

2020 Vision

2020 Vision. It sounds like a diagnosis from your optometrist; but it isn't. It is what the Space Elevator, the Galactic Harbour, is becoming. Our 2020 Vision is a portrayal of the fulfilled transportation story of the 21 st Century. It is the extension of our experience; the manifestation of humankind's initial expansion into the rest of the Universe. This is an unabashed explanation of what we see with 2020 foresight.

An architectural engineer is a system engineer with vision like Michael has. You have to completely rebuild a modern harbor to understand the "mega" part of megaproject like Vern did. These co- founders see a network of space elevators as a visionary megaproject; one that is the culmination of our vision and our life's work.

In the broad field of Transportation Systems, the 19th and 20 th Centuries saw evolutionary advances in the movement of cargo and people across vast distances. In the United States, the opening of the Transcontinental Railroad in the 1860s brought expansion and opportunity while making such systems as covered wagons, pony express and even "around the Horn" sailings obsolete. In the early 20th Century, gasoline powered automobiles and trucks led to development of roads and highways that expanded into the Interstate Highway System in the 1950's. In this same era, visionaries developed the concept of Intermodalism based on standardized shipping containers; soon becoming the worldwide Containerization system. That system remains the primary mover of large cargo volumes across the face of the Earth. In the 1970s, FedEx developed its system of specialized Air Cargo planes that revolutionized the movement of consumer goods.

By the middle of the 21 st Century Galactic Harbours will provide a nexus for connecting these two dimensional transportation systems of rail, highway, shipping, and air to the third dimension; and provide a safe, reliable and cost effective means to move material and people into orbit and beyond.

Earth's Galactic Harbours

We see a network of diverse elevators, spread around the earth; but they differ by more than location. Their respective engineering differs by their purpose. Cargo transshipment and vertical cargo transport are common to each, but the Harbours are optimized for their respective specific purposes.

GEO Orbit factory support

- Space Based Solar Power
- Satellite servicing – Refuel, repair, upgrade
- Assembly of large spacecraft and space facilities.
- Other on orbit enterprises

Interplanetary travel support

- Flight Systems final assembly
- Departure Mission readiness and checkout
- Departure and arrival operations
- Fueling special thrusters for long distance operations
- Massive cargo and material handling operations

Research support

- Sensing Systems
- Flight operations within the Elevator regions
- Computers
- Testing and test data collection facilities

Tourism support

- Human rated activity
- Elevator region flight operations
- Safety and Comfort

Government support

- Space and Region debris mitigation
- Space Traffic Management and Control
- Law enforcement
- First Responders
- Safety assurance operations
- Sovereign issues and relations

Some of these elevators are stand alone, and some are hybrid elevators sharing the operational regions with one another. To some extent the "Government elevator" is embedded in all elevators. Travel from one elevator to another is on enhanced pathways along and across the geosynchronous belt. Trade between the elevators is robust; especially for delivery of key repair items; FedEx and UPS aloft.

Some of the elevators are human rated and some are purely robotic. Some are small and speedy, and some have immense throughput.

The Solar System's Elevators

The purposes of Earth's Space Elevators are to 1) deliver cargo to the Enterprises assembling along the geosynchronous belt near the Space Elevator's GEO Regions; and 2) support interplanetary flights from the APEX Regions; to the Moon, to Mars, and elsewhere.

Since the interplanetary flights from the Apex will use the latent ΔV , (derived from Earth's rotation - transformed into radial speed at departure from the Apex); Space Elevators are established around the Solar System as part of the Galactic Harbour transportation network. Elevators operate near the Moon, on Mars, on key asteroids within the asteroids belt and elsewhere. We see immense cargo craft moving from Elevator to Elevator bringing supplies and equipment; and returning with raw materials for processing in one of the several GEO regions and later to Earth. This is the third dimension of trade, commerce, transportation, and humankind.

The Galactic Harbour Network – Earth's lifeline to the future

The magnitude of this portrayal is humbling. It will be accomplished in the time to come. It is a well-marked destination; marked by the needs of humanity. It was seen before; yes, seen by those who preceded us - and it will be built by those who follow.