



Project
“Monaco — Nice”



Project combines rapid “aerial” metro YTS (Yunitskiy Transport Systems) at an altitude of 100 m and high-rise buildings with a distance of 1.5—2 km, which have passenger stations on upper floors and roofs.

Buildings can be multifunctional: hotel, residential, office, retail, sports and entertainment, with usable area of 10—20 thousand sq. meters each.

Combination of “aerial” metro YTS with high-rise buildings will not increase the cost of living space in them, but reduce the cost of the transportation system, since it supports, foundations, and the overlap stations will be combined with carrier frames, foundations and floors of buildings.

Buildings in layout and architecture may be traditional, which cost and payback is equal to usual high-rise buildings. However, their combination of stations and clean, safe and affordable public transport, as well as their placement in the most attractive places along the coast and marine areas, make them more desirable to buyers.

Coast Development Transnet Ltd presents complex decisions for solving the basic problems that are relevant for both metropolitan, small urban and rural settlements, including safe and environmentally friendly organization of movement by "aerial" metro on "second" and "third" levels.

The relevance of this development project is dictated by the existing and growing urban problems, foremost among which is the organization of rapid, secure, inexpensive and environmentally friendly passenger and freight traffic in towns without destructive interference into existing natural landscape, existing buildings and existing natural bio-sphere.

Existing public transport is not only environmentally dangerous, but also leads to numerous injuries and deaths in accidents occurring continuously, due to the fact that multi-directional traffic and pedestrian flows are mostly the same, "first" level, i.e. on the surface.

YTS is universal and complex transport system capable for carrying passengers and all types of goods in urban environments. YTS uniqueness is in its track structure that is raised high above the ground, and has very low material consumption (50 kg / m for double-track structure), high speed and low cost of construction (1 million USD per km). There is no need in costly mounds excavation, pits, culverts, bridges and overpasses, and it can pass without any impact over urban rivers, lakes, parks, streets, above the low-rise buildings.



Organization of city transport by YTS mounted units (“yunibuses”)

It is advisable to place high-rise buildings within walking distance, in increments of 1000—2000 m. Travel time between stations (by YTS) is 1—1.5 minutes.

Passenger station of suspended public transport is located at the upper part of a high-rise building, or on the roof. Special rolling stock consists of one to three or more sections (suspended unit capacity is 25—75 or more passengers) and is suspended to one or two string rails. Track structure between adjacent stations is made as a single-span, without supporting pillars.

Passenger station of mounted public transport may be located at the bottom of each building. Mounted transport is placed at a height of 5—10 meters with spans of 30—50 meters. Special rolling stock consists of one to three or more sections (mounted unit capacity is 25—75 passengers and more) and is located on the top of two strings rails.

Track structure for mounted transport between adjacent buildings is carried out in accordance with the requirements for road and rail bridges and overpasses. If necessary, the slope of the way may reach up to 15%, and with the special performance for mounted units and string rail-way — 30 percent or more. Minimum horizontal radius of the path (at stations) is 20 meters. Minimum horizontal and vertical radii of curvature of track structure on highway (and in the spans and piers), using the estimated speed shall be not less than 1,000 m.



Multi-functional building with “second level” and “third level” YTS station

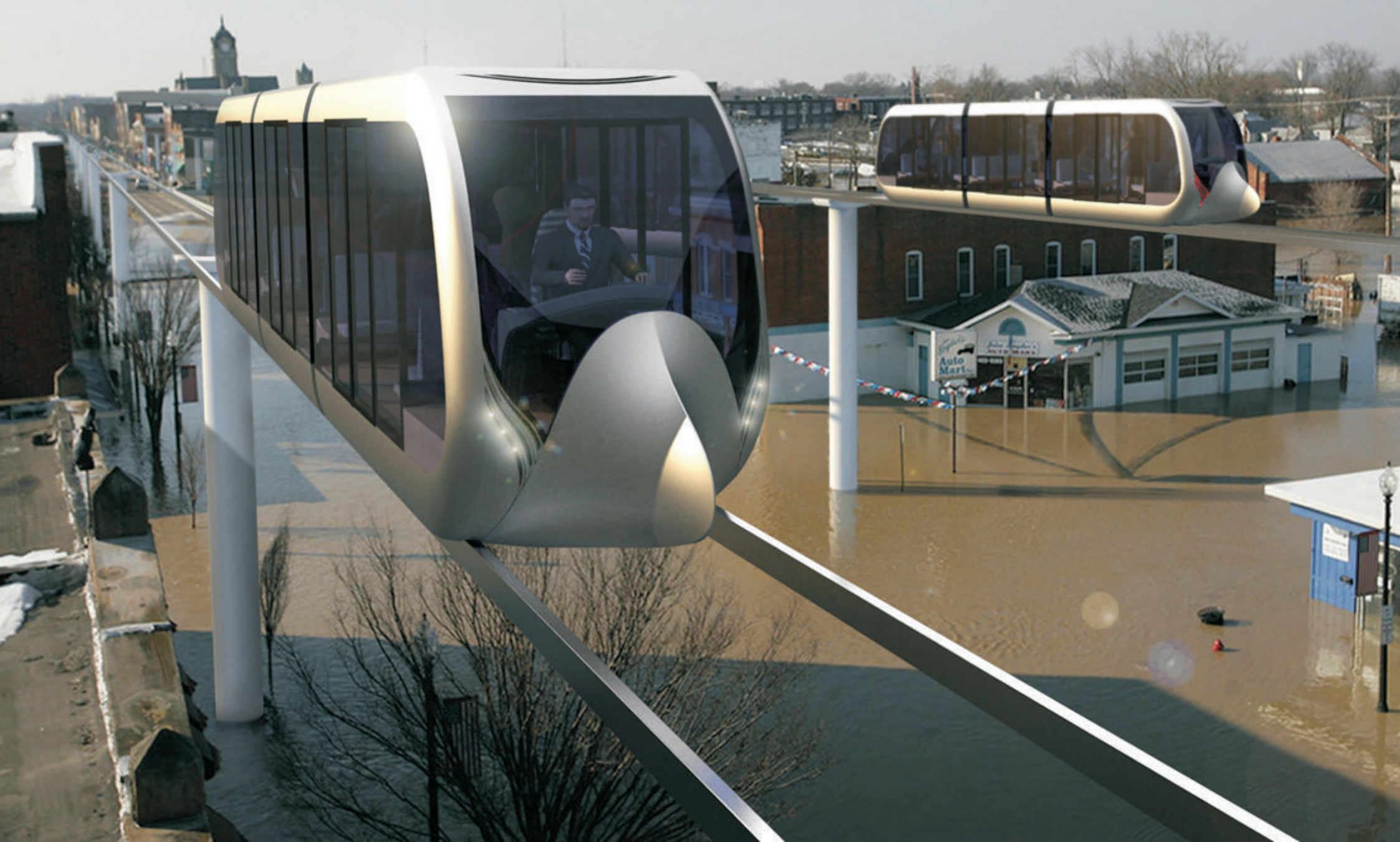


Suspended YTS unit's speed at the center of a span is up to 120 km per hour











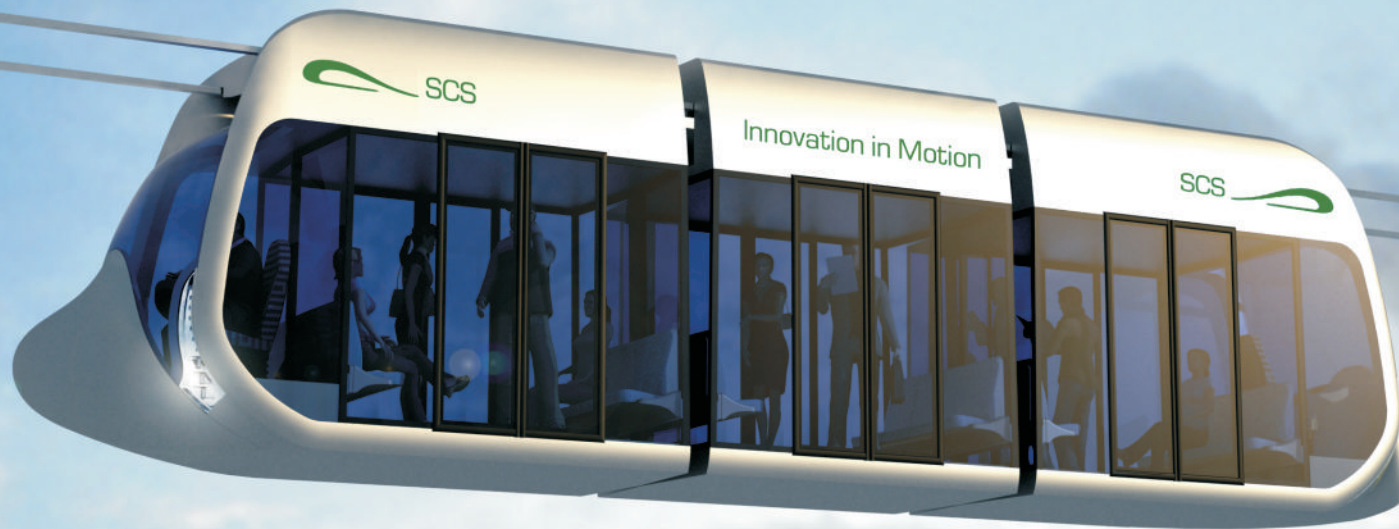
Suspended sectional unit is composed of three types of sections: forward, aft, and, depending on the planned traffic flow, from one to six middle sections. Passenger capacity of each unit's section depends on type and class of city string track and passenger unit, as well as on design capacity of “third” level transport system and is 5—25 people. In the presented project forward and aft sections are identical and have effective aerodynamical tail contours. This is due to the fact, contrary to popular belief, that aerodynamic resistance to the movement depends greater on tail of vehicle hull (on 70—90%), and not on the contours of its head part (10—30%).

Each section of a unit consists of passenger compartment and two navigation sections (left and right). Main elements of sections (frame, cladding, doors, interior equipment, climate control, suspension system, electric power, etc.) are unified. Layout of middle section is the base for the construction of forward and aft sections.

Frame section is made of an aluminum alloy. Outer facing of interior is made of highly resistant toned translucent polycarbonate. Interior and exterior body kit is made of non-flammable and environmentally friendly polymeric materials.

There are various options for providing power traction to motor of a suspended unit:

- from the contact wire (in this case a power collection device is installed on the roof of one of the sections);
- from autonomous power source hosted on one of the sections, such as:
 - from a diesel generator that runs only on the line and shuts down on the station, ensuring power battery charge in this period of time;
 - from electric energy storage devices that connect to the charger at the stations during the landing of passengers.



Suspended unit with the capacity of 75 passengers

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Unit's interior sections are equipped with service and spare sliding doors on right and left sides of the cabin, barrage frame and rails, top and bottom. Climate and light control equipment are mounted in the cabin roof. Inside, there are: fire extinguisher, communication equipment with driver (controller), first aid kit, and a bulletin board.

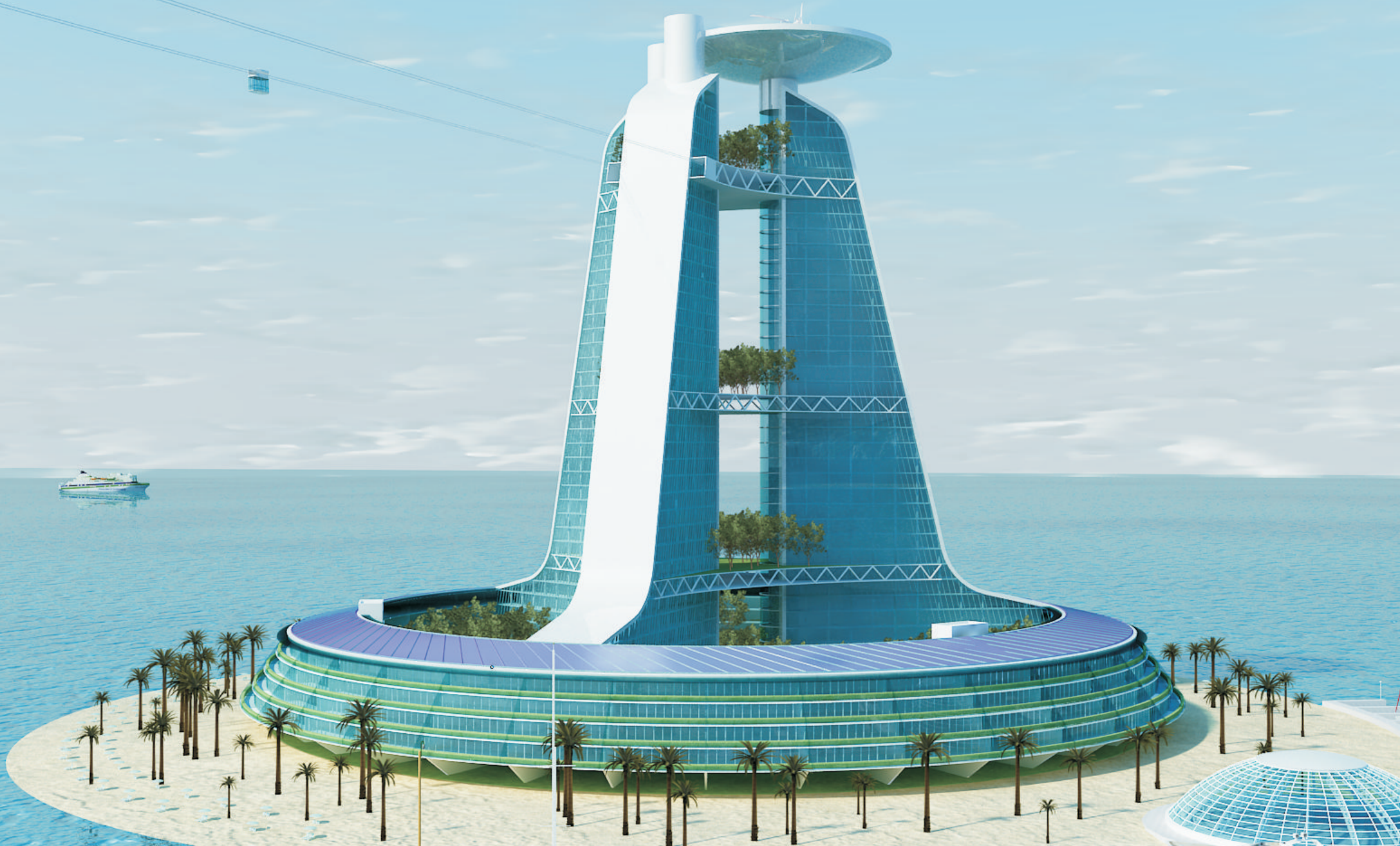
Main design feature of mounted unit that distinguishes it from suspended unit is in the driving compartment that are placed in the bottom of sections under the cabin on the right and left sides.

Sections of mounted unit do not differ from sections of suspended unit by their structure. Basic elements of sections and equipment of passenger cabins are unified in the same way.

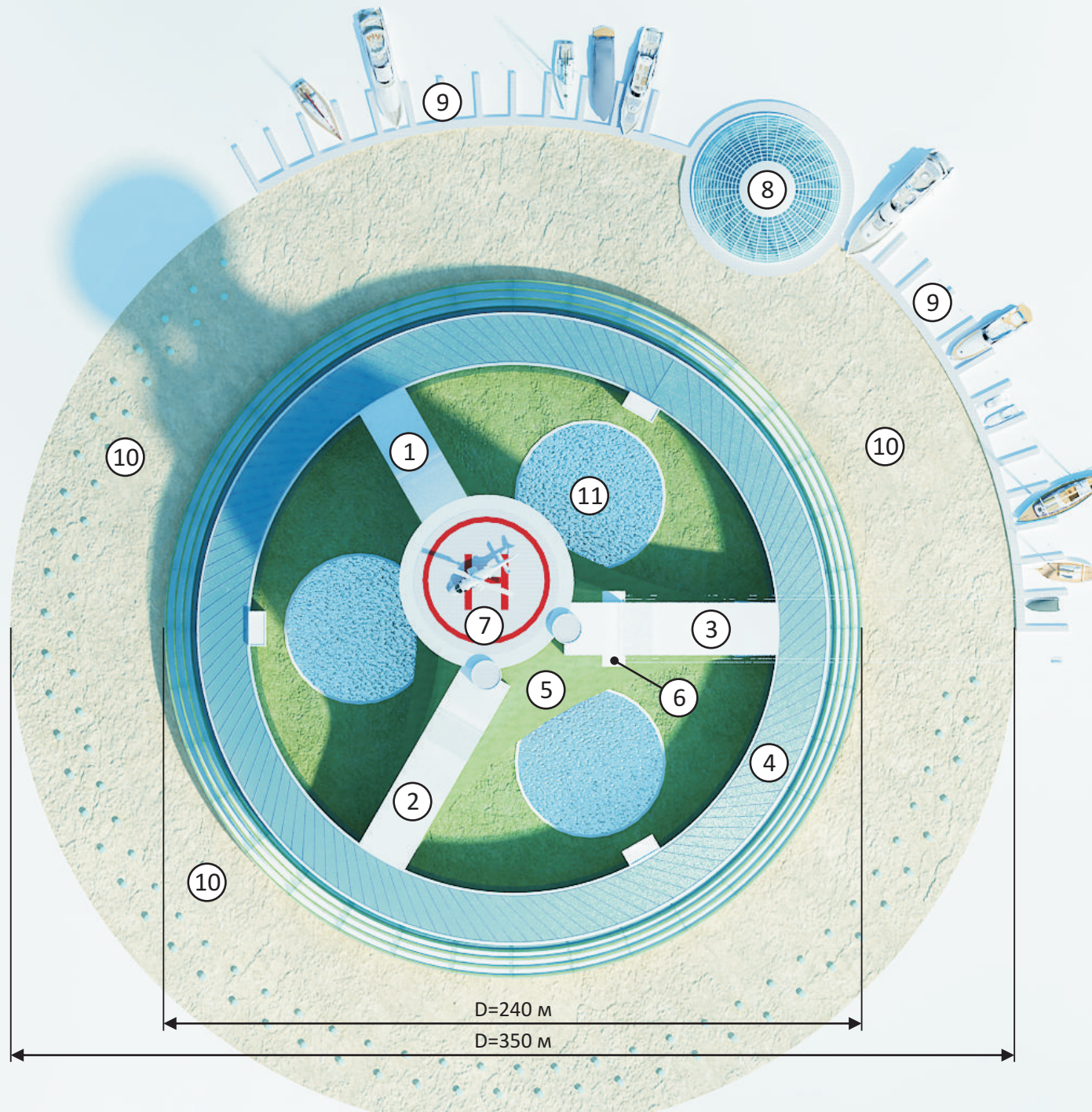
Constructs of an automatic coupler of mounted unit are placed in forward and aft sections.



Track of mounted YTS along the coast (height 10 m)



General view of a multi-residential complex "Island"



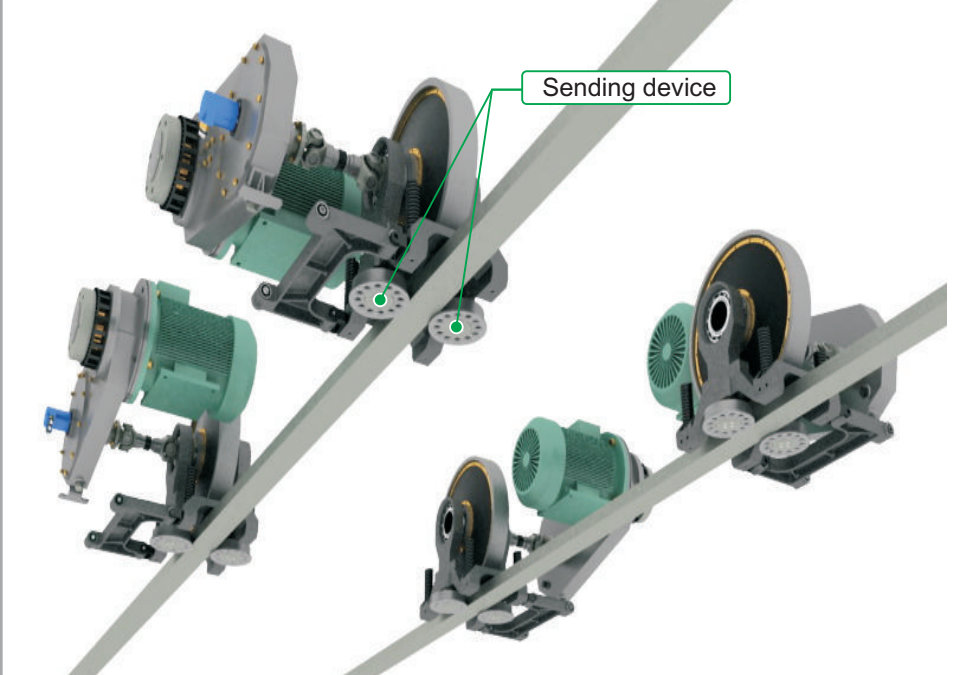
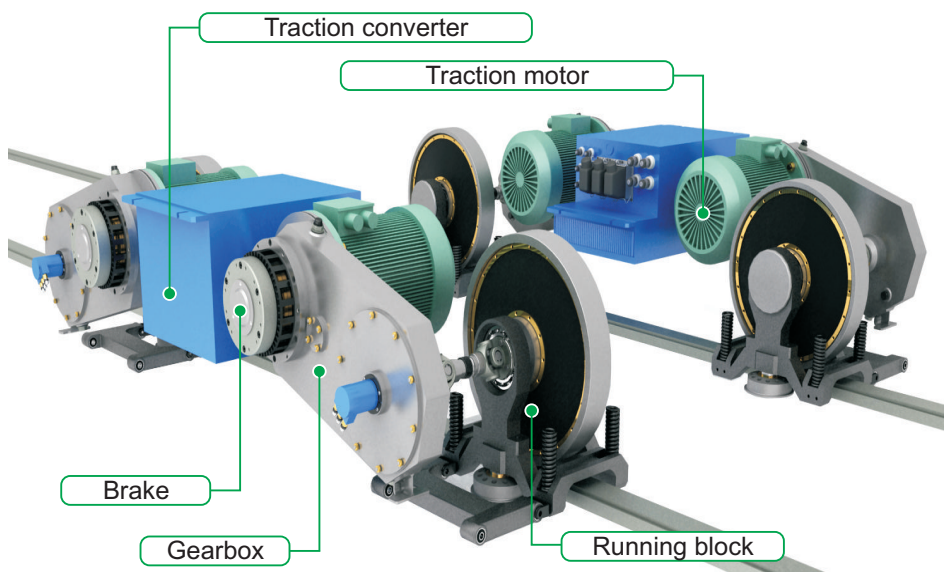
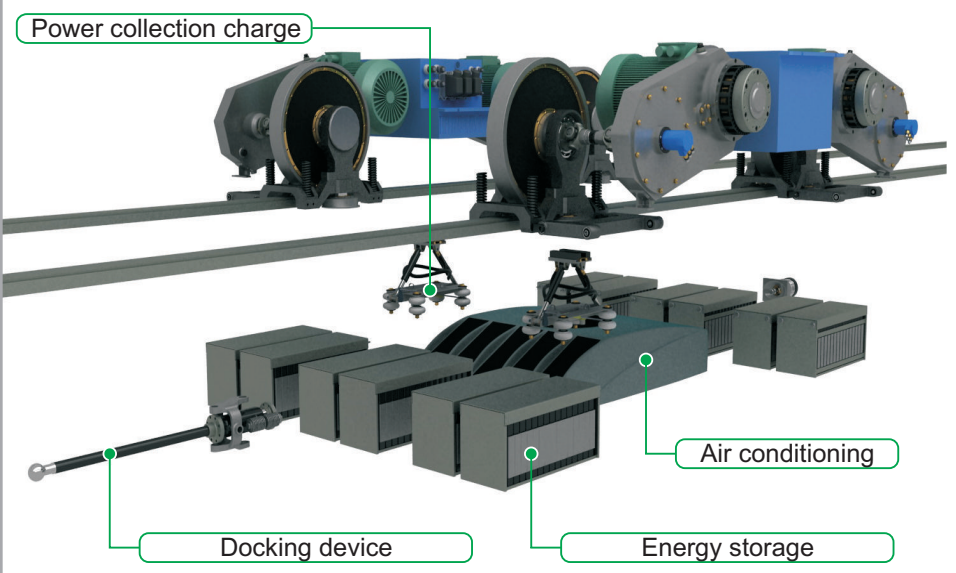
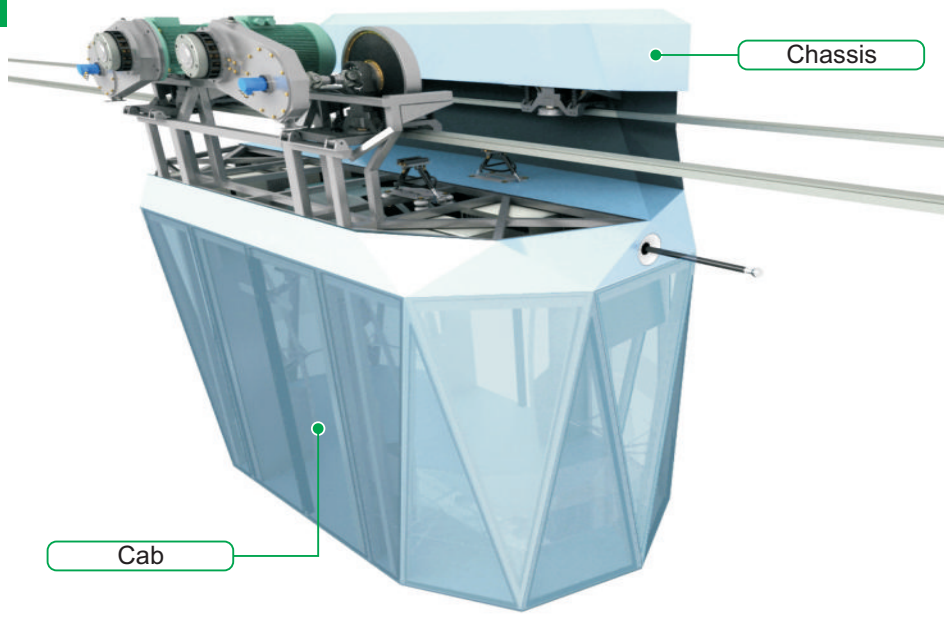
Explication:

- 1 — high-rise building No. 1
- 2 — high-rise building No. 2
- 3 — high-rise building No. 3
- 4 — low-rise building No. 4
- 5 — operational roof of a technical storey
- 6 — YTS station
- 7 — helipad
- 8 — yacht-club
- 9 — mooring
- 10 — beach
- 11 — swimming-pool

Technical indices:

- Area of the site — 9 ha
- Built-up area — 40,000 m²
- Ground area — 135,000 m²
 - building 1 — 26,000 m²
 - building 2 — 26,000 m²
 - building 3 — 26,000 m²
 - building 4 — 56,000 m²
 - winter gardens — 1,000 m²
- Underground area — 23,000 m²
- Total area — 158,000 m²
- Diameter in plan — 240 m
- Maximal mark — 178 m

Top view of multi-functional residential complex "Island"



Design of suspended YTS



Appearance of YTS high-rise buildings-stations