

BYURAKAN-ARAGATS

INTERNATIONAL PARK OF SCIENCE, TECHNOLOGY AND THE FUTURE

Concept for a multifunctional scientific, technological, cultural, sporting and tourism complex in the Republic of Armenia

≈ USD 5bn

preliminary investment

5 years

target construction period

2,000–3,000 ha

territory under study



Artistic concept: future park, racing circuit, concert hall and transport system.

The Project at a Glance

Byurakan-Aragats is a major international science, technology, culture, sport and tourism destination on the southern slopes of Aragats. It brings together the historic observatory, an indoor year-round technology park, landscaped gardens, an international racing circuit, a concert hall, a proposed maglev and related infrastructure.

5 years

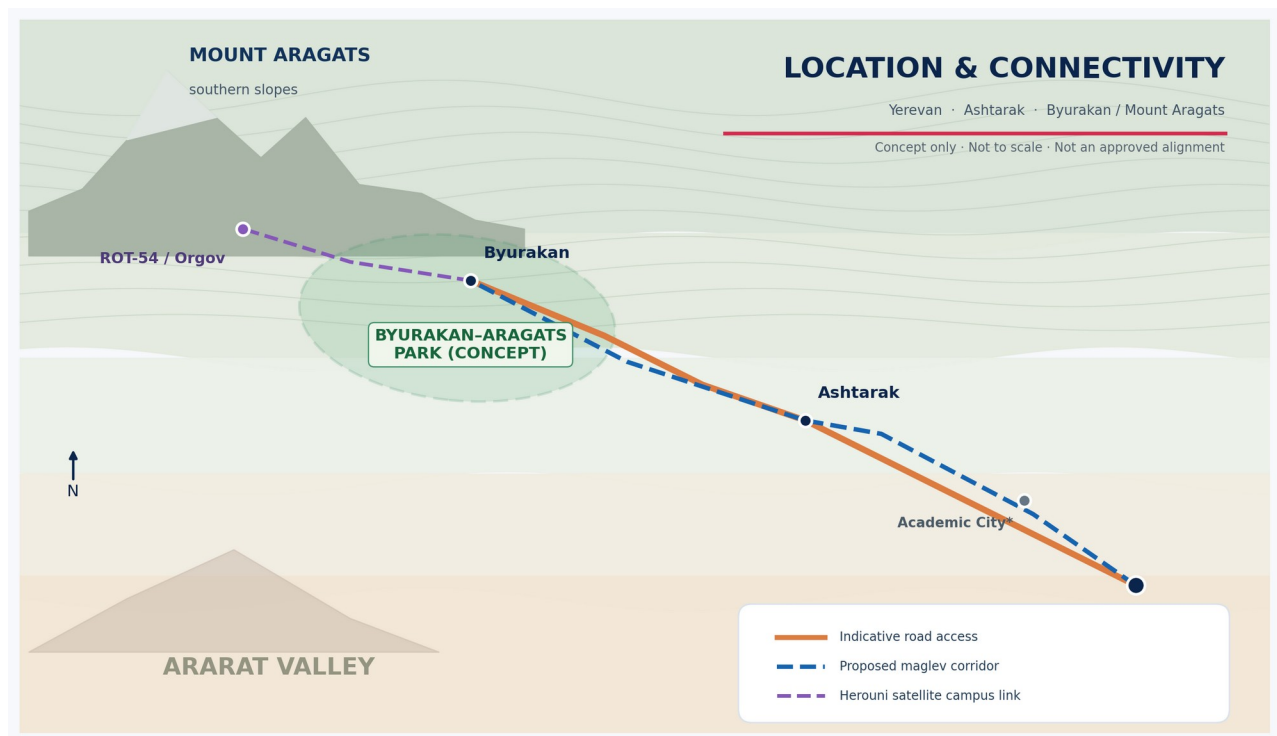
construction and opening

≈ USD 5bn

initial budget

365 days

year-round activity



Indicative geographic scheme: Yerevan — Ashtarak — Byurakan. Transport connections and site boundary are conceptual, not surveyed.

Guiding principle: Byurakan remains the scientific and visual landmark at the highest point of the main campus, while new facilities descend the hillside towards the Ararat Valley.

Contents

1. Introduction: From Scientific Heritage to the Technologies of Tomorrow
2. The Core Project Idea
3. Territory and Architectural Concept
4. Science & Future Technology Park
5. Integrating Byurakan and the Herouni Radio Observatory
6. International Racing Circuit and Formula 1
7. International Concert and Cultural Centre
8. Transport Infrastructure and Maglev
9. Integration with the Academic City
10. Tourism, the Economy and National Importance
11. Preliminary Investment Scale and Delivery Timetable
12. Conclusion: A New Symbol of Armenia

This document is a concept, not a business plan. The visuals illustrate an architectural vision; exact geometry, alignments and parameters are subject to further technical studies.

1. Introduction: From Scientific Heritage to the Technologies of Tomorrow

In the middle of the twentieth century, the Byurakan Astrophysical Observatory was one of the world's leading centres of astronomical research. Founded in 1946 on the initiative of the distinguished Armenian scientist Viktor Ambartsumian, it made a major contribution to modern astrophysics and became a symbol of Armenia's scientific potential.

Over the intervening decades, however, the conditions for astronomical observations have changed substantially.

The expansion of Yerevan and surrounding settlements, increasing light pollution, the age of much of the telescope inventory, and the emergence of new generations of ground-based and space observatories have changed Byurakan's capabilities and position within global science.

Byurakan continues its scientific work today, but research, astronomical data processing, international collaboration and educational programmes have become increasingly important. Preserving and developing this scientific centre calls for dependable funding, infrastructure renewal and new forms of engagement with society.

At the same time, the Observatory has an exceptional advantage: its geographical location.

It stands on the southern slope of Mount Aragats, with outstanding panoramic views across the Ararat Valley, Yerevan, and Greater and Lesser Ararat.

This combination of scientific heritage, natural topography and proximity to the capital creates the opportunity for an entirely new kind of development.

We propose the creation of a major international science, technology and future-oriented theme park on the slopes of Aragats, integrated with the Byurakan Astrophysical Observatory and the nearby Herouni radio-optical observatory.

The project should not merely protect Armenia's scientific heritage; it should also create an economic foundation for its future development.

2. The Core Project Idea

The proposed development is neither a traditional amusement park nor a conventional technology centre.

Its concept is to bring together several mutually reinforcing activities within one extensive destination:

- fundamental science and astronomy;
- artificial intelligence and robotics;
- space technology and space exploration;
- biotechnology and future technologies;
- contemporary educational and science-based attractions;
- international motorsport, including the possibility of hosting Formula 1;
- music and the performing arts;
- modern hospitality and tourism infrastructure;
- next-generation high-speed transport;

The project's defining operational feature will be its **year-round activity**.

Unlike conventional theme parks, many of which depend heavily on favourable weather, the main science and technology exhibitions, attractions, interactive pavilions and cultural facilities will be accommodated in large enclosed buildings.

During the warmer months, visitors will also be able to enjoy an extensive outdoor landscaped park with gardens, walking routes, themed plazas, attractions and panoramic viewing terraces.

The destination will therefore function simultaneously as an international tourism centre, a science and education platform, a cultural venue and a world-class sports facility.

3. Territory and Architectural Concept

The proposed study area lies on the southern slopes of Mount Aragats, predominantly below the Byurakan Astrophysical Observatory.

At the outset, an extensive area of approximately **2,000–3,000 hectares** is proposed for study, within which the most suitable sites for the individual facilities will be identified.

This area is a preliminary study zone, not the final construction footprint or land acquisition requirement.

The principal architectural principle is to work with the natural terrain.

The Byurakan Observatory should remain the historical and scientific landmark at the highest point of the main complex.

Below it, the science and technology pavilions, planted terraces, pedestrian spaces, cultural centre and sports facilities will cascade down the mountainside.

Particular attention must be paid to the architecture.

The complex should showcase leading directions in twenty-first-century architecture: futuristic forms, generous transparent façades, buildings embedded into the terrain, green roofs, energy-efficient systems and advanced materials.

At the same time, the buildings must not look like unrelated structures scattered across the slope. They must form one coherent architectural and landscape system.

Vegetation is relatively sparse across much of the proposed territory today. Large-scale greening should therefore be a distinct element of the project.

The proposal is to create a major green park with extensive tree planting, shaded avenues, gardens, natural terraces and walking areas. The choice of plants and irrigation systems must reflect the local climate, water availability and long-term environmental sustainability.

The outcome should be a new green landscape uniting the natural beauty of Aragats with contemporary architecture.



Overall vision: terraced future park, motorsport circuit and cultural centre. Artistic rendering.

4. Science & Future Technology Park

The central element of the complex will be an international **Science & Future Technology Park**.

Several major thematic strands are envisaged:

Space and astronomy. Contemporary planetariums, immersive exhibitions, simulations of space flight, interactive exploration of planets and galaxies, and introductions to modern spacecraft and technologies for exploring the Universe.

Artificial intelligence and robotics. Demonstration centres for AI, autonomous systems, industrial and humanoid robots, intelligent transport and human-AI interaction.

Biotechnology and the medicine of tomorrow. Interactive educational pavilions devoted to genetics, modern medical technologies, bioengineering and the future of biotechnology.

Energy and future technologies. Demonstrations of new energy systems, energy storage, hydrogen technologies, advanced materials and other fields of technological development.

Science and technology attractions. Simulators for space flight, acceleration and weightlessness, virtual reality environments, robotic experiences, interactive science facilities and other modern themed attractions.

The primary facilities will be located in enclosed pavilions linked by convenient pedestrian passages and partially covered galleries, enabling visitors to use the park in every season.

In summer, the indoor offer will be complemented by outdoor attractions, demonstration areas, green relaxation spaces and walking routes.

International technology companies, universities, scientific institutions and high-technology manufacturers will be encouraged to participate actively.

This approach will allow the park to refresh its exhibitions continuously and demonstrate not just the history of technology, but real achievements of today and tomorrow.



Science & Future Technology Park: enclosed pavilions, attractions and green terraces. Concept image.

5. Integrating Byurakan and the Herouni Radio Observatory

The preservation and development of existing scientific assets will occupy a special place in the project.

The Byurakan Astrophysical Observatory must retain its independent scientific mission.

The development should create new opportunities to finance its research, modernise its instruments, undertake international studies and train young specialists.

One possible mechanism is a dedicated fund for scientific research and the Observatory's development, supported by a pre-defined share of the complex's revenues.

A separate component will be the integration of the **ROT-54/2.6 radio-optical telescope**, developed under the leadership of the Armenian scientist Paris Herouni.

Located near Orgov, this exceptional engineering structure can become a distinct scientific, historical and educational attraction.

Because the radio observatory occupies a separate site within challenging mountainous terrain, it is proposed to link it to the main park by a special visitor and transport route.

Two outstanding scientific sites in Armenia will thus become part of a unified system while preserving their own historical and scientific identities.

The masterplan must protect any ongoing scientific activity from light pollution, noise, vibration and other adverse effects.

6. International Racing Circuit and Formula 1

One of the project's most unusual and attractive components will be an international motor racing circuit designed from the outset for **FIA Grade 1** requirements, with the potential to host a Formula 1 Grand Prix.

The proposed circuit, however, is intended to differ fundamentally from many existing venues.

Its main advantage will be the use of the natural topography of Aragats' southern slope.

At most modern circuits, spectators can directly see only a limited stretch of track and must rely on large screens for the rest of the race.

Our design objective is a natural racing amphitheatre in which potentially 80–85% of spectators could see almost the entire circuit from their seats.

Whether that objective can be achieved must be validated through detailed terrain studies, sightline modelling and track design.

The principal grandstands would sit on the natural slopes above the racing circuit.

The paddock, garages, pit lane and VIP facilities would be positioned outside the circuit perimeter, principally at the lower side of the site.

This would preserve an open view of the racing action from the main stands, allow independent access for teams and technical vehicles, and create unique VIP settings overlooking both the racing circuit and the Ararat Valley.

Because the circuit would be developed from scratch, its geometry must respond from the outset to the characteristics of contemporary racing cars.

Priorities will include genuine overtaking opportunities, a combination of fast and technical corners, several strong braking and overtaking zones, visual drama and full compliance with international safety requirements.

The venue would be intended not only for Formula 1 but also for other international racing series, vehicle testing, sporting events, racing academies and technological demonstrations.



The race circuit: a natural amphitheatre with hillside stands and an external paddock. Concept alignment.

A Distinctive Day and Night Race

A further distinctive characteristic of the project will be the capability to hold both daytime and night-time competitions.

The concept envisages the possible alternation of Grand Prix formats: a day race in one year, followed by a night race the next.

By day, the natural backdrop will be the Ararat Valley, Greater and Lesser Ararat, the mountains and panoramic views of the surrounding countryside.

At night, the circuit will become a large-scale illuminated spectacle against the lights of Yerevan, settlements across the Ararat Valley and the surrounding terrain.

This position could produce an unusual, instantly recognisable television image that sets a new racing circuit apart from other championship venues.

From the initial design stage, the circuit should therefore incorporate full night-race floodlighting, broadcast infrastructure and facilities for evening events.

The final Grand Prix format, including any alternation between day and night races, would depend on agreements with Formula 1 and the relevant sporting authorities.

Ararat as Part of the International Sporting Event

In the longer term, we propose considering a joint Armenian–Turkish initiative to create a special lighting installation on Greater and Lesser Ararat during night races.

Modern lighting technologies make large-scale artistic installations worth exploring; nevertheless, technical feasibility, environmental acceptability and the necessary permissions require separate assessment.

If such studies are positive, the initiative could become one of the night Grand Prix's most memorable features and a symbol of a new phase in relations between Armenia and Turkey.

The project could create an additional platform for cooperation between the two countries in culture, sport, tourism and international events.

Once the broader concept has been prepared and discussed within Armenia, the Government of the Republic of Armenia could consider approaching the Government of Turkey with a specific proposal.

Cooperation of this kind could have significance far beyond motorsport by strengthening mutual confidence, developing economic ties and supporting the gradual normalisation of bilateral relations.



Night Grand Prix: artistic blue and red lighting concept for Greater and Lesser Ararat, subject to approvals.

7. International Concert and Cultural Centre

Another central component of the development will be a modern, multi-purpose concert hall of international standing.

Armenia has a rich musical and theatrical tradition. Further development of its cultural infrastructure, however, calls for venues meeting modern requirements for acoustics, stage technologies and the hosting of international events.

We propose a performance complex suited to symphony concerts, opera, ballet, contemporary music, international festivals and major cultural events.

The building's most distinctive architectural feature should be a **transformable rear wall behind the stage**.

When appropriate, it would open a panoramic view across the Ararat Valley towards Greater and Lesser Ararat, allowing the landscape itself to become part of the performance space.

For other productions, the wall would be fully closed and provide the required acoustic, lighting and stage conditions.

Advanced building systems would be used to reconcile the opening panorama with demanding standards of sound quality and acoustic isolation.

The concert hall will be able to operate year-round, attracting residents of Yerevan and other Armenian regions as well as international visitors.

Improved transport accessibility will make concerts and cultural events convenient even in the evening.

The complex will therefore be not only a scientific and sporting destination, but also one of the region's major cultural centres.



Concert hall: a transformable rear stage wall opening towards Mount Ararat. Architectural concept.

8. Transport Infrastructure and Maglev

A development on this scale cannot succeed without a substantial improvement in transport accessibility.

The programme envisages modernising and building roads to connect the complex with Yerevan, Ashtarak, the existing arterial road network and other parts of Armenia.

One of the project's most ambitious components is a proposed modern, high-capacity **maglev system** linking Yerevan to the Byurakan complex.

Such a system should provide rapid, comfortable and environmentally efficient passenger transport, including the high volumes expected during international sporting and cultural events.

The idea has a special historical resonance because of the Soviet programme to develop passenger transport based on magnetic levitation.

In the final years of the USSR, a maglev line from Yerevan to Abovyan was considered, with possible later extension towards Lake Sevan.

According to the historical accounts currently available, preparatory and construction work had begun, but the project was never realised following the 1988 Spitak earthquake and the subsequent dissolution of the Soviet Union.

Surviving experimental Soviet maglev vehicles have historic value in their own right.

We propose investigating the purchase and return to Armenia of one such vehicle for display in a Museum of Future Transport within the park.

In this way, a contemporary transport system could symbolically continue a technological ambition conceived in Armenia decades earlier.

Historical details concerning specific vehicles, earlier construction works and the vehicles' present legal ownership would require separate archival verification.

The preliminary maglev corridor should be examined in conjunction with Yerevan, the Academic City and the Byurakan complex. Its exact alignment, technology, passenger capacity and cost will require a dedicated feasibility study.



Maglev and transport interchange: a strategic option for providing access to the park.

9. Integration with the Academic City

An important additional advantage is the potential functional integration of the development with the Academic City being created in Armenia.

Byurakan's focus on science and technology can support lasting links among universities, research institutions, high-technology companies and tourism infrastructure.

Joint science exhibitions, student competitions, international conferences, technology festivals, demonstrations and educational events are envisaged.

The science and technology pavilions can serve not only as attractions but also as places where university and school students acquire hands-on familiarity with new technologies.

Shared transport infrastructure would reinforce the connection between the two projects.

Over time, an integrated science, education and technology area could emerge, linking Yerevan, the Academic City and Byurakan-Aragats.

10. Tourism, the Economy and National Importance

Byurakan-Aragats should be regarded as a long-term infrastructure initiative of national importance.

Its economic impact will go well beyond ticket sales, hotels, restaurants and sporting events.

The complex could contribute to:

- a substantial increase in international visitor numbers;
- the creation of a new destination in Armenia in its own right;
- longer stays by international tourists;
- the development of international air connectivity;
- the attraction of technology companies and scientific organisations;
- job creation in construction, tourism, science, culture and services;
- the modernisation of transport and utilities infrastructure;
- the promotion of education and public engagement with science;
- greater international investment appeal for Armenia;

The project gains particular significance in combination with other prospective Armenian development initiatives, including a new international aviation hub, transport corridors, high-technology development and modern energy infrastructure.

A central result could be the emergence of a new international image of Armenia: a country with not only a rich historical heritage but also modern scientific, technological and cultural infrastructure.

The project must nevertheless have a sustainable economic model and must not depend solely on hosting one Formula 1 Grand Prix each year.

Its year-round components must sustain constant activity, serve different categories of visitors and generate their own revenue streams.

11. Preliminary Investment Scale and Delivery Timetable

At the current stage, the overall project cost is estimated, strictly at concept level, at approximately **USD 5 billion**.

This envelope covers not only the themed park itself but also its essential infrastructure:

- science and technology pavilions and attractions;
- landscaped park and large-scale planting systems;
- international racing circuit and related infrastructure;
- modern concert hall;
- hotels and commercial facilities;
- new road network;
- maglev line and transport terminals;
- power, water, engineering and communications infrastructure;
- maintenance, safety and management facilities;

This is not an estimate derived from detailed engineering. It is an initial investment benchmark to be refined following preparation of a masterplan and feasibility studies.

The target period for construction and commissioning of the entire complex is five years, with the possibility of bringing individual facilities into operation progressively within that period.

The immediate priorities are geographic, topographic, geological, environmental and transport studies, the definition of the project boundaries, development of the architectural concept and assessment of economic feasibility.

A detailed masterplan, investment model, financing structure and phased delivery programme can then be prepared.

Possible financing and delivery participants include public institutions, international institutional investors, private investment funds, technology companies, hotel operators and specialised infrastructure investors.

12. Conclusion: A New Symbol of Armenia

The Byurakan–Aragats project offers an opportunity to unite Armenia's scientific heritage with its future.

Rather than allowing historical scientific assets gradually to become museums alone, it proposes to build a modern economic, scientific, educational and tourism ecosystem around them.

Rather than an isolated racing circuit, it offers an international sports complex woven into one of the region's most impressive natural landscapes.

Rather than a conventional theme park, it proposes a place dedicated to real achievements in science, artificial intelligence, robotics, space exploration and future technologies.

Rather than an isolated concert hall, it offers a new international cultural centre making full use of its exceptional location.

Rather than ordinary transport infrastructure, it envisages a future mobility system that could itself become a symbol of Armenia's technological development.

And the project could become a further platform for international cooperation, including between Armenia and Turkey, demonstrating how shared cultural, technological and sporting initiatives can contribute to good-neighbourly relations.

Its principal objective is to create in Armenia a unique international centre of science, technology, culture, sport and tourism that will serve the country for decades to come.

Byurakan-Aragats should become one of the symbols of twenty-first-century Armenia: a place where an exceptional scientific past meets the technologies of the future.

Document Status

This document is a preliminary conceptual proposal. Investment, territorial and technical parameters are indicative and require further studies. Architectural images are artistic visualisations, not approved designs. Hosting Formula 1, building the maglev and any lighting of Mount Ararat would each require separate technical, commercial, environmental and governmental approvals.