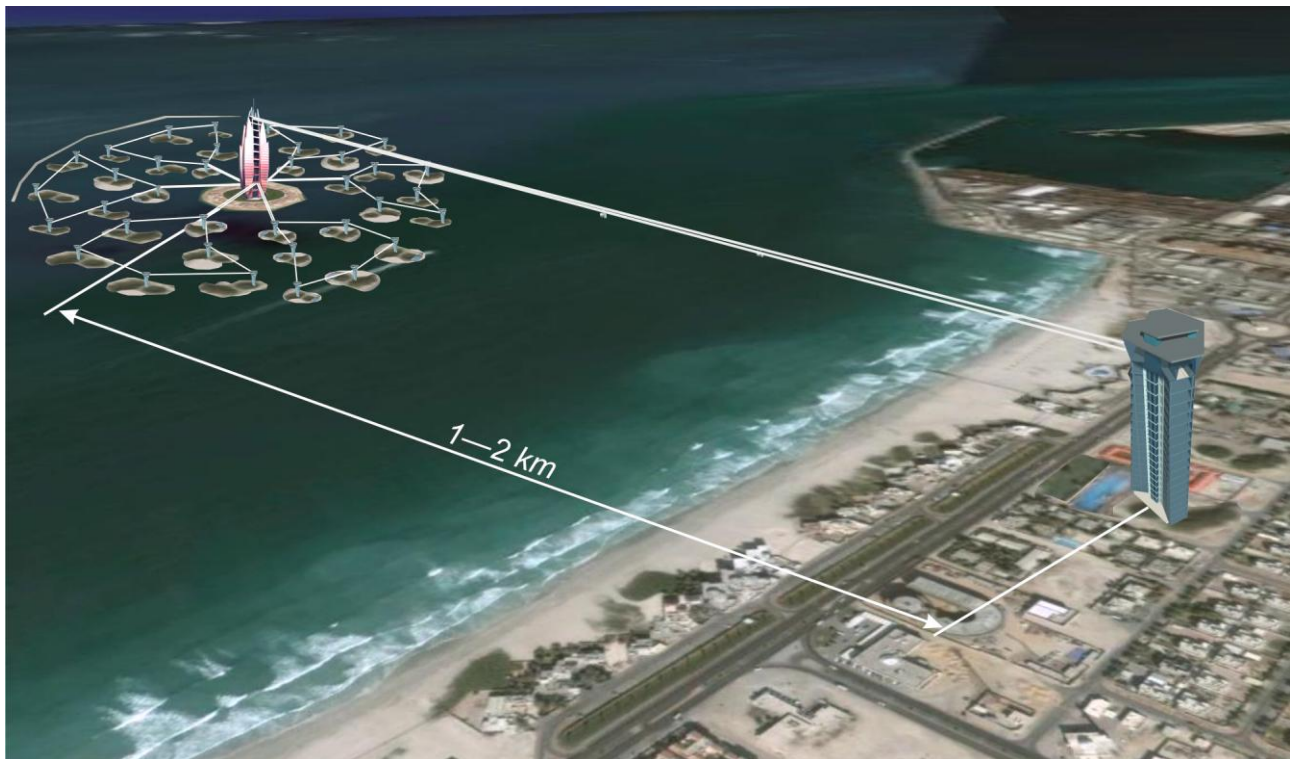




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## **Explanatory note to develop a transportation infrastructure for Al Gahalla Island (UAE)**



STU Monorail transportation system proposed for Al Gahalla Island (United Arab Emirates) is intended to achieve maximal reduction of the ecological impact of motor transportation on the island's environment. It integrates the best qualities of personal and public transport and in terms of its comfort level and the quality of the transportation services provided is capable to fully meet the requirements of villas' owners. In this respect the proposed transportation system meets the highest ecological requirements and has a minimal environmental impact which is in full conformity with the recreation purpose of the island built-up environment.

Fig. 1 shows a master development plan of Al Gahalla Island with passenger and freight trips to be handled by a single transportation system created on the basis of STU Monorail technologies.

The basis of the island residential development is made up of the housing blocks (clusters) consisting of 5—10 villas. Villas are grouped around a small area (30—60 m diameter) with a support of a light monoSTU and a small square (station) at the height of 4—6 m located in its centre. There is a staircase or a lift to get down from the station to the square. The distance from the station to any villa is 20—30 m to walk.

The square could be used to plant trees or flowers, or to arrange lawns or children's playgrounds. As far as STU could be regarded as a horizontal lift then, proceeding from this analogue, a housing cluster of 5—10 villas could be regarded as one of the "floors" of a multi-storey "horizontal house" while the space around the stations could become a "hall" at each floor of the house. Like a high-rise building that could not be served by one traditional lift, one monoSTU route could not have more than 10—12 "floors", i.e. housing clusters. Otherwise the villas' dwellers will have to wait long for a "horizontal lift" to come. In this case, unlike a traditional lift each monoSTU route could have 2—3 vehicles (mono-unibuses) and more, moreover, it will be a ring route which will increase its capacity and, if necessary, it could be designed as a double-track route.

To provide the transportation services for the island it is also possible to use the double-rail STU routes with its rail cars (unibuses) put above. However, single-rail monoSTU is more preferable with mono-unibuses hanged below. Firstly, the cost of such roads of "the second level" will be two times lower because they need only one string-rail that will be approximately two times more compact than a rail of a double-rail STU and, therefore, cheaper. Furthermore, monoSTU supports could be installed at any distance from each other (up to 2,000 m) without intermediate supports whereas supports in a double-rail STU are to be installed every 25—35 m which is not always possible and aesthetic.

All housing clusters are combined to form a general transportation system of a high-speed high-rise (50—100 m and more) STU Monorail route that has two high-rise buildings-stations on the island and one building-station on the continent. In this case it is possible to leave a private passenger car on the continental parking and to take a comfortable small seating-capacity conditioned mono-unibus to get to any villa on the island which will take you 5—8 minutes with one transfer from a high-rise to a low-rise monoSTU.

Fig. 2 shows mono-unibuses of a high-rise and low-rise monoSTU.

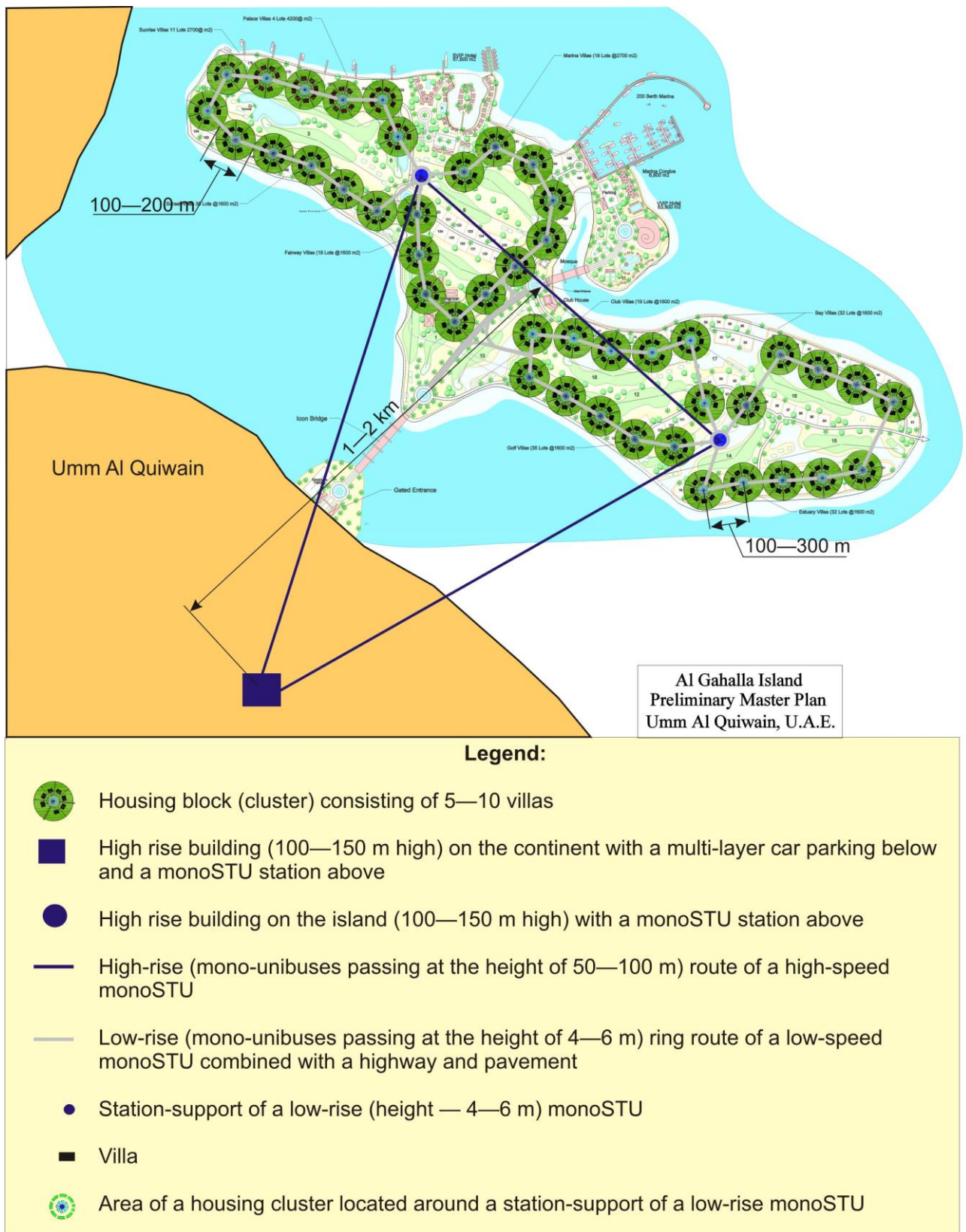
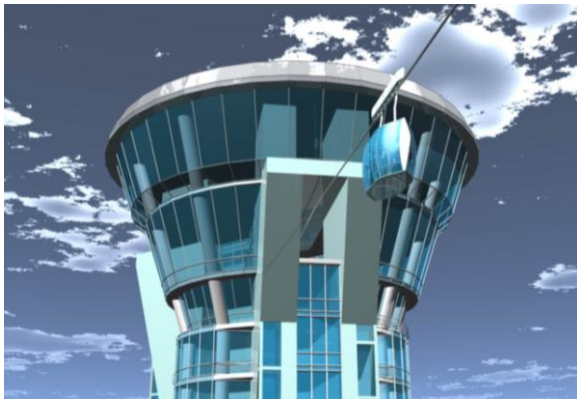
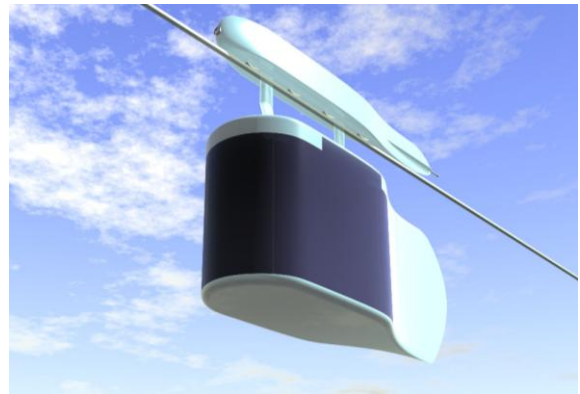


Fig.1. Transportation service scheme of the island



a) mono-unibus of a high-rise  
(50—100 m and more)  
high-speed monoSTU



b) mono-unibus of a low-rise  
(4—6 m and more)  
low-speed monoSTU

Fig. 2. Mono-unibuses

Fig. 3 shows planning alternatives of a standard housing block (cluster) consisting of 5—10 villas with a central square and a station-support of a low-rise STU Monorail.

The use of STU Monorail transportation systems for the development of island recreation zones makes it possible to implement interesting projects at relatively low cost. Fig. 4 shows the planning scheme of an artificial “Venice” island which could be created on the sea sand-banks with the depth of 1—3 m.

According to such planning scheme housing clusters consisting of 5—10 villas are located on separate islands filled up with the sand excavated as a result of deepening canals between these small islands. All small islands are linked by a transportation system to form a single island system around the main central island where a high-rise STU Monorail station is located to link similar island systems with each other and with a continent.

Such planning solutions make it possible to provide each villa with its own beach and personal yacht pier. It is possible to create an atmosphere of privacy for a villa alongside with the availability of a convenient transportation system to provide quick (5—8 minutes) links with any island or a continent with a high level of comfort.

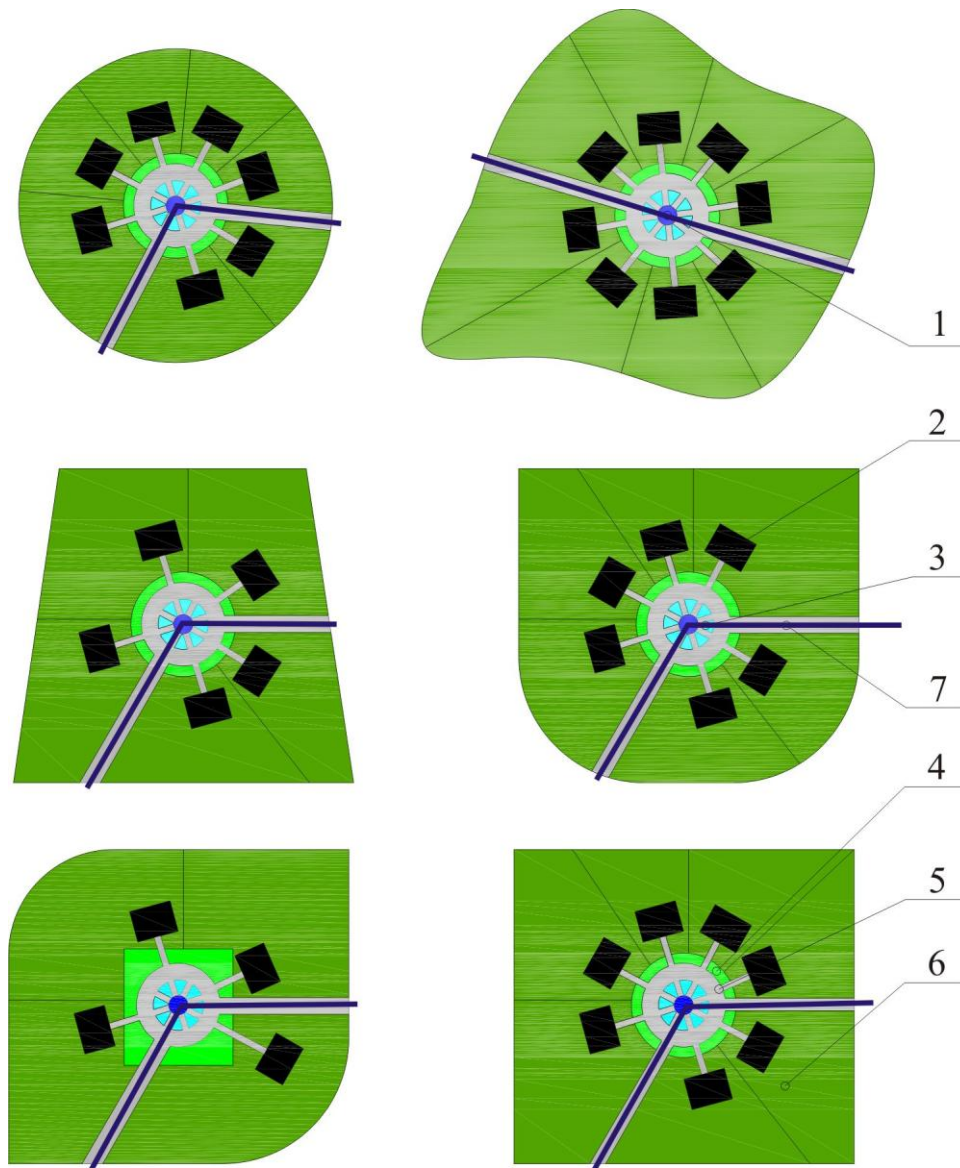
The cost of such artificial island (consequently, containing a villa) will be lower than that of a natural island (with its cost to be paid by villas’ owners) and a traditional artificial island because development of the proposed “Venice” island requires the small-scale earth works, minimal volume of communications and island improvement works.

A combined design of Al Gahalla Island is also possible: one part of the island, for example, its northern side, could be designed as a continuous space (as shown in fig. 1) and the other part could be divided into tens of smaller islands (as shown in fig. 4).

General Designer of STU

Anatoly Unitsky





**Legend:**

- 1 - Station-support of a low-rise (4—6 m) monoSTU
- 2 - Villa
- 3 - Circular basin
- 4 - Lawn in front of the site
- 5 - Motorway combined with a pavement
- 6 - Land plot of a villa
- 7 - Low-rise monoSTU route (the bottom of a mono-unibus is at the height of 4—6 m above the motorway)

Fig. 3. Design alternatives of a housing block (cluster)

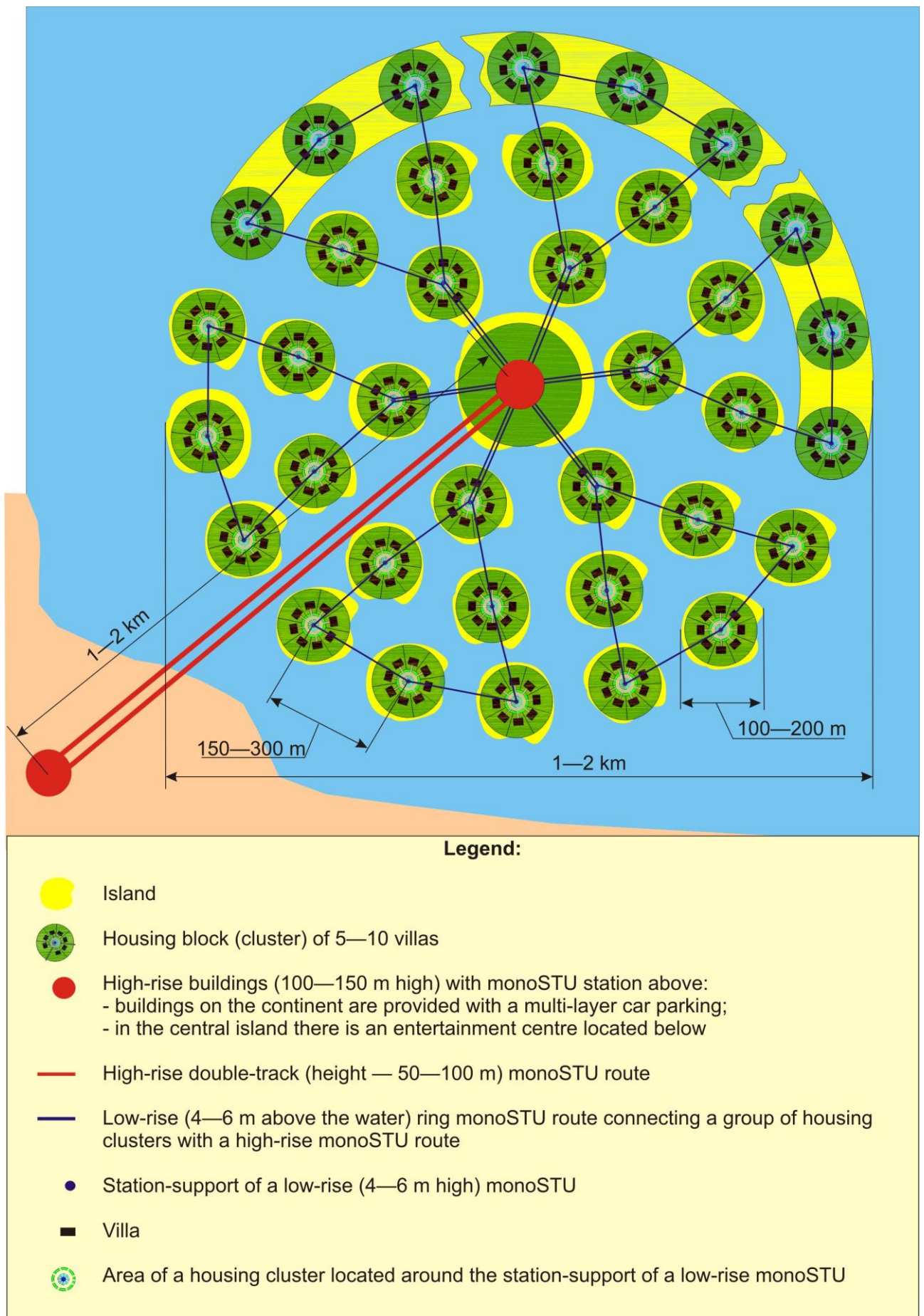


Fig. 4. Scheme of an island consisting of 20—50 smaller islands (“Island of Venice”)