street along the future Ibn Gvirol, when the central section can split .on Einstein St towards the east. The length of the extension to Herzliya is about 8 km, with 2 km planned- Inside Sde Dov along the future Ibn Gvirol Street. The extension to Herzliya also includes the extension of the line The gree,n which is part of the progra.

1.2 transportation

The Northern LRT route of the Green Line is planned to pass through the cities of Tel Aviv and Herzliya .

This chapter gives a description of the public transport system that exists in the Green Line corridor, and principles for integrating the system, which is offered with the various public relations measures in its environment. In addition, we will calculate and analyze existing traffic volumes. The amount of existing traffic volume is calculated by a model The transportation to the Tel Aviv metropolis of the Ministry of Transportation, which is an activity model type. The model is developed by the company "Cambridge Systematics" and maintained by the Ayalon Routes company by the best experts in the field in Isra.

This type of model describes the travel patterns in detail by creating a dependency between the daily trips carried out by passengers and grouping them under one tour. The analysis of the data clearly shows that the vast majority of the vehicles traveling on the route designated for the train ,Relief in the morning hours are private and commercial vehicles that make up about 98% of the total traffic volume. buses- Passengers on the route make up about 1.5% of the total volume of transport, and trucks make up about 0.5% of the total amount of transport the general

1.3 soil and groundwater

In this chapter, the historical survey conducted along the route is presented. Active pollution sources are indicated in the chapter and potentials of the soil, surface water, and groundwater, that exist in the area of the plan and its surroundings and their effect on the plan. The survey was conducted in accordance with the "Guidelines for initial data collection on soils suspected of being contaminated(Phase 1), November and is based largely on information taken from a number of soil surveys conducted in recent years on 2003 by a number of different bodies including the Ministry of Environmental Protection.

The areas with pollution potential along the route are focused on places where the land has been used in the past and in the present identified with sewage and waste containing hazardous substances, or storage of such substances such as infrastructure and fuel tanks. Unlike the southern sections where the line passes, the northern section is newer and the land uses ,In it, from the seventies of the last century onwards were developed in accordance with environmental and planning criteria are more advanced such as the development of open public spaces, sewage systems and waste water treatment, separation of Drain currents and taking measures to prevent contamination from pipelines and fuel tanks such as cathodic protection.

The central sites highlighted in the historical survey as sites with a high potential for soil contamination are:

1. Delek 3 site of the Electric Company in the Yarkon Park area, in front of the main entrance to the exhibition grounds,
2. The fuel line "8" that carried the fuel to the site along the southern side of Rokah Boulevard in front of the exhibition grounds,
3. The gas stations adjacent to Rokah Blvd. on both sides, the large Paz Yarid and the small Paz Yarid,
4. Dan garage at the Raul Wallenberg/Pinchas Rosen intersection,
5. The garage area on Raul Wallenberg St. No. 18--. 20

When it comes to the route of the Northern Green Line, a route that is mostly on the ground, most of the soil pollution that is not Of industrial origin, if they exist, they are point contaminations, due to local sewage, poor maintenance, etc. recommended Because when the required permits are issued, by virtue of which the construction work will be carried out, the top layer of soil will be inspected intended for replacement and disposal prior to the preparation of the rail infrastructure and the laying of a new bedding layer, to determine the The need for treatment, disposal and/or the potential of its use.

Additional recommendations for continued treatment of areas suspected of being contaminated appear in section 1.3.1.5 of this review.

1.4 Land uses, land designations, population density

land designations

This chapter examined the route of the LRT in the northern section of the Green Line against the background of Tama'ot, Tammam and Be'ot. available Because there are no conflicts between the above-mentioned plans that apply to the areas where theLRTplans to pass, and the project itself.

The TMA's that were surveyed are:

1. **TMA 35 Textures** From the blueprint of the plan it appears that the entire route of the railroad is planned to pass through with an urban texture. In the extension to Herzliya, the route of theLRT is planned to cross the Nof strip. However, The Green Line project in the extension to Herzliya is planned to be built only after the establishment and development of residential neighborhoods Widespread in the open areas and agricultural areas in the area. Hence the establishment project

The LRT does not conflict with the provisions of this plan. Also, the route of the LRT is planned in the central section And on the extension to Ramat Hayal to cross a national preservation fabric in the Yarkon Park area.

2. **TMA 35 Environmental guidelines** From the outline of the plan it appears that most of the train route is planned to pass through water resource conservation areas. The route of the LRT in the extension to Herzliya is planned to cross and pass nearby to the area defined as an area with high environmental landscape sensitivity. The planned route in the Sde Dov area Crosses an area defined as an aircraft noise area.

3. **TMA 22 The national outline plan for forests and afforestation** in the route of the LRT and in its vicinity there are no areas intended for forestry or afforestation.

4. **TMA 34 /b/ 3 Partial national outline plan for drainage and streams** From the outline of the plan it appears that in the area The streets of Shi Agnon, Rokah, Bachor Shitrit and Raul Wallenberg The route of the LRT is planned to pass nearby to the main drainage artery (Nahal Yarkon) as well as in the flood plain area.

5. **TMA 34 /b/ 4 Partial national outline plan for the pooling and introduction** of most of the planned route of the LRT to pass through the area defined as "high groundwater vulnerability (A)". -

6. **TMA 3 National outline plan for roads.** - From the drawing of the plan it appears that the route of the LRT crosses a fast road, fast suburban road, main roads and suburban roads. The route even runs along a , section A short road defined in the TMA as a "regional road".

7. **TMA 23 National outline plan for railroads** From the outline of the plan it appears that the central section of The LRT route is planned to cross a planned multi-track railway, to run parallel to the railway An existing train and cross an existing train station in Bnei Brak. –

8. **TMA 23 /a/ 4 National outline plan for a high-passenger transportation system (Mat'an)** in the Tel Aviv metropolis- From the outline of the plan it appears that the green line of the light rail is planned to cross the yellow line- in Tel Aviv at the Pinchas Rosen/Operation Kadash intersection, and connect to the southern end of the Pink Line in the city of Herzliya At the Naomi Shemer/Aba Even intersection.

9 **TMA 37/t High pressure natural gas transmission system on the Reading Kesem** route from the plan drawing shows the northern green line is planned to cross the gas strip in the Levinsky College area.

10. **TMA 8 The National Outline Plan for Nature Reserves and National Parks** on the route of the LRT and in its surroundings there is no Areas defined as nature reserves and national parks .

The entire light rail route is planned to pass through the Tel Aviv district. This chapter will include an overview of the master plan The district applied to the territory of the two local authorities of Tel Aviv-Jaffa and Herzliya, TMM 5 outline plan- District to Tel Aviv district.

1. TMM 5 land designations From the blueprint of the plan it appears that the route of the green line crosses various areas with Various vocations in the field of military engineering:

A. In the sections where the LRT route is planned to pass through Shi Agnon, Levi Eshkol and Einstein streets, The route will pass through areas designated as an urban area with an emphasis on residences.

B. In the sections where the LRT route is planned to pass on Lebanon Street, the route will pass through areas designated as a zon Municipal, municipal and metropolitan public institutions.

C. In the sections where the route of the .LRT is planned to pass within the territory of the Yarkon Park, in the vicinity or Adjacent to Rokah, Shitrit and Raul Wallenberg streets, the route will pass through areas zoned for a park Metropolitan.

d. In the sections where the LRT route is planned to go through Raul Wallenberg Street, starting from the intersection with The iron st the route will pass through areas designated as a secondary employment zone ,

E. In the sections where the LRT route is planned to pass at the end of the extension to Ramat Hay'al, the route will pass Areas zoned for a metropolitan park and an urban area with an emphasis on residences.

2. TMM 5 Transportation From the outline of the plan, it appears that the route of the LRT passes through a main road when the LRT Passing the Namir road. Crossing the Ayalon via a bridge, the LRT route passes through a fast suburban road. Along Shetrit and Raul Wallenberg streets, the LRT runs along an existing metropolitan arterial road. The LRT route in the extension to Herzliya passes through the change planning area of TMA 31, Tel Aviv district.

3. TMM 5 Infrastructures From the draft of the plan it appears that from the draft of the plan it appears that in the Rehovot area there is a Rokah Bekor Shetrit and part of Raul Wallenberg, passes through the route of the LRT Azorim in the Pesht HaTaf zoning. Its northern part of Raul Wallenberg is defined as a sensitive area for the introduction of surface runoff into groundwater.

4. TMM 2/5, land zoning map From the outline of the plan, it appears that the route of the LRT in the .area of Rokah Ave. is expected Go through the Yarkon Park area, which is defined as an open public area Along Shetrit Street, a route is expected The LRT to pass in close proximity to the area for leisure and intensive recreation and sports. The end of the LRT s route is in Shloha' At the Ramat Ha'hayal , will pass within an area defined as an area for future development.

5. TMM 2/5, Construction Limitations in the Flood Plain From the plan outline it appears that the route of the planned LRT To pass through the southern part of the extension to Herzliya, within the areas of Sde Dov, it is planned to cross areas The defined areas outside of this plan are the flood plain. The bridge that is planned to go over the Ayalon road, It is planned to cross an area defined as urban areas in the flood plain. A route is planned on Rokah Ave The LRT to pass within an area defined as open areas in case of flooding. On Shitrit St., the LRT route It is planned to move in close proximity to the areas defined as areas outside of this plan in the flood plain. territories , These are on the north side of the street. In contrast the areas located south of Shitrit Street Defined as urban areas in the flood plain. The western part of Wallenberg Street, until the intersection with the street The iron is defined as urban areas in the flood plain. After the meeting with the Iron Street and shortly before The meeting with Reho Nachosot, the route of the RK is expected to pass within areas defined as outside areas For this program, the flood is simple.

As mentioned, this chapter also reviews various lawsuits that apply on or near the areas of the LRT .route in section 1.4.2.3 For this review, a table is presented that reviews the above claims. In addition, the chapter presents the planning trends which the LRT route is intended to go through and they are reviewed in section 1.4.2.4 of this section.

1.5 The appearance and function of the street

The concept of urban function

In this chapter, the urban function of the streets along the route of the northern segment of the Green Line is presented. due to its length ,and the complexity of the route, and for ease of reading and understanding the section is divided into eleven different sub-sections- and the ones that differ from each other in their urban characteristics.

The street profile

.In this chapter, typical cross-sections are presented, both in the existing state and in the proposed state From the cuts you can get an impression where The train markings on the street and how the cross section of the street will look after the project is completed.

Image and identity

In this chapter, the scenic textures and open spaces that exist along the route of the LRT are described. It is also shown Survey of mature trees along the route.

1.6 Noise

This chapter discusses the assessment of noise levels prevailing in receivers that are sensitive to noise and may be affected As a result of the construction and operation of the LRT on the green line in the southern , section. The noise measurements were carried out at 26 different measurement points after coordination with the Tel Aviv District Environmental Protection Office:

A. 15 measurements of about 20 minutes (hereinafter "short measurement") whose purpose is to describe the noise levels in noise receivers represent during the peak hours while referring to the results of the noise measurement at the long points.

B. 5 measurements for about 3 hours (hereinafter "long measurement") their purpose is to describe the distribution of noise levels in hours the peak and is a reference point for the short measurements.

third. 6 measurements of about a week (hereinafter "prolonged measurement") whose purpose is to describe the distribution of noise levels on across the different hours of the day and on different days of the week.

The noise levels in the existing situation, at the measured points, ranged between $L_{Aeq}=57-72$ dB. These levels are typical for regions Busy urban areas, where the main source of noise is urban traffic noise.

1.7 radiation

During the month of April 2014, magnetic fields and electromagnetic radiation were measured along the light rail axis of the green line in the northern section.

UMG radiation and magnetic field values were measured at a height of 1 m and at a sufficient distance from transmission sources that do not characterize the background values. The test points are selected according to sensitive land uses or uses where there are apartments

residence. Sensitive places include, among others: kindergartens, clinics, schools, gas stations, centers communal and so on.

The radiation measurement points were made in coordination with the Radiation Division of the Ministry of Environmental Protection.

Table 1.7.1.2 of this review shows the values of the magnetic field(mG) as measured at 73 points along a route The LRT .

1.8 ecology

As part of the planning of the LRT (the green line), the northern section will be examined in relation to open areas where there are natural values. The northern section is planned to pass through the sand and agricultural areas west of Highway 2 from the Sde Dov area to Herzliya Industrial Zone. These areas are the last remaining natural sequence along the coast in the Dan metropolis. The route is planned to pass through the eastern edge adjacent to and in the area of existing and/or planned construction and therefore

does not create Cutting the area and does not harm the core of the area and the important habitats to the west, except for the winter pool area In the Naim compound which the LRT is planned to cross and which is located on the area of an approved plan, room 3700. Chapter 4.5 This review discusses drainage aspects and actions to be taken to prevent damage to the complex.

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The route is planned to pass through the built-up urban area to the end point in the east of the city (Ramat Ha'il) in the Nahal area Orchards, which is the main green axis in this space.

Along the route, there is a watering point with Nahal Yarkon in the area of Esar Tahana.

Chapter II Details of the reasons for the priority of the proposed program-

In general, the light rail is planned to pass in the center of the streets where the route passes. Central labeling has advantages in this that it creates a street section where it is easy for the traveler to find his way around the space, serves both sides of the street equally, and Allows vehicle access to border lots without interruption. At the same time, in areas where delineation is central, created significant physical problems in locations where the function of the street was asymmetric, or implementation was not possible, Geometric of certain turns, side labels were also considered, and this only on the condition that the existing entrances to the lots were few and thus such an indication did not harm their function.

In addition to this, TMA 23 /a/ 4, a national outline plan for a high-passenger transportation system (Mat'an) in the metropolis Tel Aviv, established an updated network of signs for a high-passenger transportation system. The system setup is done In accordance with urban centers, points of attraction, and creation of traffic and placements in the network which resulted in the level of travel the highest in the system while lowering the maximum traffic volume of private vehicles. Any change in the LRT route (with the exception of the permitted and detailed changes in the plan) compared to the TMA route constitutes a deviation from the TMA.

This chapter reviews the planning alternatives as far as we have been tested, and this for two reasons when the track route deviates In relation to TMA 23 /a/ 4, and when an alternative is chosen in which the rak'al is marked on one of the sides of the street and not in the center of a right the road or in areas where there is sedimentation to the LRT.

2.1 Methodology for examining alternatives

The criteria for analyzing the various planning alternatives include a wide spectrum of areas:

- (1) Transportation and traffic,
- (2) Urban aspects, landscape, and environment,
- (3) Engineering.

The overall picture that is created graphically maps the advantages and disadvantages of each alternative and enables Effective assessment. In examining the criteria and including the indicators for choosing the chosen alternative, it was decided that it will not be given Different weight for each criterion. Table 2.1.1.1 shows the possible score on a scale of 1 to 5, where each score Translated into color.

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Table 2.2.1.1 Score distribution for matching the criteria-

Matching the criterion	Rating	Color
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Irrelevant	0	White
Discrepancies	1	Red
Minimal adjustment	2	Orange
Partial match	3	Yellow
Good match	4	Light green
Full match	5	Dark green

The details of the criteria that were tested for the purpose of examining the alternatives are presented in full in chapter 2.1 of this review.

2.2 Examination of alternatives for the track marking in relation to TMA 23 /a/ 4

During the advanced physical planning of the line, it was found that changes and deviations from the route approved by TMA are required. In order to facilitate and optimize the development of the information technology in combination with the urban planning system and the urban activity. Planning the northern section, changes were defined in the Tel Aviv district, in the following areas:

- A. Sde Dov,
- B. Crossing the Ayalon.

The following is a breakdown of the changes in relation to the route approved in TMA 23 /a/4

2.2.1 Sde Dov

According to TMA 23 /a/ 4, the green line crosses the area cell of Sde Dov. Already at the beginning of the planning process, we found that the TMA alternative for the Sde Dov area is not compatible with the outline plan for the evacuation of Sde Dov and is not compatible with the The planning of the route on Levy Eshkol St. before the evacuation of Sde Dov, and this is because in this alternative the terminal must be evacuated. The passengers of the field and some of the facilities. In addition, there is uncertainty regarding the date of the evacuation of the area containing Shat civilians and a military base, and whether it will be evacuated as a whole or in parts. Because of this, the planning team examined an alternative to the transition in the area of Sde Dov, when it becomes available. One alternative is the TMA alternative itself, and the other is an alternative based on it. On crossing Sde Dov further along the Ibn Gvirol axis. This alternative is better adapted to the master plan of Tel Aviv and provides service to the developing and planned neighborhoods along the coast.

In addition to the alternatives that were prepared to include an evacuated Sde Dov field, the possibility that the implementation of the LRT project was taken into account was taken into account. In the northern section of the green line, Sde Dov will first be evacuated. For this reason, the planning team prepared an outline for the LRT appropriate for this stage. According to this outline, the LRT is planned to pass through Levi Eshkol

The consolidated plan includes, in sum, the two signs (Levi Eshkol and Ibn Gvirol Atidi) to enable Draw the line in any scenario.

2.2.1.1 The TMA alternative-

According to the alternative of the TMA, the route of the Rkel passes through a twist within the area of Sde Dov in the terminal area. for this alternative Many disadvantages because it makes closed areas inaccessible, is not physically available before the evacuation of Sde Dov

(whose eviction date is not clear) and it is not compatible with the Tel Aviv master plan. No alternatives were found for this alternative Advantages, except that it is compatible with TMA and requires relatively few tubercles.

2.2.1.2 outline alternative

This alternative represents a scenario according to which the split between the line to Herzliya and the line to the university and Ramat Hay'il will be carried out At the meeting of the delegates, Einstein and "the continuation of Ibn Gvirol", that is, after the evacuation of Sde Dov. The advantages of this alternative are many, and among the, m we can name the good functioning of nodes, guaranteeing priority to theLRT an , interface with exceptional activity and influence on Street life and extraordinary activity. The disadvantage of this alternative is the dependence on clearing the fiel.

2.2.1.3 Comparing alternatives and choosing a preferred planning alternative-

The planning team's recommendation is an outline alternative. This alternative has many more advantages that are reflected in the aspects Urban such as: orientation in space, interface with external activity, and connection to urban centers. In addition, an alternative The TMA is not compatible with the Tel Aviv outline plan and the planned urban development in the Sde Dov area, and hence it is Not relevant from an urban point of view to regional planning.

2.2.1.4 Outline of an intermediate stage (along Shi Agnon and Levi Eshkol)-

This layout represents a scenario according to which the route on Levy Eshkol St. will be established and operated prior to the evacuation of Sde Dov. The split between the line to Herzliya and the line to the university and Ramat Hay'il according to this outline planned at the meeting of the delegates Ibn Gvirol and Shi Agnon The advantage of this outline is that it provides an efficient and good solution for the transfer of the LRT in the Sde Dov area, and does not delay the execution of the construction of the track towards the university and the extension to Ramat Hayal.

In the review, two alternatives to this layout are examined, each of which outlines the track in a different cross-section Agnon and Levi Eshkol streets. It should be noted that the intermediate alternatives detailed below may be integrated with the alternative the team in the final stage, and thus a situation will be created in which there is a joint activation of the two stages of the establishment. Given a stage Such an operation and according to a demand test, it will be decided whether to dismantle the rail or whether to leave it in place.

Also, in Yanathan and Sde Dov will not be evacuated before the construction of the extension north of Herzliya, the plan will allow the connection of the Levy axis Eshkol via Einstein west and then north towards Herzliya.

2.2.1.5 Alternative- ESH-1

This alternative offers a central label in the center of the axis of Shi Agnon and Levi Eshkol. Its advantages are concentrated in that it Allows good vehicle accessibility to lots and yards. Its disadvantages are reflected in the effect on trees exist in a separate area, guaranteeing a low priority for the Rkel due to the crossing at the Levi Eshkol/Agnon intersection within the intersection and small traffic radii at the turn of Shi Agnon/Eshkol and Einstein/Eshkol.

2.2.1.6 Alternative- ESH-2

This alternative is an alternative that combines a north side crossing on Shi Agnon St. and a southwest side crossing on Beloi Eshkol which becomes a central label with the encryption along it. The advantages of the alternative are concentrated in the movement response it gives to the intersections. Its disadvantages are that it damages the existing trees along the street.

2.2.1.7 Comparing alternatives for the intermediate stage and choosing a preferred planning alternative-

ESH 1 alternative, which includes a central label, has a significant advantage for producing an interface with lateral activity and allowing access. Land designations are planned on both sides of the street including future plans that are being promoted for the evacuation of Sde Dov. This route will not limit future planning, so this route is better.

ESH 2 alternative has several advantages, especially for crossing the route outside of roads and intersections busy, but these advantages are less compared to the urban consideration of allowing urban development on both sides of the street inclusive. Outside activity and access to lots on both sides of the street.

In addition to the considerations mentioned above, the Municipality of Tel Aviv Jaffa objected to the implementation of side markings in this section for reasons of future planning of the Sde Dov complex.

Based on these considerations, the planning team recommends promoting the ESH 1 alternative as the preferred alternative.

2.2.2 The area of the security facility, the crossing of the Ayalon and the area of the fair center-

At the Haim Levanon/George Weiss intersection, the Green Line route turns east while crossing the Ayalon and Tawai routes Israel Railways.

According to the TMA alternative, the route continues from the intersection along Weiss St. and crosses the Ayalon crossing diagonally on

A bridge with a length of about 1,050 m, bypasses the fair center complex from the north along Isaac Ramba St., and from there continues along the Shitrit Bakor axis. This alternative does not create a connection to Israel Railways at the university station, a connection that is most necessary in creating an effective IT system. Based on this, the planning team decided on an examination of additional alternatives more efficient from an engineering and urban point of view, for crossing the security facility area and crossing the Ayalon. During the formulation of the planning in this section, 2 additional alternatives were considered for moving in the area of the security facility and crossing the Ayalon lanes and the fairgrounds area.

Below is the presentation of the tested alternatives:

2.2.2.1 The TMA alternative-

The alternative offers the labeling according to TMA 23/a/4 in which the route continues north from the fair center near the ramp Isaac. The continuation of the planning in the bridge up to the passage over the Rocha Shetrit intersection with a length of about 1,050 m to cross Ayalon routes and there is no direct interface between the green line and the Israel University train station and this is one of the main disadvantages of this alternative. Another noticeable disadvantage is the bridge label, which is about 1 km long and 14 m high, an element that will negatively affect the urban and scenic aspects. The advantage of this alternative is manifested mainly by moving away from the fence of the security facility.

2.2.2.2 The alternative to fairs-

In this alternative, the route of the Green Line continues from the Lebanon/Rosenfeld intersection in a southeast direction, in a depression below the hill Monis, which connects to a bridge about 500 m long. This crossing stands over the Ayalon and allows a connection to the station The University of Israel Railways and the Fair Center. The advantages of this alternative are reflected in good connectivity to Israel Railways and the entrance to the fair center and with lower engineering complexity compared to the TMA alternative, because

Construction of a shorter bridge over the Ayalon lanes. The disadvantages of the alternative are damage to the existing ecological values in the mound Munis and the Ministry of Defense's opposition to this designation because of its proximity to the building they own.

2.2.2.3 Shalom Rosenfeld alternative-

In this alternative, the LRT ,continues from the Lebanon/Rosenfeld intersection in an easterly direction sinking below the connecting Rosenfeld Street for two bridges with a total length of about 500 m. This crossing also allows a connection to the university train station Israel and the fair center. The advantages of this alternative are reflected in good connectivity to Israel Railways and the entrance to the fair center and avoiding ecological and archaeological damage to Tel Monis. Approval of the Ministry of Defense for an alternative This (and opposition to the other alternatives) tipped the scales in favor of choosing this label.

2.2.2.4 Comparing alternatives and choosing a recommended alternative-

The alternative promoted in this section is the Shalom Rosenfeld alternative, and this is because the considerations of the Ministry of Defense were a factor Decisive in choosing the alternative to be promoted. The alternative is the only one that received the approval of the Ministry of Defense, this one In addition to its significant environmental benefits in that it does not harm ecological values and the archaeologists found at Tel Monis.

2.3 Examining micro-alternatives for the track layout-

In general, the light rail is planned to pass in the center of the streets where the route passes. Central labeling has advantages in this that it creates a street section where it is easy for the traveler to find his way around the space, serves both sides of the street equally, and Allows vehicle access to border lots without interruption. At the same time, in areas where delineation is central ,created significant physical problems in locations where the function of the street was asymmetric, or implementation was not possible Geometric of certain turns, side labels were also considered, and this only on the condition that the existing entrances to the lots were are few and thus such an indication did not harm their function.

In this chapter we will present all the sections in which the non-central label was chosen and the reasons for this choice. In addition The sections in which the LRT label is planned for sinkholes and bridges and the relevant alternatives will be presented.

2.3.1.1 Einstein Street crossing Namir Road-

This section includes Einstein St. from the intersection with Derech Levy Eshkol (inclusive) to the intersection with Haim Levanon St. (not inclusive). The LRT route is regulated as a central route between the general traffic routes. 3 alternatives are presented for this section which were rejected outright and 2 planning alternatives that focus on the crossing of Derech Namir: -

A. AlternativeH1 The Rkel crosses the Namir intersection at ground level-

This alternative outlines theLRT at ground level and the crossing of the Namir junction is also carried out at ground level. The disadvantages of the alternative are expressed in the fact that the station is located between the intersection with Levy Eshkol Street and Derech Nemir In a way that is distant from the future commercial development west of Levi Eshkol and in a way that creates long walking distances For users of a preference axis in Namir. In addition, the functioning of the nodes according to this alternative

is not satisfactory due to the difficulty. By giving priority to the LRT, at the Einstein Namir intersection which is the main connection to the Ramat Aviv neighborhood, where traffic volumes are large, including in the left turns. The advantages of the alternative are the simplification of execution steps and the reduction of costs and good accessibility for lots and parking lots.

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B. Alternative H2 Subsidence of the LRT route at the Namir junction -

According to this alternative, the LRT route passes through the Namir junction, the station is planned at the intersection with the axis of preference Benmir, in the underground under the intersection. The advantages of the alternative are traffic priority for the LRT at the intersection and conservation of the movement function. The disadvantages of the alternative are damage to the streetscape, the financial costs necessary for implementation and the complexity of the execution stages.

Comparing the alternatives and choosing a recommended alternative

In this segment, the significant movement advantages of the H2 alternative which offers a sedimentation, of the LRT in the axle, stand out. Einstein and station location with high location efficiency in the immediate meeting with the axis of preference in Namir. This is also an alternative that improves the train route and enables the location of a station on a flat route. In addition, the light rail route will cross the intersection with full preference, without delays at the intersection and without canceling movements at the Namir intersection, which is a especially busy intersection.

2.3.1.2 Chaim Lebanon Street, University Station-

This section includes Einstein Street starting from the Brodsky intersection, and Haim Lebanon Street along its entire length. For this segment 3 Planning alternatives:

A. Alternative H1 the middle sign on Haim Lebanon Street-

In this alternative, the middle marking of the Rcal is planned on Einstein St. and Haim Lebanon St., when the station is located on Einstein Street because of a greater right of way on this street. The advantages of the alternative are good accessibility to the lots and yards. The disadvantages of the alternative are damage to access to the university due to the need for pedestrians to use the crossings. Crossing, low accessibility to stations from footpaths and bike paths, bad geometry of turning radii from St. Einstein to Chaim Lebanon and more.

B. Alternative H2 the eastern side marking on Haim Lebanon Street-

This alternative includes a lateral (eastern) route on Haim Lebanon St. and a station location at the entrance to the university. In this alternative the station is located in front of Klausner Street, in such a way that passengers/commuters at the station cross one or all of the crossings. They do not cross a crosswalk on their way to or from the university. The advantages of the alternative focus on a strong connection to the focal point. A significant urban area (the university) and high accessibility to the station from paths and bike paths. Its disadvantages are low priority for LRT because of left turns from Haim Lebanon to Einstein, negative impact on existing trees and the scope of expropriations is high from public areas of the university.

C. Alternative H3 The lateral marking on the eastern transport route and turning Lebanon St. into a single axis

This alternative outlines the crossing of the LRT on top of the existing eastern route. For this purpose, the general traffic on Haim St Lebanon will be one-way, from the Einstein intersection towards the south George Weiss intersection. Northbound traffic will be diverted to St. Klausner and Kalchakin and will connect to Lebanon St. at the Tagore Lebanon intersection. The advantages of the alternative are the possibility of location A station in Antio square, high quality of urban space, good functioning of

intersections and minimization of public expropriation areas. Its disadvantages are that Lebanon Street becomes one-way and loses its function as a gathering axis, a negative effect on Existing trees, low junction function, need to expand the Lebanon Kalchkin Tagore junction (makes it somewhat difficult- -

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about the statutory availability), distance from the entrance to the university on Klausner Street and damage to public traffic For those coming to the university.

Comparing the alternatives and choosing a recommended alternative

H2 alternative stand out , which combines the Rakel station in front of Klausner Street and outlines the the .east side of Haim Lebanon St

The university station is defined in the master plan for ITN as the main station, the location of the station creates continuity functional with the source and main destination of the trips and allows to expand the platforms of the station, which is busy along the route, depending on the need.

In the movement aspect, there is a disadvantage to this alternative in guaranteeing priority to the LRT . Therefore, this alternative was improved by canceling Left turns from Lebanon St. to Einstein St., which are answered at the Haim Lebanon and KKL-Junk meeting. This change makes this alternative the most preferred.

2.3.1.3 through Rokah

This section extends from the fairgrounds station to the connection with Bekor Shalom Shetrit Street. The LRat the fair station It is planned to go over a bridge following the previous section and crossing the Ayalon. Examining the alternatives refers to the manner The passage on Rokah Street.

There are 3 planning alternatives for this section:

A. AlternativeYR-1

The LRT with a central sign, in the center of Sderot Rokah. It requires a change of the southern route, the demolition of the Holki bridge Foot and tear of part of the gas station area south of theRokah The . advantages of the alternative are reflected in the interface with The fair center and low complexity of execution stages, compared to the TMA alternative. The disadvantages of the alternative are The major changes in the section of the street such as the change of the southern route in Roch, the demolition of the pedestrian bridge, the execution of a commissioner A bridge and supporting walls between the tracks and more.

B. AlternativeYR-2

In this alternative, the LRT is signposted south of Sderot Rokah, next to the road. The advantages of the alternative are reflected ,In the interface with the fair center and low complexity of execution stages compared to the TMA alternative. Disadvantages of the alternative are reflected in the partial but significant evacuation of the gas station south of Rokah St., in that the route is blocked the entrance to the gas station and other entrances to the parking lot, when right turns will be made at the traffic light and more.

C. Alternative .YR-3

The alternative is offered by the LRT label on the border between the fairgrounds and Yehoshua Gardens. This alternative does not harm ,Pedestrian crossings are planned at the gas station and within it which will connect the two complexes. Advantages of the alternative Many of them we will emphasize not to damage the gas station, the pedestrian bridge and more. The disadvantages of the alternative are Its relative distance from the centers of street life and the activity on its side of about 80 m, and the need to build a crossing bridge Under the battery of the Israel Railways (branch to Bnei Brak).

Comparing alternatives and choosing a preferred planning alternative

The planning team recommends the YR-3 alternative as the preferred alternative because of its priority in terms of its physical availability of the planning field and its low impact on existing open spaces. It should be noted that if the conditions materialize The following aggregates have priority for the YR-2 alternative:

- (1) Programming for evacuating the gas station,
- (2) Planning to pass under the existing railway bridge (with a significant reduction of sidewalks and bike paths),
- (3) The programming for the expansion of the park to Rokah and the construction of a multi-functional underground parking lot that will serve the park, the fair and convention center and the transportation center LRT (Israel Railways / .

2.3.1.3 Bachur Shalom Shetrit Street-

This section begins near the Rokah Bekor Shetrit intersection and continues east to the Pinchas Rozen Raul Wallenberg intersection (no including the intersections themselves), along which the Hadar Yosef Stadium station is planned.

It should be emphasized that the examination of the alternatives for this section took into account the way it is connected to the section of the fair center, In accordance with the recommended alternative in that section, when the route passes about 200 meters east of the Rokah/Bakur intersection– Shalom Shetrit.

The examination of the alternatives along Bekor Shetrit St. focused on 2 planning alternatives: -

A. Alternative RH-1

In this alternative, the LRT is planned to pass through a central sign. Its advantages are that it allows accessibility for the fields and parking lots of the National Sports Center, allows a convenient geometric route with a maximum length In stations and operational areas, there is no effect on existing open spaces The disadvantages of the alternative are the effect on Existing trees, the station north of the Hadar Yosef Stadium (the stadium station) requires the sports center on the island National to cross traffic lanes and obliges the residents of the neighborhood to walk a long way in a traffic block between the pedestrian bridge Habit to the station area, need to expand the right of way and expansion to the sports center areas and impact on public areas and incompatibility with the preferred alternative at the intersection with Pinchas Rosen Street as will be detailed later. In addition the route Connects further to the planned Pinchas Rosen crossing south of the intersection due to the existing subsidence of Shitrit Street in Kor (and continued as Raul Wallenberg) in the center of the road, as detailed below.

B. Alternative RH- 2

This alternative offers a southern direction of the LRT It creates a connection between the stadium station and the stadium complex Hadar Yosef. The advantages of the alternative are that it does not affect existing trees, increasing the potential The addition of trees and open spaces, integrates into the life of the street and the activity on the side of it, allows good accessibility to the stations, with an interface with footpaths and bike paths, integrates with the way of crossing the proposed Pinchas Rosen intersection

in the east Its shortcomings are reflected in the fact that there is an impairment in the accessibility of vehicles to sports fields which It will be done with a traffic light instead of right turns, with the need to expand the right of way and expand to central areas The sport and its impact on public spaces and the fact that it affects existing open spaces.

Comparing the alternatives and choosing a recommended alternative

After examining and evaluating the alternatives and summarizing the criteria scores given to each alternative, it can be said that the alternative RH2 has advantages in the urban and scenic aspects and in terms of execution stages. This alternative additionally integrates in a better way with the lateral alternative of the fair center section and the adjacent Pinchas Rosen station section.

On Shitrit Street in the northern part there are large sycamore trees that distinguish this section. These trees are owned Great cultural and historical value and should be preserved as much as possible. The RH2 alternative is also better in this regard than its predecessor Because of its passage in the southern part of the street and hence it does not harm the trees.

2.3.1.4 Pinchas Rosen Crossroads performing Kadesh Bachur –Shetrit - Raul Wallenberg

This section begins in front of the Pinchas Rosen intersection, on Bakor Sheetrit street, and continues to the Mishmar Jordan intersection, on Raoul Wallenberg. This is a relatively short section (about 540 m) and it refers to the area between the two intersections and the sedimentation area existing for the car. This intersection is the intersection connecting two Matan lines, the green line and the yellow line, hence its importance A lot of the intersection in creating good and convenient connectivity between the two lines.

This section constitutes the most complex section for the passage of the Rkel and the examination of the alternatives in which it concentrated on 6 alternatives-

Different planning options :

A. AlternativeRH-1

This alternative refers to a central sign on Bekor Shetrit Street and Raul Wallenberg. The existing subsidence for the vehicle is cancelled and in its place, a new subsidence is carried out for the benefit of the LRT The station is proposed to the west of the intersection at the level of the subsidence. Advantages . The alternative is to utilize the existing passageway to the car and turn it into a vestibule for the LRT The disadvantages of the alternative are complexity High execution stages resulting from the demolition of the existing settlement and its transformation into a LRT settlement and the construction of a station at a low level In subsidence, traffic problems at the intersection as a result of canceling the existing subsidence for the vehicle, drainage problems at a low level from a stream Yarkon and the expansion of Bakor Shitrit Street at the expense of the area touching the bend of Nahal Yarkon and more.

B. AlternativeRH-1A

This alternative offers a central sign on Bekor Shetrit St. and Raul Wallenberg. The existing subsidence for the vehicle is cancelled And in its place, sedimentation is carried out for the benefit of the LRT while trying to partially maintain the existing sedimentation with changes to be adjusted to the dimensions of the LRT's gauge. A deepening of the existing depression and a new drainage solution will be required. It will not be placed /A station in the existing depression, but about 200 meters east of the Raul Wallenberg Pinchas Rosen intersection. The advantages of the alternative are Partial utilization of the existing transition to the car and turning it into a vestibule for the LRT The disadvantages of the alternative are. the complexity of the steps high performance resulting from the demolition of part of the existing settlement and its transformation into the LRT settlement, distance from the Green Line station from the yellow line station in a way that affects the functioning of the transition between the two means of transportation, traffic problems at the intersection as a result from the elimination of the existing subsidence for the vehicle, drainage problems at a low level from Nahal Yarkon and the expansion of Bakor Shitrit Street on The account of the area touching the bend of Nahal Yarkon and more.

C. Alternative .RH-1D

This alternative also offers a central sign on Bekor Shetrit St. and Raul Wallenberg, but it maintains the subsidence existing by lowering the standard to a gauge of 4.00 m with the exception of the demolition of the eastern portal and making a station on the levels. The station is proposed east of the intersection in an open portal. The advantages of the alternative are connectivity to the future yellow line to pass

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At the intersection, a high traffic function at the intersection allows pedestrians to cross to the designated Dan complex in the northeast for intensive development. The disadvantages of the alternative are traffic problems at the intersection as a result of work on portals and subsidence, Drainage problems at a low level from Nahal Yarakon, widening of Bakor Shitrit Street at the expense of the area touching the bend of the stream Yarkon.

D. Alternative .RH-2

This alternative is offered by the lateral (southern) markings on Bekor Shetrit and Raul Wallenberg streets Crossing the intersection will be In a level separation, in a bridge over Mefez Kadesh Street. The proposed station is planned at a height of about 10 m above the existing land. The advantages of the alternative are maintaining the width of Wallenberg St. thus avoiding damage to the park, when The physical disturbance is reflected in the points of the bridge pillars only, optimal junction function, good connectivity to the line An additional route passing through the yellow line area and flexibility for future extension or changes along the route. Disadvantages The alternative is an impact on existing trees as a result of expanding the route towards the park, high visibility of the bridge which blocks views and conflicts with existing buildings in the park, the demolition of buildings is necessary.

E. Alternative .RH-2A

The alternative suggests delineating the LRT axis south of the intersection, at the crossing under the Kadesh operation road. The proposed station Designed with a subsidence of about 5 m in relation to the existing ground surface. The outstanding advantage of the alternative is that it Enables good movement function at the intersection. The disadvantages of the alternative are that it requires the diversion of Nahal Yarkon In the Naftul area, drainage problems due to the level being lower than the river level, low interface with the yellow line, cost Execution and complexity of execution stages.

F. Alternative .RH-2B

This alternative was tested in order to reach a solution without level separation of the train. The alternative suggests drawing the axis The LRT is marked on the side south of the intersection, on the surface of the ground. In this alternative, it is proposed to plan the station at level The land, to the west of the Kadesh road. The existing subsidence for the vehicle remains. The advantages of the alternative are expressed in the fact that it Allows good accessibility to stations from paths and bike paths at road level. The disadvantages of the alternative are that ,which requires the cancellation of several turns at the intersection requires detours to be marked in order to satisfy the cancellation The movements at the intersection, the widening of Bakor Shitrit Street at the expense of the area touching the bend of Nahal Yarkon and damage in existing schaphs.

Comparing the alternatives and choosing a recommended alternative

From studying the comparison of the alternatives, it was found that theRH2 alternative is the preferred alternative in light of its movement advantages, in that it gives priority to the LRT and does not affect the busy intersection. This alternative has an engineering advantage in that it. It does not require the demolition and reconstruction of the existing settlement for the vehicle that is not suitable for passing through the LRT in the first place Because of its size. In the environmental aspect, this alternative offers

only columns next to the Yarakon stream and does not harm the stream, Compared to other alternatives that require the expansion of the intersection and are a potential for damage to the stream. This alternative was coordinated with the planning of the yellow line and was found to be a better alternative also in terms of the transition between the reference lines.

2.3.1.5 Raul Wallenberg St. from the Barzel intersection (including) to the Deborah Hanavieh intersection-

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This section serves the Ramat Hay'il employment area, while south of the Raul and Lenberg axis are located areas Industry/employment with an affinity to the street (such as entrance to parking lots and lots) and north of the Raul Wallenberg regional axis Residential, with no connection to the street, in most of the section there is a barrier that separates the street from the residential areas. There are 3 planning alternatives for this segment:

A. AlternativeRH-1

This alternative outlines theLRT in the center of Raul Wallenberg Street. The main expansion is as a result of the addition of theLRTon the street It will be north in the direction of the Shchap. The advantages of the alternative are reflected in the creation of a good quality of the urban space and by the fact that it does not produce inaccessible closed areas. Also in this alternative the horizontal marking is very good ,Minimum radius. The disadvantages of the alternative are a negative effect on existing trees low physical availability of The field of planning and the fact that it requires a large scope of expropriations including evacuations and demolition of existing buildings (given within A certain compromise in the indication to avoid the demolition of buildings(.

B. AlternativeRH-2

This alternative has a lateral marking on the north side of Raul Wallenberg Street, when the cross section of the street is preserved and the train .The relief is an expansion at the expense of an existing street The northern one due to connectivity to the previous section (section 7, Bekor Shetrit Street) which outlines the Rkel on the south side of the street The advantages of the alternative amount to good flexibility for future extension or changes along the route. Disadvantages of the alternative are a poor connection to urban centers, requires a large scope of expropriations, including evacuations and the demolition of existing houses, requires moving from one side of the street to the other while incorporating low radii, Harms a well-developed public transport network, keeps theLRT stations away from the employment area and more.

C. Alternative RH-3

This alternative offers the route south of Ramat Hay'al and actually "bypasses" it. The light rail is routed on the side South to Barzel Street, on a detour route near Yarkon and "returning" to Raul Wallenberg Street via Hanoshet Street. In this alternative, there is an additional station at Assuta Hospital, compared to the alternatives- RH-1, RH-2. The advantages of the alternative are reflected in the fact that this alternative alleviates the problems of evacuations and demolition of buildings in the section between. The Iron and Copper Crossroads, this marking allows a connection on foot between the Matan Station and the Israel Railway Station in Bnei Brak And by the fact that it creates good connectivity to a significant urban center at Assuta Hospital. Its disadvantages are an interface that is not Good with side activity and damage to the future possibility of developing an active side towards Yarkon Park, not a good interface with ,Other roads the extension of the route and twists along it.

Comparing the alternatives and choosing a recommended alternative

From studying the comparison table of the alternatives it can be concluded that in the movement and engineering aspects there is an advantage to the alternative RH-1 over alternativeRH-2 in that it does not move the stations away from the employment area and does not require a transition from one side of the street to the other side while damaging a developed public transport network. It also has an advantage in

the urban aspects in that which allows a good interface with paths and bike paths, has a better connection to urban centers and allows better orientation in space.

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RH-1 alternative is also superior to the RH-3 alternative in that it creates an orientation of the LRT axis along Raul Street Wallenberg and allows for a better interface with other activities and public relations.

2.3.1.6 Extension of the extension to Herzliya

The examination of the alternatives in this area refers to the alternatives that were examined in the south from the area of the municipal border between Herzliya to Tel Aviv and up to Abba Even street in the north. The total length of the examined section is 2.4 km out of the 6 km of the extension the whole Most of the section is currently unbuilt and planning alternatives were examined in accordance with the "Blue Coast" plan and the industrial zone The western part of Herzliya, the 2200 mountain plan, where it passes . In this section, four alternatives for the outline were examined:

a. HERZ -1 central label-

In this alternative, the route continues the typical markings in the Tel Aviv-Yafo area. The LRT stations are located nearby To the commercial and employment center southeast of the intersection with Altneuland Street, and in the vicinity of the North Garden and the Garden the southern The advantages of the alternative are reflected in the fact that the route is continuous and continuous to Ibn Gvirol Street and the sections predecessors, without the need for side-to-side halves that create additional conflicts, easy accessibility of vehicles, including Emergency for lots and parking lots and providing equal service to both sides of the street. No disadvantages were found for this alternative significant.

b. HERZ -2 central label with spine

Similar to alternative 1, the LRT route remains central, but the change is in a cross-section that includes a pedestrian and bicycle path In the center of the street which separates the two directions of the track, so that the tracks are on the outer sides of The pedestrian street and near the travel lanes. The LRT stations are located near the commercial and employment center to the south East of the intersection with Altneuland Street, and close to the North Garden and the South Garden. The advantages of the alternative are route Continue straight to Ibn Gvirol Street and previous sections, without the need for side-to-side intersections that create conflicts Additionally, convenient vehicle access, including emergency vehicles to the lots and parking lots, good accessibility to the LRT stations and increasing the space for the pedestrian. The disadvantages of the alternative are manifested in a certain damage to the extent of the commercial function due to Pedestrian and cyclist traffic separated from the commercial facade. Another disadvantage is the separation of the rails Creates duplication of elements: such as power poles, electricity and communication.

c. HERZ -3 side label

An alternative that goes from the central marking to the side at the municipal border between Tel Aviv-Yafo and Herzliya. The route continues On the east side, along the entire extension north until just before the Abba Even junction, where it goes back to the central sign. The LRT stations are located near the commercial and employment center southeast of the intersection with Altneuland Street, and distant from the southern garden and to a certain extent from the northern garden. The advantages of the alternative come down to the pedestrian space which is perceived as more extensive, with good accessibility of the LRT to the planned depot without the need for an intersection and without the crossing of vessel traffic vehicle. The disadvantages of the alternative are the need to widen the right of way because of right turns that cross the LRT Asher will be dealt with through rim zones and regulation of exclusive lanes, damage to vehicle accessibility to lots and yards, parking on the side only one of the street and damage to the interface with wall activity on the west side of the street.

d. HERZ -4 the label changes

The delineation in this alternative begins as the western side at the municipal border between Tel Aviv-Yafo and Herzliya and then, On Altneuland Street, the route passes through a traffic circle on the east side, and continues on the east side until just before the Abba intersection stone, in which it moves back to a central notation. The LRT stations are located near the commercial and employment center Southeast of the intersection with Altneuland Street, in immediate proximity to the South Garden and in some proximity to the North Garden. The advantages of the alternative are expressed in the fact that the alternative on the east side will allow access to the depot on this side without an intersection. A traffic crossing, in the area of the Blue Beach, the marking on the west side will allow optimal vehicle access to the employment area. From the east (all the intersections are a cross), the pedestrian space is perceived as wider. The disadvantages of the alternative are the crossing. From west to east it will be carried out in a wide traffic circle at the Altneuland/ Leibovitz intersection and it will include 4 signalized intersections which will be coordinated with a green wave. The operation of the traffic lights is expected to be complex and complicated due to the need to give preference. Full to the LRT parking will be arranged on one side, of the street only, need to expand the right of way due to right turns. Crossing the LRT which will be, dealt with by means of traffic lights and the regulation of exclusive lanes, damage to vehicle accessibility. For lots and yards.

Comparing the alternatives and choosing a recommended alternative

In the complex of aspects of engineering, movement, geometry and operation, alternative 1 (the central label) is the alternative preferred. This alternative allows optimal accessibility (to the car, to shuttle stations, to an emergency vehicle) and is preferable. In terms of traffic planning at intersections. This alternative allows future flexibility for the development of the nodes and construction in the plan " Azure Beach", as well as priority in aspects of rail operation. In the urban aspects, alternative 3 (side) is similar and alternative 4 (changes). These alternatives slightly exceed the main alternatives in reference to the urban uniqueness, and to the quality of the urban space (visual continuation of the LRT as part of the sidewalk). However, from the analysis of the continuous space. For the urban side, it appears that the central alternative is preferable, and it allows for adaptation in a way that creates parking bays. Along both commercial sides, something that improves the functioning of the commercial street.

Based on the evaluation of all the considerations, the planning team recommends to plan the LRT in the Herzliya section according to Alternative 1 which includes the central label. At the same time, in discussions held with representatives of the municipality of Herzliya, representatives expressed. The municipality expressed their unequivocal preference for the lateral alternative, while understanding that this would require a significant limitation of. The detailed planning of the Har/2200 neighborhood. In light of the understanding that the project should serve the served population. It was decided by the local authority (Herzliya) to promote the alternative requested by it.

The promoted alternative is the HERZ-3 alternative with the eastern side label.

2.4 Examining alternatives to the intensity of construction at the depot

In the northern section of the Green Line, a depot (maintenance, operation and parking center) is planned west of the planned "Rav" interchange. Makar" and north of the Altneuland road, which connects the interchange and roads 2 and 20 with the marina area of Herzliya. The entrance and exit from the complex will be through dividers directly to the route of the LRT that runs along and on the east side of Yeshayahu Leibovich St.

This section presents the principles and planning considerations that were tested for the alternatives that were proposed for construction within the depot area.

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2.5 Examining alternatives for the location of organizing sites

The area of the organizing sites will be used for the construction of temporary buildings and facilities necessary for the establishment of the including engineering buildings, buildings for the service of the employees and the administration. Any area of a strip can be used The Ian and the Road as organizing areas. The planning team recommends the establishment of sites spread over an area of approx. a 2 dunam and more at distances of 1.5--2 km between sites, and an end site (the end of the line) measuring about 6 dunams.

During the permit phase, the contractor will select, with the approval of the relevant authorities, an area intended for on-site location Organizing from the places suggested above and within the blue line of the program. A total of 15 sites are offered organization. Details about these sites appear in section 2.5 in the body of the review.

Chapter III Description of the proposed plan

3.0 general

The Green Line is part of the metropolitan urban system operated by the light rail train technology (LRT-light rail train) of the Matan network. This system incorporates the best of the latest technologies in planning The infrastructure and the cars. A modern light rail system is a rail system, which is usually separated from traffic The general road requires its own right of way and has absolute priority at traffic lights.

The northern section of the Green Line, planned as part of the light rail project in Tel Aviv, begins at the center of St. SH Agnon in Tel Aviv and ends in two branches, one in the Ramat Hay'il employment area and the other in the employment area the western part of Herzliya.

This survey refers to the components and facilities along the line from the Agnon/Levi Eshkol street intersection onwards, on two "its branches In the first phase, before the evacuation of the "Sheda Dov airport, the route will continue north along Levy Street ,Eshkol until the Levy Eshkol/Einstein intersection where the route will turn east along Einstein St To the Einstein/Chaim Lebanon street intersection. On Haim Lebanon Street the route will turn south to Shalom Rosenfeld Street and from there it will turn east on Shalom Rosenfeld Street at the sunset and then on the bridge over the Ayalon lanes, with a connection to the station The university/fairgrounds of Israel Railways, up to the planned "Park" station near the fairgrounds. Continued The route to Ramat Hay'il includes a passage on Bekor Shetrit and Raul Wallenberg Streets to Neve Sharet.

In the second phase, after the evacuation of Sde Dov, the line will cross the airport area along the route Continue to Ibn Gvirol" until" to the intersection with Einstein Street and from there to the east as described above. According to the plan at a later stage, continue The extension to Herzliya from Einstein Street to the intersection of Rehovot Naomi Shemer/Aba Even in the Western Employment Center of Herzliya.

3.1 The permanent components, infrastructures and facilities along the route

In this chapter, the engineering criteria for the design of the LRT railway and for determining the width of the railway, height and level are detailed The rail, rail welding, minimum radii, gradients, measures to dampen vibrations and more.

3.2 Stations and facilities along the route

In this chapter, an overview and a brief description of the stations along the Green Line will be given. The planning of the stations and their location along the length The route was made with an in-depth examination of the range of their urban influence in the space.

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A total of 8 stations are planned along the section in the central section, 6 stations in the extension to Ramat Hay'il and 12 stations in the extension to Herzliya. Also, out of the total of 26 stations along the entire northern section of the Green Line, 3 stations are defined as main stations. The distance between the stations is about 500 m in a dense urban environment and about 1000 m at the crossing of the line in the open areas.

In the area of the program there are four types of stations:

1. Parallel station A situation where the track passes between the two platforms, which are opposite each other on both sides. -
2. A station attached to the sidewalk, a situation where at least one of the platforms fits into the existing sidewalk, and the track passes between the two platforms facing each other on both sides.
3. A sunken station A station located below street level. –
4. A station on a bridge A station located above street level. –

In addition, this chapter presents simulations of the road structures within the scope of the program:

1. Einstein/Namir intersection,
2. The LRT settlement on Shalom Rosenfeld Street ,
3. The Ayalon crossing bridge,
4. Sderot Rokah Crossing Bridge,
5. Pinchas Rosen Bridge.

3.3 Energy systems, related infrastructures, infrastructures and emergency systems

This chapter presents the principles of the lighting systems (internal, external and emergency) that will be used in trains the intended reliefs.

In addition, the chapter presents the layout of the technical rooms planned along the route of the LRT . Along the northern section 13 technical rooms are planned, which are usually located underground in open space available nearby the route A technical room includes the necessary functions of power supply to the line and stations, control and communication to operate the transportation systems. Below is a table with the list of rooms according to their planned location.

Technical rooms along the track route

room number	Cut no	location
central section		
15	16+500	Northwest of the SH Agnon/Levi Eshkol intersection

16	17+940	Near the Einstein/Namir intersection
17	19+840	Rosenfeld Portal
18	20+440	Towards the end of the Ayalon crossing bridge
Extension to the Ramat Hahayal		
19	21+280	Northwest of the railway
20	22+800	East of Pinchas Rosen intersection
21	24+200	North of the railway
Extension to Herzliya		
22	26+120	Sde Dov area
23	27+500	East of the railway
24	29+460	West of the railway
25	30+640	East of the railway
27	31+900	East of the railway (depot area)
26	32 + 720	West of the railway

This chapter also presents the electrification system for the green line, which is an overhead electrification system, which contains Launch cables and contact cables carried by individual struts(cantilevers). The cables are neither supported nor Nowhere connected directly to buildings or structures along the rail corridor. The driving force(voltage) is 1,500 volt in direct current. This choice of the driving force level allows lower drag currents, and as a result As a result, the diameters of the cables are smaller, less visible and cause less associated electromagnetic interference to the electric current.

3.4 Description of the depot plan

,The depot complex is actually a kind of "factory" that includes many operations: car maintenance washing, sand filling, housing and storage areas. The design of the complex will match the shape of the production line" process, in order to create a flow of processes" Flowing without interruptions or unnecessary train movements. This type of planning allows for the best treatment in the frame the shortest time.

The depot complex will be built on the western side of the future "Rav Makar" interchange on road no. 2 and 20, north of the road Altneuland and east of the line's route, along Ishayahu Leibovich St. Make a rectangle shape. The entrance to the complex And the exit from it will be through dividers that will connect the route of the line (north-south) on the northwest side of the pitch The activity at the Herzliya ,depot will be reduced to light activity only, which includes, as mentioned, washing, filling with sand handling Washing and maintenance and housing.

The depot complex includes the following buildings and facilities:

- (1) Housing area,
- (2) maintenance buildings, easy maintenance, -
- (3) sand dispenser,
- (4) washing facility,
- (5) Control and control center,
- (6) management structure,

(7) Security.

Extended information regarding the depot plan is detailed in section 3.4 of this review.

3.5 The mobile component of the train-

This chapter details the technical parameters according to the updated design standards of the National Disaster Response Force, as of the stage That of the design of the light rail, which includes types of wheels, brake system, speeds and noise level from mobile equipment.

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1.6 Rail laying works

This chapter deals with several sub-topics:

3.6.1 Relocating existing infrastructures and laying the required infrastructures-

The green line in the northern section runs along existing roads along which there are many infrastructures and in fact all of them ,The accepted urban infrastructures: electricity, water, sewage, drainage communications, traffic light control, lighting and irrigation.

The execution and construction of the light rail project necessarily requires excavation of the railway structure as well as a geometrical change The roads, i.e. the adaptation of the urban section to a new situation both in linear sections and in special areas such as Stations, bridges, energy rooms, etc.

We note that along most of the route infrastructure will be moved. Exceptionally, the branch area to Herzliya in areas no Buildings in which there is no dense infrastructure yet.

Due to the need for a sterile strip of infrastructure lines, all the infrastructures will be copied in theLRT strip. Copying the infrastructures It will be carried out by means accepted for underground infrastructure works in the city, namely the use of excavators and excavators ,for pipeline laying works in the streets while partially or temporarily closing the work route.

Also, this chapter presents the principles for copying and handling existing infrastructures. For example:

- (1) Transverse or parallel infrastructures, located in the corridor of the railroad's road area, will be copied and treated which is 9.40 m wide along the track and 12.50 m at the stations/intersections.
- (2) Parallel or cross piping will be concrete orPVC. If it is required to plan steel piping, a wrap will be performed Appropriate internal and external with the addition of appropriate cathodic protection.
- (3) ,Outdoor infrastructures will be moved at a depth not less than 2 m from the level of the top of the strip and this in order to allow the passage of of electrical and communication systems needed to operate the train.

3.6.2 Treatment of contaminated soil

This section deals with places, businesses and sites that are located along the light rail route in the .northern section ofThe green line and their surroundings are suspected of soil contamination potential The section is based on the historical survey that appears in the section

1.3 to review.

According to the historical survey, the potential of the suspected contaminated land is focused on the following places:

1. Along the central section at the "Delek 3 Site" of the Electric Company, tangent to Yarkon Park on its southern side of Rokah Ave.'s axis, in front of the main entrance to the exhibition grounds and the strip of fuel lines that led to and from it.

2. In the Sde Dov area, on its civilian and military parts, individual soil tests will be necessary, after its evacuation the planned
3. Two gas stations, "Paz .Yarid Katana" and "Paz Yarid Biga" located along Rokach Blvd-
4. Along Raul Wallenberg St. there are several potential centers, the most significant of which is a garage The main buses of the Dan company located at the Raul Wallenberg Pinchas Rosen intersection. –

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Table 3.6.2.1 shows the centers of pollution from business activity along the segment that have the potential for soil pollution.

In addition to the above, this section presents proposals for soil sampling plans and targets for disposal of excess dirt.

3.6.3 Location of organizing sites-

,This section deals with considerations for choosing the location of organizing sites such as: location accessibility, prevention of hazards environmental and scenic, etc. In addition, the section reviews the components and elements required for an organization website Such as: caravans for offices, parking for ,private vehicles, parking for heavy equipment, garbage containersetc.

3.6.4 Organization website management plan-

The organizing sites that will operate for the purpose of establishing the Green Line will be located in a vibrant urban environment and therefore will be charged meet environmental restrictions. The stages of construction and execution of these sites will be formulated by the contractor who wins the tender. This contractor will be required to submit a supplementary environmental document for the approval of the Ministry of Environmental Protection and the accompanying staff, as a condition for the establishment of the sites.

3.6.5 Temporary and permanent visual rehabilitation-

Carrying out preliminary clearing works and preparing the surface of the street for the arrival of theLRT is an essential principle for effective restoration of a landscape the street These operations are carried out from the outside in, which include the preparation of the sidewalks for the final condition, and the preparation of dividers The actions for temporary rehabilitation during the works will be planned at a later stage in preparation for execution and after selection

The execution contractors will be included in the environmental documents submitted to the accompanying team of the program. The actions for rehabilitation The views will be arranged during the works in accordance with the final visual appearance of the plan area.

Following the actions for visual restoration, this section deals with the importance of preserving trees and presents guidelines for planting trees new ones, according to the NATA company, as appears in the policy document for the integration of trees in integrated urban spaces From an academic paper.

3.6.6 Suggestions for additional necessary arrangements-

Any intervention in a living and vibrant system, such as the establishment of a high-passenger transportation system in the heart of an urban area Congested and busy, affects the functioning of the urban fabric and affects the quality of life of the residents. However, there is Remember that the compensation in the long term may be immeasurably significant compared to the "suffering" in the short term. Although The aforementioned, the entrepreneur must take measures to reduce to the necessary minimum the unwanted consequences originating from the construction works. This section presents these measures.

3.7 Operation and traffic data for the operation phase

This chapter presents the planning data for the number of trains and their frequency, the number of trains per peak hour and the number of trains in the sections

The hours throughout the day and evening for the target year 2030, according to the division into 2 different travel lines: -

- (1) Rokah Street, Aza't Atidim, -
- (2) Rokah Street, Abba Even St., Herzliya. -

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The data appearing in the extension for the Atidim are relevant for the target year 2030, while the data for the extension to Herzliya Relevant for the target year 2040. The data of the number of trains is a derivative of the three service lines that will operate along it of the green line, from north to south.

In addition to the scheduled passenger trains, there are several trains that run on the tracks without the need to transport passengers, but for operational purposes.

During the time between the late night hours and the early morning hours, there is a window of opportunity where there is no traffic Trains travel on the track. This time window is used for ongoing maintenance activities of the track. This chapter introduces the The planning data for the number of trains according to their types that will operate at night.

Table 3.7.1.1 shows planning data for the number of trains and their frequency, the number of trains per peak hour and the number of trains in the time segments throughout the day, evening and night on the two travel lines planned on the route of the northern green line.

The train traffic data that appears in this review is in accordance with the latest operational forecasts of the NTA. Data These change from time to time in accordance with forecast updates, changes in basic assumptions, progress in planning, etc. Because of this There is a difference between these data and train traffic data presented in reviews of the southern and central sections of the line the green As we progress to the detailed planning stage, the traffic forecasts may also be updated and will be updated accordingly The aspects of acoustics (noise and vibrations) and radiation, for all line segments.

Table 3.7.1.1 Train data throughout the day divided into the two travel lines–

hours	Total passengertrains	empty trains to and from the depot	Driving lessons + operation activity
extension to Atidim			
06: 00-07: 00	14	-	-
07: 00-09: 00	44	-	-
09: 00-15: 00	72	-	-
15: 00-19: 00	56	-	-
19: 00-22: 00	42	-	-
22: 00-23: 00	12	-	-
23: 00-00: 00	12	-	-
00: 00-00: 30	6	-	-
00: 30-01: 30	-	6	-
01: 30-02: 30	-	-	-
02: 30-03: 30	-	-	2
03: 30-04: 30	-	-	2
04: 30-05: 30	-	6	-
05: 30-06: 00	6	-	-

Total	264	12	4
Total daytime hours	228	0	0
Total night hours	36	12	4
Extension to Herzliya		-	-
06:00-07:00	12	-	-
07:00-09:00	28	-	-
09:00-15:00	72	-	-
15:00-19:00	48	-	-
19:00-22:00	36	-	-
22:00-23:00	12	-	-
23:00-00:00	12	-	-
00:00-00:30	6	-	-
00:30-01:30	-	6	
01:30-02:30	-	-	-
02:30-03:30	-	-	2
03:30-04:30	-	-	2
04:30-05:30	-	6	-
05:30-06:00	6	-	-
Total	232	12	4
Total daytime hours	196	0	0
Total night hours	36	12	4

3.7.2 Principles for coordination between the LRT system and the existing public transportation system - and planned

There are several means of transportation with many passengers. The system design is one that utilizes the relative advantage of each mean. In order to increase the use of public transportation and transfer trips from private vehicles to it, it is necessary to improve The attractiveness and comfort of the pedestrian passenger. Good connectivity in the transition between the means and planning As one integrated system on the one hand, and friendly planning of the interface points between the integrated system and the tissue The city, while emphasizing the pedestrians, on the other hand, ensure the development of a transportation bias and increase the levels of the accessibility.

Section 3.7.2 of this review presents the principles that will be carried out for the adjustments of the bus route system for planning The LRT system .

3.7.3 Maximum driving speed according to division into segments-

The travel speed of the LRT is usually a derivative of the road route it travels and will be fully adjusted to the geometry of the track, the extent of its curvature and the road conditions.

The route of the Northern Green Line is being prepared to pass through urban sections only, including the extension to Herzliya where it applies A plan has been approved for cell/3700 in the southern part and a plan for mountain/2200 in the northern part is planned.

The guidance of the Ministry of Transport for the speed of the LRT is 50 km/h, and accordingly this will be its maximum speed.

3.7.4 Assessing the changes in traffic volumes along the route-

The assessment of changes in traffic volumes is based on traffic data obtained from the transportation model for the Tel metropolis Aviv (Tel Aviv model) of the Ministry of Transportation, which is an activities model type model. The model was developed by a company " Cambridge Systematics" and is maintained by Netibi Ayalon company by the best experts in the field in Israel. A type model It describes in detail the travel patterns by creating a dependency between the daily trips taken

by passengers and grouping them under one tour. The model includes placing networks in the existing state (2010 network) and changing 2030 ,and 2040. Under the guidance of the Ministry of Transportation this is the mandatory model for carrying out planning works - 2020 future target In the Tel Aviv metropolis, the directive applies to all government and private planning bodies.

The evaluation of the changes in traffic volumes compares two types of data: the future state of the traffic volumes without the green line .and the future state of traffic volumes after the activation of the green line The assessment of changes in traffic volumes compares two types of Data: future state of traffic volumes without the green line and future state of traffic volumes after the line is activated the green line.

,From the analysis of the received data, it can be seen that as a result of the activation of the green line there was a reduction of about 4% in total the entire volume of transport. The amount of private vehicles as a result of the operation of the LRT line was reduced by about 4.5%. On the other hand , The amount of trucks increased by about 35%. The analysis of the data also shows that the number of buses remained unchanged in the absolute majority of the travel segments.

It should be noted regarding the volume of bus traffic in the various sections, that at the current planning stage there is no planning To adapt the bus system to the operating time of the green line. For the purpose of calculating the volume of buses on time The operation was performed an analysis of the volume of .buses during operation in relation to alternative 0 (future situation in which only the line operates) The Red of the Internet (which is based on the following sources: the volume of buses on the matron axis after activation The matron, the volume of buses on Herzl St. in Jerusalem after the operation of the LRT ,line and an initial planning analysis Schematic of the bus system for the time of operation of the green line received from the director of public transportation Analysis of these data indicates that the average volume of buses along the Green Line route is second The operation of the line will be half (50%) of the volume of bus traffic in the 0 alternative.

3.7.5 Location of main stations-

The LRT lines in TMA 23 /a/ 4 create a network with connectivity between the Internet lines themselves and between systems Other public transportation and mainly to the railway network of the Israel Railways, which feed each other. so One of the most significant issues is the determination of main stations at the junction between the reference lines and between the middle ones ,the other public transport in a way that will allow a quick and efficient passage of passengers between them. The location of The stations are determined taking into account various considerations, especially in reducing walking distances, taking into account pedestrians pedestrians and cyclists and in coordination between all the parties that operate public transportation. Station integration First in the urban environment can increase accessibility to it. Expansion is being considered in the planning of the station's surroundings Sidewalks and crossings to enable a more efficient connection between the means of transportation and rapid absorption and dispersion of the immigrants and getting off the bus, including accessibility for cyclists. As mentioned, a "main station" as defined is a station which is located at the meeting place between different Mataan lines and/or between public transportation means and Mataan lines and allowing a transition between them.

The location of the main stations along the LTR route appears in section 3.2 above .

3.8 Presentation of the various works and the execution stages for the construction of the proposed line

The description of the works for the construction of the line is in principle, correct at this stage. A planned schedule will be provided during the detailed planning phase for each step.

The works for the construction of the route will include: excavation of the track strip, laying of communication and electricity lines, construction of pillars Electrification, drainage works, scrubbing and layering of the existing roads. Finally, landscaping, paving, and signage will be done and coloring.

The works include dismantling asphalt and pavements in the area of the route, scrubbing, layering and adjusting the heights of the asphalt or The sidewalks, including copying curb stones or garden stones for adjustments.

Chapter IV Detail and evaluation of the environmental effects -

4.2 Changes in land uses and land designations

4.2.1 Conflicts with existing uses-

The vast majority of the green line in the section in question passes within the road strip of existing and planned roads and therefore ,It usually does not create conflicts with existing land uses. At the same time there are along the route of theLRT A number of different buildings that create a conflict with the route of the LRT which require a change in planning or alternatively , Evacuation/demolition to produce the planned route.

Table 4.2.1.1 presented in the body of the review shows the conflicts that arise between theLRT labeling and useful ground.

4.2.2 Limitations on land uses and designations-

The route does not create restrictions on land uses or designations, since the overwhelming majority passes within the area of the road strip of existing or approved streets, except for the issue of canceling or adding parking spaces along the route, shown in section 4.2.3 above.

4.2.3 Changes and restrictions on roads and parking lots-

The train route does not impose restrictions on existing roads with the exception of new traffic regulations that appear in section 4.3.2 above. Most of the train stations along the route are at street level and are located on the route and include platforms Sides usually with a minimum width of 3.3 m. Access to the stations is also at street level through crosswalks The ones planned near the LRT stations as high-capacity crossings.

As mentioned, the route of theLRT creates conflicts with the balance of parking for vehicles on the street and in parking lots. Table 4.2.3.1 Shows the parking balance after the program is executed.

4.2.4 Alternatives to reduce the effects and limitations-

Since the effects and limitations are extremely limited, it is not required to consider other alternatives for labeling, for location stations and access to the stations, except for the deviation area from TMA 23 /A/ 4 in the Sde Dov area and at the Ayalon crossing. This deviation arises in the Sde Dov area due to the uncertainty surrounding the planned evacuation date of Sde Dov. in the crossing area The Ayalon deviation is due to the lack of connectivity between the Green Line and Israel Railways, which reduces a lot From the importance and efficiency of this project, and from engineering considerations such as a massive bridge, which is produced by an alternative The TMA.

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4.3 Changes in traffic

The project of the northern section of the Green Line will affect in different ways the nature of transportation in the Dan metropolis in general, .And in the cities of Tel Aviv and Herzliya in particular

The transportation impact is reflected both along the route of the Rkel and along main roads in the vicinity of the program.

This section presents the principle execution stages for the construction phase of the project, along with the changes in the traffic arrangements that will be caused as a result of the activation of the line.

4.4 Groundwater and surface water sources

4.4.1 General–

The general geographical location of the green line is in the western part of the coastal plain, in the Hikva basin of The streams Ayalon and Yarkon. The area is the plains of Brom from 3+ to 30+ m above sea level, at a distance ranging from hundreds. A few meters and several kilometers, east of the beach. In some areas, characterized by hills Korchar, such as the area southeast of Tel Aviv University, the surface reaches beyond 40+ m Height .

4.4.2 Hydrology and groundwater-

In the last 10 years, the groundwater level reached a maximum of 1.5 to 2.3 m above sea level and a minimum of 1.09 m below sea level. Therefore, the construction time of the line must be considered on the assumption that the groundwater level reaches up to 2+ m relative to sea level, and during an event with a probability of 1: 100 it may even rise to about 6.5+ m. This means that in the relatively low topographical areas, subject to the amount of precipitation in a given year, It is possible that underground structures such as technical rooms and/or bridge foundations will launch or be inside a saturated layer . The danger of ground water contamination in cases like these can only be high if in that area there was either An activity is being carried out that has the potential to pollute soil and groundwater (see chapter 1.3 (of this overview).

4.4.3 The effect of the construction works on the groundwater and surface water sources–

With the exception of the technical rooms, the settlement of theLRT at the Namir Einstein intersection and the foundation of the bridge pillars, the route of theLRT Designed entirely to be ground. Track laying works, including laying the required bedding and infrastructure, will be 1.6-2 m from the surface. The depth of the groundwater along the track route ranges from 0 to a depth of 2.0 below sea level. From this it follows that the track laying works including excavation for the construction of the technical rooms at a depth of 5 m from the surface, should not lead to damage to groundwater along the entire length of the route.

4.5 drainage

This chapter deals with the effect of the laying of the railway line and its facilities on the drainage systems of sensitive ecological systems.

This is in the area of Nahal Pardesim in the east of the route and in the area of the Naamen compound on the extension to Herzliya, where it is held every year A winter pool, which Nahal Pardesim is planned to cross.

The chapter presents findings and recommendations for the passage of theLRT without harming the way these ecosystems are drained.

4.6 Noise

In assessing the noise levels resulting from the execution of the project, different reference was given to its two phases: the construction phase and the activation phase. The expected noise hazards in each of the stages are different in nature and so are the applicable criteria at every stage.

The noise during the construction phase is noise from construction equipment and is similar to the noise caused during the construction of a new building or infrastructure works on the street

The noise during the operation phase is traffic noise similar to road noise or train noise.

Another fundamental difference between the two phases of the project is the length of time they apply. The noise of the works is a short noise. Relatively long-term (up to a few years) while the noise from the operation of the project is for the long term, for the entire existing duration of the project.

The construction phase

The potential for noise generation as a result of the construction works of the LRT is divided according to the nature of the work and its location in relation to . For uses that are sensitive to noise near the work site. The construction works of the RK in this segment is the construction

The railway line in the ground sections- At Grade, , and in places where level separation is expected underground or above. On top of a bridge such as the Einstein/Namir crossing area, the LRT crossing on top of a bridge at the Pinchas Rosen intersection and more.

In the current planning phase, the progress of the works in the construction phase is not yet definitively and precisely known and will be determined. When from the detailed planning.

The noise criterion regarding the construction works is based on the provisions of the law for the prevention of hazards, the regulations that have been installed. By virtue of it, the guidelines and policies of the Ministry of Environmental Protection and other sources.

In this section, the potential for noise hazards was assessed and a basket of possible solutions was given to reduce them during the construction phase.

activation phase

In this chapter, noise calculations are presented according to the following two situations:

- 1) Noise calculation for the existing situation.
- 2) The noise levels in the target year with the project, in the situation where the green line will be established and will operate.

The prediction of the noise of the LRT and the motor traffic (vehicle traffic) was conducted using two separate models. For calculating noise, a model for calculating train noise and a model for calculating road noise. In this project the impact is tested. The environmental impact of the noise of trains, next to the noise of motor transport. Most of the environmental impact is indoor. In the change in the volumes of motor traffic, due to the project and not as a result of direct noise from the light rail.

Along the route of the northern green line, no deviations from the noise criterion are predicted in any of the receivers.

4.7 vibrations-

In assessing the vibration levels as a result of the light rail project, two phases of the project must be considered, phase. The construction and the operation phase (similar to the reference to the issue of noise reviewed above). The hazards of vibrations expected in all. One of the stages is different and so are the criteria that apply to each stage.

The construction phase

The potential for the formation of vibrations as a result of the construction of the LRT is divided according to the nature of the work and its location. In relation to uses that are sensitive to vibrations near the place where the works are being carried out.

In this section of the green line, the construction works of the LRT refers to the construction of the railway line in the ground sections- At Grade.

The course of the construction works is not definitively and precisely known at the current planning stage and will be part of the detailed planning.

It is worth noting that, as a rule, unlike noise and other potential nuisances, the spread of vibrations as a result of execution Work with tools, limited to relatively short distances from the source of the vibrations.

Operation phase

For the purpose of evaluating the potential for the formation of vibrations as a result of the Operation of the LRT, vibration propagation calculations were conducted, From the planned tracks to the homes of the recipients closest to the route.

No deviations from the vibration criterion were found.

4.8 electromagnetic fields-

This section includes a theoretical characterization of the safety of electromagnetic fields for humans and effects on intended uses the ground, as a result of the formation of potential disturbances in the areas adjacent to the LRT infrastructure.

The sections of the LRT railroad along the green line were scanned to locate buildings and land uses that might be affected by the emissions from the overhead power lines, the catenary, which feed the mobile component and operation The trains on the green line.

Along the route, no buildings located in the area that may have a magnetic field flux higher than 4mG were located (the threshold recommended by the Ministry of Environmental Protection under conditions of maximum typical load). This area is 7 m and is Refers to the distance measured from the axis of symmetry between the two tracks to the nearest buildings on both sides of the track. Since the instructions of the plan allow a change in the location of the track in different sections at later stages, Possible measures that can be used, if necessary, to reduce the scope of the impact on structures have been described Living from the electricity poles.

In addition, the level of the magnetic flux outside the technical rooms located along the line was examined according to a representative plan to a technical room. Outside the walls of the room the magnetic field flux is lower than 4mG. In the areas above the ceiling of the room there is a wash The magnetic field may reach tens of milligauss at a height of 1 m above the ground, in a hidden room. at field flux levels- Such magnets do not prevent the movement and free passage of people above the rooms, but uses are not allowed that allow the public to stay in the place such as placing benches above the ceiling of the room or people staying, in the public areas above the station. The planning team recommends measures, as needed to reduce the impact

which include among other things: magnetic shielding of the transformer cells, the cell ceiling and some of the walls with panels and insulation layers and/or internal planning and the location of the technical rooms so that the problematic elements in terms of the flux of the magnetic field will be located in areas less sensitive to the presence of people.

4.9 The profile of the street and its urban function

The effects on the nature and function of the street are presented in the "Urban Integration" document prepared for the plan by the ministry. The architects "Frachi Zafarir". The measures to prevent nuisances and hazards as a result of the changes proposed in the section- The street is presented throughout chapter 4 of this review, according to the discipline of each chapter:

(1) 4.2 Changes in land uses and land designations-

(2) 4.3 Changes in traffic-

(3) 4.4 Groundwater and surface water sources-

(4) 4.5 Drainage-

(5) 4.6 Noise-

(6) 4.7 Vibrations-

(7) 4.8 Electromagnetic fields-

It should be emphasized that not every discipline is expected to have nuisances and hazards. On the contrary, the program was designed so that it would fit itself in an optimal way to the existing situation and in some issues will even reduce the negative effects.

4.10 ecology-

The train route passes through some of the last remaining natural sites within the city of Tel Aviv. in the sand areas the western parts of the cities of Herzliya and Tel Aviv, the significant violation is expected in relation to the route rule, but this violation Reasonable and will be carried out due to the implementation of construction plans, approved and in planning procedures. The route is planned close to the existing development and does not pass through the high-quality sand areas found in the Tel Michal and Tel Rakit areas. at the same time, The route crosses moist habitats (Nahal Naman pool), grassy areas and high-quality sandy areas in part the southern These areas are designated for development as part of various plans, therefore all future development is expected to damage my homes The increase in quality within those programs.

Since the plan goes through areas designated for development, the extent of the ability to preserve areas is not clear ,high quality and examine measures to reduce the harm. The northern section of the Green Line with an emphasis on the extension to Herzliya, /Should operate after the implementation of the cell plan and the mountain plan/ 2200 Hoof Hatkalat. Therefore the detailed recommendations are 3700 ,in principle and their applicability must be examined later in the planning.

The Tel Monis area, which is defined as having high sensitivity due to its ecological and archaeological uniqueness, is expected to be preserved Following the promoted alternative to crossing the Ayalon lanes which outlines the Rkel in an underground passage below to Shalom Rosenfeld Street and the parking lots .in the area.