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SERRA GAÚCHA REGIONAL TRANSPORTATION SYSTEMS AND DEVELOPMENT PROJECTS

FIRST STAGE DEVELOPMENT, THE REGIONAL TRAIN

Convocação dos Gabinetes dos Governos Municipais

Local: Universidade de Caxias do Sul,
(UCS) Bloco M, Sala 113
Data: 12 de Agosto de 2025
Horário: Das 9h às 12h

SIGA MOBILIDADE

INFRASTRUCTURE DEVELOPMENT PROJECTS FOR SERRA GAÚCHA STAGE ONE OF PHASE ONE THE REGIONAL TRAIN BUSINESS PLAN

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1. Bento Gonçalves,
2. Garibaldi,
3. Carlos Barbosa,
4. Caxias do Sul,
5. Farroupilha,
6. Nova Petrópolis,
7. Gramado,
8. Canela,
9. Cambará do Sul,
10. Bom Jesus,
11. Vacaria,
12. São José dos Ausentes,
13. São Francisco de Paula,
14. Jaquirana,
15. Arroio do Sal, and
16. Flores da Cunha

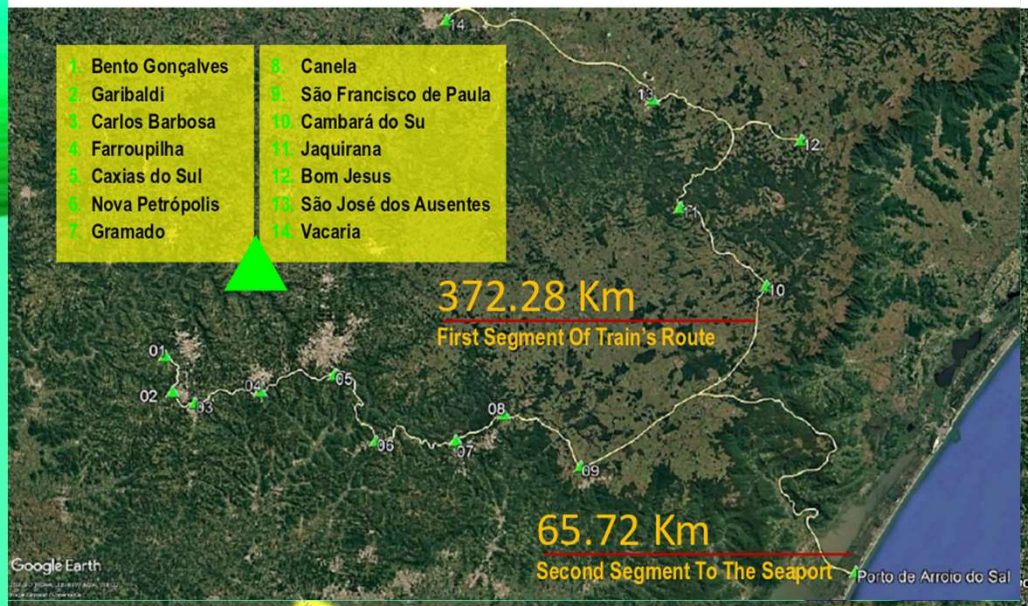
AN EXECUTIVE SUMMARY TO BUILDING VIABLE ECOSYSTEMS AND **SUSTAINABLE INFRASTRUCTURE** FOR TRADE AND DEVELOPMENT **IN SOUTH BRAZIL**

ASSESSMENTS OF RISK

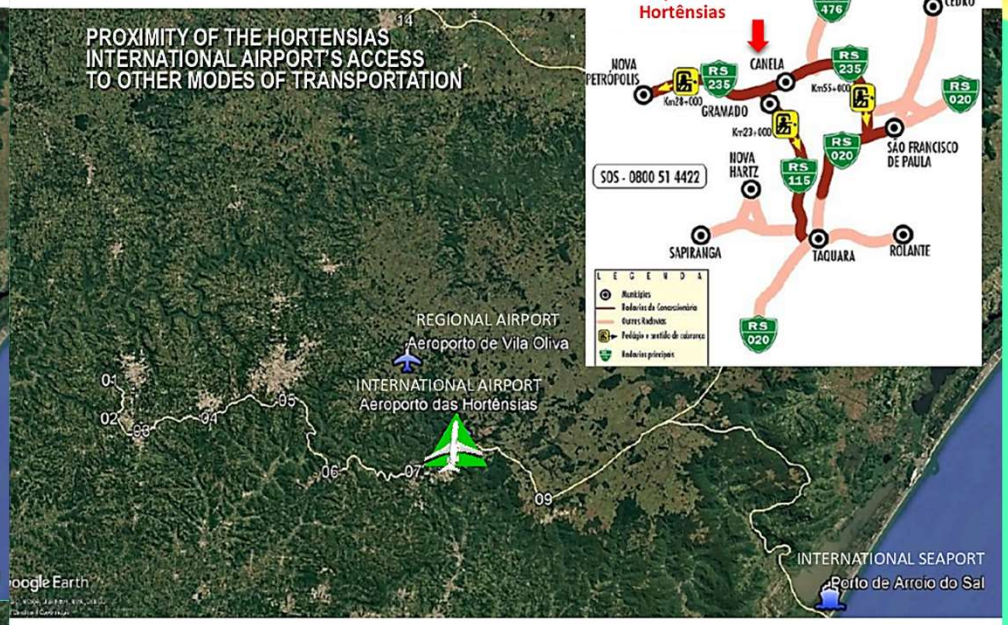
- Not raising enough funds to complete the work (-)
- Governmental change of legislation preventing the autonomy of private companies in the railway sector. (-)
- Low demand for freight transport (-)
- Low demand for passenger transport (-)
- Demand for cargo transportation exceeds available capacity (+)
- Demand for passenger transport exceeds available capacity (+)
- Work load and cost becomes much more expensive than expected (-)
- Incalculable risk associated with Climate Change conditions (-)

Trem Regional da Serra Gaúcha

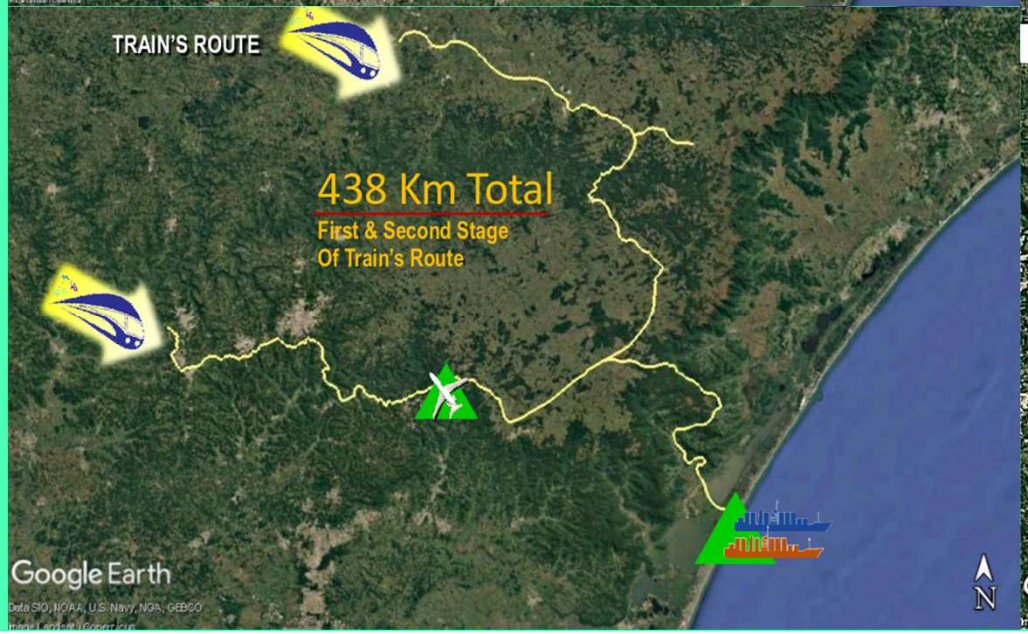
FIRST 14 TRAIN'S STATIONS



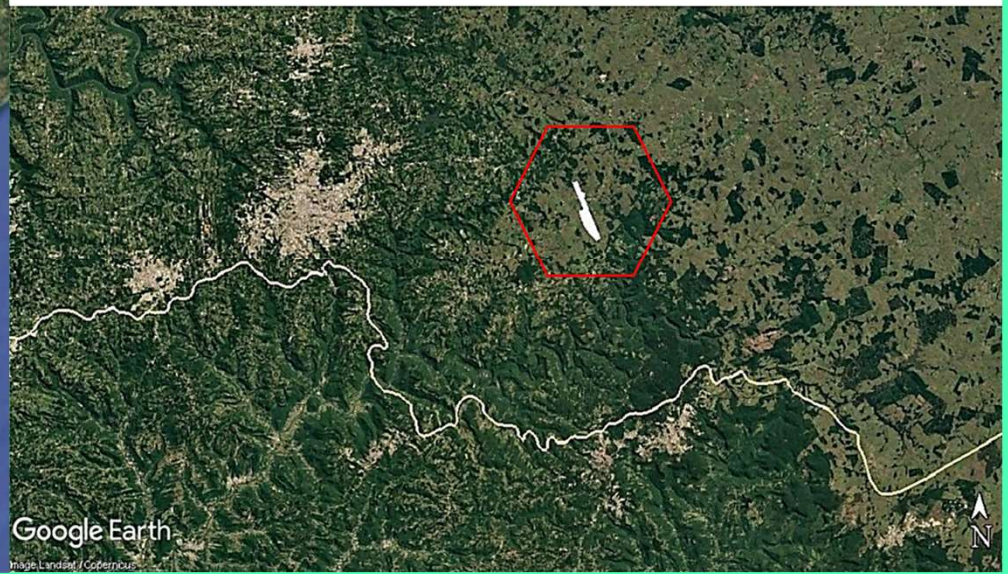
PROXIMITY OF THE HORTENSIAS INTERNATIONAL AIRPORT'S ACCESS TO OTHER MODES OF TRANSPORTATION



TRAIN'S ROUTE



THE GAÚCHA MOUNTAIN'S INTERNATIONAL AIRPORT AND CDL COMPLEX



GDP OF THE FIRST 14 MUNICIPALITIES FOR DEVELOPMENT

RS GDP RANK	MUNICIPALITIES 2023	GDP (R$ 1,000)	GDP RS M/Share	PROJECTED GDP 2027	PROJECTED GDP 2032	PROJECTED GDP 2037
2	Caxias do Sul	31,688,460	5.45%	$33,272,883.00	$35,435,620.40	$37,916,113.82
14	Bento Goncalves	7,498,499	1.29%	$7,873,423.95	$8,385,196.51	$8,972,160.26
21	Farroupilha	4,398,447	0.76%	$4,618,369.35	$4,918,563.36	$5,262,862.79
33	Carlos Barbosa	3,529,578	0.61%	$3,706,056.90	$3,946,950.60	$4,223,237.14
35	Vacaria	3,245,665	0.56%	$3,407,948.25	$3,629,464.89	$3,883,527.43
40	Garibaldi	2,997,963	0.52%	$3,147,861.15	$3,352,472.12	$3,587,145.17
45	Gramado	2,658,018	0.46%	$2,790,918.90	$2,972,328.63	$3,180,391.63
75	Canela	1,595,255	0.27%	$1,675,017.75	$1,783,893.90	$1,908,766.48
106	São Francisco de Paula	1,026,513	0.18%	$1,077,838.65	$1,147,898.16	$1,228,251.03
108	Nove Petropolis	972,684	0.17%	$1,021,318.20	$1,087,703.88	$1,163,843.15
149	Bom Jesus	613,622	0.11%	$644,303.10	$686,182.80	$734,215.60
279	Cambara do Sul	242,576	0.04%	$254,704.80	$271,260.61	$290,248.85
362	São José dos Ausentes	155,631	0.03%	$163,412.55	$174,034.37	$186,216.77
447	Jaquirana	94.041	0.02%	$98.74	$105.16	$112.52
	Total	**60,716,952**	**10.47%**	**$63,490,742.74**	**$67,791,675.39**	**$72,537,092.66**

Source: Gross Domestic Product of Municipalities (IBGE, 2023). **NOTE:** Update data occurs every 5 years. Projections are bass upon the demographic shift expected in 3 and 5 year intervals based upon MobiCaxias 2040

SIGA MOBILIDADE URBANA - THE CONDUCTOR

SIGA Mobilidade Urbana, (SIGA) is the orchestrator, the coordinating conductor of the railway transportation infrastructure systems. SIGA is a privately held corporation with partners, and affiliates that maintain strong relationships with decision makers at all levels of the Brazilian government, the region's business and academic communities, as well as civil society and other nonprofit organizations. In addition, the company's leadership has and continues to build relationships and partnerships on a global basis. SIGA's leadership clearly understands that the success of the multi-pronged transportation system designed to benefit the 72 Serra Gaucha region municipalities, and its population depends upon identifying and securing the necessary expertise, technological advances, and innovations to build, sustain, and further develop the system.

SIGA's approach over the past three years has been to address complex infrastructure issues that may have an impact upon a number of vastly different ecosystems. At the same time and of equal importance is balancing the socioeconomic factors that improve the quality of life for today's population as well as planning for the projected population expected in 2040.

OBJECTIVES AND SUCCESS CRITERIA

Objectives	Success Criteria
Decrease the volume of cargo transported by ground transportation modal	Rail module should reach 15% of transport loads by 2035
Serve as a viable means of transportation for handling passengers	Movement of an estimated 8 million passengers by 2035
Generate funds through the issuance of bonds via Carbon Credits for development	Generation of US$ 1.5 billion in carbon credits by passengers 2035
Provide quality service to carbon credit users (passengers, cargo and tenants)	User satisfaction rate above 80% and punctuality above 95%

MILESTONE CHECK LIST

First phase	Fundraising preparation to identify funding secure resources and obtaining procedures to obtain carbon credits usage for development projects.	**2022-24**
Second phase	Elaborate and promote the project's economic viability, completion of engineering and negotiation of the private lands to be acquired.	**2022-25**
Third phase	Purchase of equipment, i.e. locomotives, cargo and passenger cars and implementing construction of stations and railway line.	**09-2025**

PRIORITY REQUIREMENTS AND ASSESSMENTS

1. Legislation on railways infrastructure remains unchanged with 99 year concession. ✓ Completed
2. Investors must have their return guaranteed. By Law No. 10,303, of 10/31/2001) ✓ Completed
3. There is a positive view of the project through the Public Hearings convene. ✓ Completed
4. Industrial entrepreneurs realize how the railroad will improve their competitiveness in regional and international markets, from the industry sectors convening ✓Completed
5. The tourism sectors realize the advantages of having more than one interconnected modes of transporting more tourist and employees, confirmed via the Associations. ✓Completed
6. The 14 Municipal Governments have approved the development in each community. ✓Completed

ANALYZATIONS & OBSERVATIONS

A. Due to an instinctive desire for political gain, there will, and has been politicians who have made attempts to obstruct the progress of the project, but to no avail.
B. Investors and population will be more supportive if the project is environmentally sustainable, financially feasible and viable for the communities.
C. Due to the volume of resources involved, the project must have transparence and be compliant in all regulatory procedures across Local, State, and Federal governments.
D. The railroad should be limited to the Serra Gaúcha region of the state for the first 10-15 years.
E. The manufacturing of as much of the equipment to be used on the railroad to be contracted by companies located in Serra Gaúcha region.

THE PRIMARY PROTAGONISTS & DRIVERS

CAXIAS DO SUL

The importance of Caxias do Sul, the largest municipality in the Serra Gaûcha region, along with its major similarly named city, Caxias do Sul, is clear as together, they are the region's epicenter and population hub. What also is obvious and undeniable is that the region's future development must include its largest municipality, and the city which serves as the State of Grande do Sul's principal business center. Rightly, assumptions can be made that further growth and development of the municipality and city must depend upon attracting an even larger population and diverse businesses along with the required supporting resources. Regrettably, neither the municipality, nor the city is prepared to accommodate the 2040 projected expansion.

Currently, the city has a large population and faces mobility, solid waste collection, and other problems. Attracting more people would only exasperate the problems. Caxias do Sul must improve its public service delivery systems to ensure and raise the region's living standards and its GDP *per capita* through regional growth and development. As is stated my many, "The larger the population…the greater the problems associated with its development." The time is long overdue for Caxias do Sul to grow with the support of its neighboring cities. This does not mean stopping growth or expelling people from the city, but rather decentralizing growth and redirecting some development initiatives to small, neighboring cities.

The Serra Gaûcha region accounts for 16% of cargo moved internally. This percentage indicates high integration, but it could be even higher, especially considering the amount of existing industrial products. As example, Caxias do Sul contains the largest number and diverse companies due to the fact that it has a population able to assemble subsystems developed and aggregated by third parties in neighboring cities. Caxias do Sul the municipality has the potential to increase its prominence by becoming the regional hub for the assembly and export of products located within the region. It should be mentioned here that the smaller municipalities must have a "network relationship" interacting, in turn, with their neighboring municipalities. To achieve this goal, a new and normal culture of cooperation needs to be established so that smaller companies begin to collaborate with larger ones for mutual benefit. It is much faster and less expensive to improve a subsystem that is the specialty of a small company than for a large company to improve it on its own. This is because small companies can focus on their products. What is up to large companies is to demand quality and technological development. The aircraft industry represents the classic example. It takes many companies to build a single aircraft. No one company manufactures the aircraft's components. And lately, not even the fuselage is manufactured by a single company

Each of the medium-sized cities need to hire skilled and experienced people to address the problems the City of Caxias do Sul now faces. This approach of developing smaller local hubs throughout the region and cost-sharing supports growth, connectivity, productivity as well as improves the quality of life throughout the region

Local tourist train

It is important to emphasize that medium-sized cities have large enough populations to interest companies in staying in their cities. Therefore, the cities should focus on becoming local hubs of innovation and industrial production. Furthermore, a very strong cooperation network must be created with neighboring municipalities, so that, as already mentioned, the costs of human development and quality of life can be shared. However, for this to occur, the municipality must be large enough to support the infrastructure and at the same time meet the demand, which will come from the population of neighboring municipalities, which, in turn, do not have the population or resources to maintain a large-scale structure. The following are medium-sized municipalities with more than 25,000 inhabitants that will collectively benefit and support the undertakings.

Municipality	Population
Bento Goncalves	123.151
Farroupilha	70,286
Vacaria	64,197
Canela	48,946
Gramado	40.134
Garibaldi	34.335
Carlos Barbosa	30,420

For growth to occur, cargo transportation and the movement of people must be as efficient as possible. That is why it is important to support regional integration projects (Serra Gaúcha Airport, Regional Train, North Coast Port, rail access, improved highways, to name a few of the transportation options. It is far too expensive and time-consuming for each municipality to have its own port, airport, train terminal, so only with regional infrastructure projects will medium-sized cities experience growth and development, whether through tourism, agriculture, industry or services.

In short: what medium-sized municipalities should focus on is improving their quality of life, promoting a culture of cooperation/outsourcing, developing logistical infrastructure that connects them to the epicenter Caxias do Sul, and the other neighboring municipalities, along with forging stronger ties and relationships with the smaller, neighboring municipalities.

An Arial view of the central city of Conela's Cathedral

CANELA & GRAMADO

Canela and Gramado are the drivers of the tourism industry. Combined, they are considered to be of the most visited cities in Brazil. Gramado received approximately 8 million tourists in 2023, which corresponds to approximately 200 visitors for each of the 40 thousand residents. This record number highlights the importance of tourism for the local economy and for the State of Rio Grande Do Sul (RS). This number is the highest in the historical series and represents an increase of 6% compared to 2022.

Tourism in the city of Gramado generates more than R$1.5 billion annually for the local economy, which represents around 86% of the Gross Domestic Product (GDP). Businesses also boost the city's economy, with highlights including the more than 100 companies in the furniture sector, 270 hotels, 19 chocolate factories, as well as knitwear and construction, which are considered to be the most profitable in Gramado. Other industry sectors highlight include the agribusiness sector, which is an important source of employment for the majority of Italian and German immigrants. The main products include honey, jam, wine, cheese, and breads, in addition to the oriental horticultural products.

TOURISM INDUSTRY

Serra Gaúcha is one of the most visited regions in Brazil. In addition to its beautiful landscapes, the Serra Gaúcha offers very interesting cultural characteristics. The German and Italian influences, in addition to the gaucho influence, of course, are the most apparent. This influence can be seen in several aspects: in the local architecture and in the production of grapes and wines, in the cuisine and customs. The Serra Gaúcha is large but is subdivided into three different geographic and cultural regions: Campos de Cima da Serra (Gaucho), the Hortênsias region (German) and the Serra region (Italian).The Gaucho Region includes the cities of Bom Jesus, São Francisco de Paula and São José dos Ausentes, as well as the canyons of Itaimbezinho, Fortaleza and Malacara. It is the region of gaucho culture, formed from the miscegenation of the border with Argentina and Uruguay.

The German Region includes Gramado and Canela, the main tourist cities in Serra Gaúcha. It has a very strong influence from immigrants who came from northern Germany. The Italian Region includes the cities of Bento Gonçalves, Farroupilha, Garibaldi and Caxias do Sul, characterized by Italian immigration from the Veneto region. The region is famous for its wine production, as well as its gastronomy, especially pasta and grilling techniques, (barbeque).

According to the Ministry of Tourism, Brazil recorded 12.3 million trips in 2021, with 99.3% of them taking place within the country. The Southern region ranked as the third most visited (17.3%). Rio Grande do Sul was the fifth most sought-after state as a tourist destination for visitors (6.5%). In the Uva e Vinho Touristic Region, encompassing 33 municipalities, Caxias do Sul stands out as the municipality with the highest employment rate (5,637 jobs), representing 52.4% of the total. Among the sectors contributing significantly to employment in the municipality are transportation, restaurants, and hotel accommodations. [RAIS 2020].

HOTEL ACCOMMODATIONS

Gramado continues to expand. The city continues to receive new hotels and inns, totaling more than 270 units throughout the city, and with at least 10 new hotels under construction, in addition to luxurious spas. The city currently has 27,000 beds between hotels and inns, a significant increase in just 6 years (from 2013 to 2019), when it had around 11,500 beds.

In 2022, the occupancy rate of hotels and inns in Gramado reached 72%, surpassing the 61% recorded in 2021. The Christmas and New Year period significantly increases hotel occupancy, raising their occupancy rate to up to 80%. In 2023, the occupancy rate was even better, especially during holiday periods, with the average occupancy rate reaching 85%. The Gramado Film Festival is one of the most important cultural events in Brazil. Held during the month of August, the city receives a large number of tourists and the occupancy rate is also high.

Gramado's Christmas Lights, during the months of November, December and part of January, is the time of year when the city receives the most tourists, reaching 100% occupancy. Many tourists seek accommodation in neighboring cities, such as Canela, Nova Petrópolis and São Francisco de Paula.

Street scene of the central city of Conela

PROFILE OF TOURIST ATTRACTIONS

Gramado is a city that draws a lot of attention during; Easter, Valentine's Day, the Film Festival in August and also at Christmas, the city's biggest highlight. However, the city in Serra Gaúcha offers festivals and attractions throughout the year, such as Gramado in Concert and Carnival in February, Chocofest and the Festa da Colônia between April and May. The city also hosts Amor Gramado and Estação Gramado, from May to July, and the Festival of Culture and Gastronomy, during the month of September. Recent data proves that 94% of visitors approve of Gramado as a tourist destination.

Furthermore, data also shows that 33% of visitors seek Gramado for its natural attractions, while 24% for its cultural and historical attractions, and 28% for its climate. Among the visitors, 34% are from the Southeast Regions of Brazil, 65.6% are married and 53% are coming to Gramado for the first time. And, if we talk about the international market, 60% of the tourists are from Uruguay, 30% from Argentina and 10% from Paraguay. The chart on the next page is an approximation of the population in the smaller municipalities with less than 25,000 inhabitants that will also support the expansion and development of the train route.

Municipality	Population
Nova Petrópolis	23,300
São Francisco de Paula	21,893
Bon Jesus	11.202
Cambara do Sul	6.361
São Jose dos Ausentes	4.172
Jaquirana	3,690

The sentinel upon entering New Petropolis

The sum total populations of the small municipalities ranking in population would be the second largest in the region (just over 70,000 inhabitants). This number, by itself, already conveys its importance. These municipalities generally do not have a large enough population to have large companies or large infrastructures, because these are expensive and require other infrastructures. Therefore, it is necessary for these municipalities to join forces with medium-sized municipalities to grow through the synergy created.

Small municipalities sometimes cannot offer the same attractions as larger cities, and that is where their main attraction lies: offering what a large or medium-sized city cannot offer. Municipalities with smaller populations should explore the sense of exclusivity, of being able to have a large house, of being able to be away from the urban chaos, in other words, superior quality of life and sustainable development. These attractions are generally decisive factors for families with high purchasing power, who can afford longer and more frequent trips, larger homes and other expenses that distance may cause.

THE DEMAND

SERRA GAUCHA REGION 72 MUNICIPALITIES

TERRITORY:	**253,002 km²**
POPULATION:	**3.5 Million**
Distance to State Capital City, Porto Alegra it's Airport, and the Seaport at Arroio do Sal.	**123 km**
Metropolitan Inhabitants of Caxias, Canela, and Gramado.	**1.5 Mil**

ADVANTAGES OF THE TRAIN

- New mode of passenger and cargo transportation between the 14 municipalities, streamlining the process and reducing operating costs;
- Fast connection between the cities involved and Vila Oliva Regional Airport and Hortênsias International Airport, as well as the Port of Arroio do Sal;
- Connection between the Grape and Wine tourist centers with the Hydrangeas Region;
- Practical, accessible, fast urban mobility, and transport of goods and people;
- Encouragement of new investments, such as industries, hotels and new tourist attractions, generating employment and income;
- Creation of new jobs through the mode in the region;
- Encouragement of the creation of new businesses around the railway line in the 14 municipalities, such as theme parks and,
- Quick access for students from 14 municipalities to universities, colleges and schools.

AN EVOLUSION OF ALLIANCES & CONSORTIUMS FOR EXPANDING THE REGION'S GDP EXPORT

The driving force behind the overall development process has been the necessity to expand, strengthen and diversify the region of Rio Grande do Sul's economy through the construction of a sustainable, multi-pronged transportation system designed not only to serve the region's current and projected population growth, but also to ensure a delivery system that increases the region's GDP.

SIGA Mobilidade Urbana, is a privately held corporation whose board of directors, Chief Executive Officer (CEO), and corporate officers have worked diligently over the past five years developing plans for the Regional Train and the Hortênsias International Airport in Canela to synchronize the transportation systems through the utilization of smart grid and integrative technologies. Our task to **BUILDING SUSTAINABLE INFRASTRUCTURE** are delineated below along with deliverables accomplished as of to date 2025. The development process has been guided by the CEO's belief in an old adage included here to make that point… *"It takes one man's dream to build a road however; it will take many men, to complete it."*

MUNICIPAL POPULATION PROJECTIONS FOR PASSENGERS AND FREIGHT USAGE

Municipal	Population 2024	Project 2027	Project 2032	Project 2037
Caxias do Sul	463,501.00	483,501.00	503,501.00	523,501.00
Bento Gonçalves	123,151.00	143,151.00	163,151.00	183,151.00
Farroupilha	70,286.00	90,286.00	110,286.00	130,286.00
Carlos Barbosa	30,420.00	50,420.00	70,420.00	90,420.00
Vacaria	64,197.00	84,197.00	104,197.00	124,197.00
Garibaldi	34,335.00	54,335.00	74,335.00	94,335.00
Gramado	40,134.00	60,134.00	80,134.00	100,134.00
Canela	48,946.00	68,946.00	88,946.00	108,946.00
São Francisco de Paula	21,893.00	41,893.00	61,893.00	81,893.00
Nova Petrópolis	23,300.00	43,300.00	63,300.00	83,300.00
Bon Jesus	11,202.00	31,202.00	51,202.00	71,202.00
Cambará do Sul	6,361.00	26,361.00	46,361.00	66,361.00
São José dos Ausentes	4,172.00	24,172.00	44,172.00	64,172.00
Jaquirana	3,690.00	23,690.00	43,690.00	63,690.00
Total	**945,588.00**	**1,225,588.00**	**1,505,588.00**	**1,785,588.00**

PROJECTIONS	Totals for 2024	Projected 2027	Projected 2032	Projected 2037
Daily Commuter Bus/Train Transport @ 3% Ann. Increase.	23,275.00	70,523.25	647,466.91	1,961,824.72
Cargo Transport Per M/T@ 10% Ann.	96,000,000	384,000,000	6,144.000,002	24,576,000,009
Seasonal Tourist Transport @ 10% Ann. Increase	30,420.00	60,840.10	243,360.70	486,721.50

Data Sources: *CNI-Confederation National of Industry of Brazil, and MobiCaxias 2024 Report*

The railway line is expected to debut in the 1st. quarter of 2028, with its madden voyages between the first completed stations of Bento Gonçalves to Caxias do Sul with the commuter Tram operating the rail line.

MOVEMENT OF CARGO AND PASSENGERS

The Serra Gaúcha is the main industrial and tourist hub of the state of Rio Grande do Su. Its mobility infrastructure has been neglected for decades which are now taking its toll: the difficulty in moving around the region and the cost of doing so. In order for the region to make the most of its potential, it is urgent to increase its logistical efficiency. We can say that the cost of vehicle maintenance (generated by poor logistical conditions), accidents, freight costs, and delivery delays drain resources that could be used to develop the region and increase its productivity. Assess the feasibility of transporting both passengers and cargo on the line, optimizing their use and economic potential. This may include specific freight cars and dedicated timetables for different types of transportation.

The population throughout the region of the 14 cities is expected to increase by 20 thousand per year. The current usage of public transportation is 23,735 thousand persons per day with an expected increase of 1 percent per year for the next 4.5 years until completion of the train systems. Cargo movement across the state is currently totaling at 8 Million tons per month. Starting in Bento Gonçalves and going to Vacaria with collections of products for distribution over Brazil with 70 percent of the cargo freight for export over world. Also from Vacaria to Bento Gonçalves represents around 3 Million tons per month of importations.

Data Source: *CNI-Confederation National of Industry of Brazil.*

INDUSTRY SECTORS ALONG TRAIN'S ROUTE

1. BENTO GONÇALVES - 116 km
- Furniture sector
- Wine sector
- Fruit growing sector
- Metallurgical sector
- Transport sector

2. CAXIAS DO SUL - 79 km
- Fruit growing sector
- Transport material sector
- Food and beverage sector
- Metalworking sector
- Pharmaceutical and veterinary products sector
- Textile sector of clothing and fabric artifacts

3. NOVA PETRÓPOLIS - 28 Km
- Fruit growing sector
- Knitwear and Handicrafts sector

4. FARROPILHA - 94 km
- Furniture sector
- Knitwear sector
- Paper and cardboard sector
- Metalworking sector
- Hardware industry and trade sector

5. GARIBALDI - 114 km
- Winery sector
- Poultry sector

6. CARLOS BARBOSA - 108 km
- Industrial sector in the production of cutlery, pans sinks and electrical equipment (Tramontina)
- Industrial sector in the production of shoes, wooden frames, furniture
- Industrial sector dairy (Cooperativa Santa Clara)

7. SÃO VENDELINO - 90 km
- Poultry and swine breeding sector
- Agricultural sector in the cultivation of corn for silage
- Agricultural sector in the production of strawberries and grapes

8. FELIZ – 71 km
- Metalworking sector
- Footwear sector
- Furniture sector
- Fruit growing sector
- Pig culture and poultry sector

9. NOVA HAMBURG –– 82 km
- Leather-footwear sector formed by tanneries, chemical industries, footwear components
- Metallurgical industry and electronic components sector
- Plastic sector
- Metalworking sector

10. SAPIRANGA - 68 km
- Footwear sector
- Clothing sector
- Household appliances sector

11. TAQUARA - 54 km
- Footwear sector.
- Clothing sector.
- Plastic products industry sector
- Dairy industry sector.
- Wine and juice industry sector
- Furniture industry sector.
- Metalworking industry sector

LOADING AND UNLOADING OF CARGO

Each of the planned Depots Terminals will be equipped to load and unload utilizing on or more of the following types of terminal for loading and unloading various cargo:

Solid Bulk:

Terminals for solid bulk are made up of loading and unloading facilities. Among the installations for charging, three models are basically defined, which are:

- ❖ Terminal Beach.
- ❖ Loading walls.
- ❖ Loading Silos

Terminal Beach: it is one of the most archaic and natural types of loading. Through forklifts and mechanical shovels, the loading of the stopped composition occurs

Loading Walls: in this model, the mechanical shovels are placed on a wall, in an area above the wagons, facilitating loading from above. Mechanical shovels and bucket trucks are also used, but they are positioned on high walls, above the height of the wagons, allowing loading from above.

Loading Silos: this model allows, through the effect of gravity, standard volumes of cargo to be launched at the top of the wagon, through the silo. They are large structures, which use the gravity factor to "launch" the products in the wagons in a more practical way.

Courtyards can be defined as follows:

Maneuver Yard (most common).

Maintenance yard.

Interaction Patio

Triage Home.

Railway Terminals.

Note: In addition there is the crossing yard, which is another nomenclature for the active diversion.

The cargo data comes from CNI-Confederation National of Industry of Brazil.

Illustrative figure, Terminal Beach

MEANS OF PASSANGER RAIL TRANSPORT

The passanger rail cars proposed by the Marcoplo Corporation are being developed for both the employes daily comute throughout the region along with cars spefically designed for the trourist industry.

PEOPLE MOVERS

The multimodal Depot/Station planned for the Hortensia International Airport.

These tramways will be equiped with wide viewing windows for the touriest to enjoy the scenery along the trem's route.

DAILY PASSENGERS AND CARGO TRANSPORTED BY ROADS

The public transportation routes as of 2024 areoperating at a capasity of 23,275 passangers per day, transporting passangers by various forms of buses and short run tourest trains. The propoat single tracking passanger and cargo trains The numbers of 8 million tons per month from the region via the trucking has been caculated from the cargo data obtained through the CNI-Confederation National of Industry of Brazil.

Tramway — Marcopolo RAIL

-100% Elétrico
-Piso Baixo
-Parcerias Estratégicas

	Turismo	Intercidades	Urbana
Largura de portas	1000 mm	1000 mm	1300 mm
Número de abertura de portas por carro	2	2	6
Capacidade de passageiros por carro	70	70	180

Turismo e Intercidades — **Urbana**

2 carros - 140 passageiros — 2 carros - 360 passageiros

3 carros - 210 passageiros — 3 carros – 560 passageiros

4 carros - 280 passageiros — 4 carros - 760 passageiros

Projected demands for passanger usage, and freight cargo being transport once railway system is completed.

	YEAR 2024	YEAR 1 2025	YEAR 2 2026	YEAR 3 2027	YEAR 4 2028	YEAR 5 2029 5%	YEAR 6 2030
Commuter Bus/Public Transportation @ 3% & 5%	23,275	23,973.25	24,692	25,433	26,196	27,506	28,881
Commuter Train Ann. Once Completed @ 10% & 13%						20,952	24,095
Tourist 2025 Bus/Public Ann. Transportation @ 10% & 15%	30,420.	33.462	36,808	40,489	46,562	53,546	61,578
Fright/Cargo /Per MT	96,000,000	105,600,000	116,160,000	127,776,000	140,556,600	154,608,960	177,800,304

BUILDING SUSTAINABLE INFRASTRUCTURE

MULTIMODAL TRAIN LINE FROM BENTO GONÇALVES TO VACARIA

The Serra Gaúcha Regional Train is a transformative multimodal train line connecting Bento Gonçalves to Vacaria. This undertaking will revolutionize transportation in the region, bringing economic, social, and environmental benefits. We have analyzed the crucial aspects outlined in defining task, and planning the criteria to ensure the financial viability and sustainability of the train's development, from its initial planning until its operations.

DEFINING TASK AND PLANNING

1

ENVIRONMENTAL ASPECTS, STUDIES & LICENSES

We are within compliance with environmental legislation, obtained the necessary licenses and authorizations from regulatory and compliance bodies (IBAMA, FEPAM, etc..)

2

LINE LAYOUT AND ENVIRONMENTAL IMPACT

The route of the railway system prioritizes the minimum environmental impact and the maximum social benefits inclusive of topographic surveys, analysis of sensitive areas and environmental impact studies and connectivity.

3

ENGINEERING AND INFRASTRUCTURE

Detailed designs for the railway infrastructure components, special works of art and development multimodal stations are into establishing an integrated system.

LEGAL & INSTITUTIONAL ASPECTS

ENVIRONMENTAL LICENSES AND STUDIES: Critical among all projects is in compliance with environmental legislation, and has obtained the necessary licenses and the appropriate authorizations from regulatory bodies.

EXPROPRIATIONS AND RESETTLEMENT OPTIONS: In the expropriation process, we considered the fair market value of the lands needed, with remuneration options provided. All procedures will be conducted with complete transparency, and insurance for appropriate relocations to affected families, if and or when it is necessary.

PUBLIC PARTICIPATION: The collective participation of civil society, communities for all stages of the project has been vetted through public consultations and hearings.

DEMAND AND ECONOMIC VIABILITY

An analysis of the regional statists have been conducted to gather the current and to determine in best estimates of the real demand for passenger and freight transportation, assessing the long-term economic vision of the project.

FINANCING RESOURCES

The development of the railway train systems as a private initiative has presented several financing options that will be utilized. The range from direct loans with security bonds for collateral, private investments, Initial Public Offerings (IPOs) to our reserves of Carbon Credits with insurances wraps and national guarantees for foreign investments.

HERITAGE PRESERVATION AND CONTINUITY IN THE DEVELOPMENT

The preservation of the historical and cultural heritage of the region is imperative during the implementation of the rail line. Adapting the project or creating protective measures when necessary.

PROJECTIONS OF JOBS CREATION

The projected direct, and indirect employment opportunities that will be created from the construction of the rail systems from both the cargo and passenger train. What will be the expected continuous employment opportunities for operation of the railway line?

TOURISM PROMOTION

Enhance the development of tourism industry in the region, taking advantage of the new transportation infrastructure to attract more visitors.

Vacaria ● Bom Jesus ● São José dos Ausentes ● Jaquirana ● Cambará do Sul ● São Francisco de Paula ● Canela ● Gramado ● Nova Petropolis
Caxias do Sul ● Farroupilha ● Carlos Barbosa ● Garibaldi

14 Municipal Stations

14 Passenger Station, and 4 Depots Serving 42 Municipalities in the Serra Gaúcha, Rio Granda do Sul Regional Train

1. ENVIRONMENTAL ASPECTS

ENVIRONMENTAL IMPACT STUDIES

Rigorous EIA/RIMA, impact studies have been conducted with broad public participation and consultation with indigenous communities, were applicable. Analyze of environmentally sensitive areas (APPs, conservation units), we are seeking solutions or mitigating measures to minimize impacts.

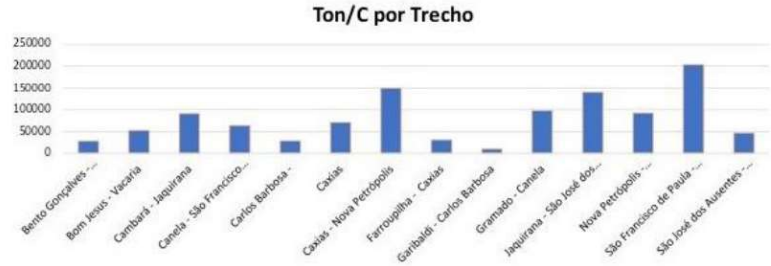
STUDY BASES

The preliminary analysis commissioned by the Serra Gaúcha Regional Train consortium brings a sampling preliminary estimate with the generation of carbon credits based on the preservation of the vegetation area and forest restoration due to mandatory environmental compensation.

CARTOGRAPHIC BASES	SCALE	CRITERIA	
Spring Areas	1:20.000	Binária -	50m
Indigenous Areas	1:20.000	Binária -	1000m
Wetlands	1:25.000	Binária -	50m
Soil Classification	1:25.000	Multicriterial -	
Urban Centers	1:20.000	Binária	1.000m
Slope	1:20.000	Binária =	<20°
Road Rental	1:20.000	Escalonar-	
Rivers 30m	1:25.000	Binária -	300m
Rios 50m	1:25.000	Binária -	300m
Road System	1:20.000	Escalonar-	
Conservation Units	1:50.000	Binária -	1000m

METHODOLOGY

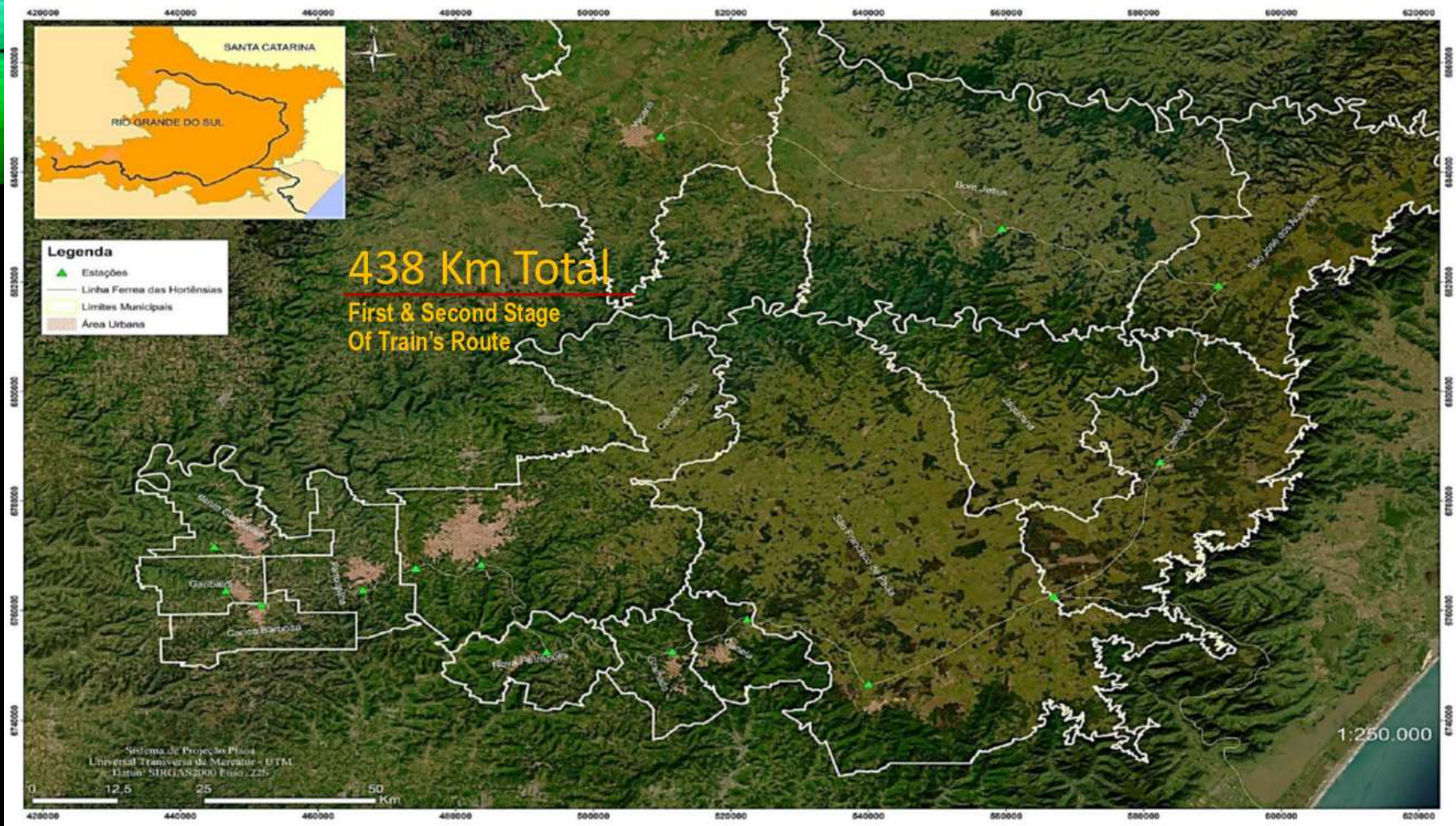
A 150m strip was defined for each edge (300m area around the entire railway line) from the center of the train line, to be used as an environmental compensation area, as defined in the image below: This preliminary analysis was developed from georeferenced satellite images on a scale of 300x300m each pixel of the images. The estimate was defined based on logarithms and a database estimated worldwide according to the methodology of the LUCID website (http://lucid.wur.nl). Information about the train line and vegetation, geographic and topographic formations generates a multispectral model where an estimate of the total accumulated volume of Carbon in the vegetation biomass (Ton/C) can be generated.



MOVEMENT OF PASSENGERS

INTER CONNECTIVE MODES: COMMUTER BUS AND PASSENGER TANDEMS MARCOPOLO, PRIAM CONTRACTOR

INTER CONNECTIVE MODES: VIA HORTENCIAS INTERNATIONAL AIRPORT AND LOGISTIC CENTER (CDL)



INTEGRATION OF MULTIMODAL TRANSPORTATION LINES CONNECTIONS

Integrate the train line with other modes of transport systems connecting a passenger train, buses, vans, personal transport vehicles, manual and motorized bicycles, and long or short-haul trucks through efficient intermodal terminals for passengers and cargo. This will create a cohesive and comprehensive transport network for the region at each station stop for passengers and cargo movement.

This interconnectivity will be the bases for the supply chain structure for moving products from the factories and fields to the consumers. Adding to the assessment of the validity of the train system's demand is verfication of the tourism industry that will utilize the statical data gathered for an accurate evaluations of the industry sector's contribution to the GDP profile in support of the demographic expansion.

With the expected increase from the tourist industry, the number and variety of modes of personal transportation will also increase. In Brazil, rail transport is used in a complementary way, feeding the other terminals.

Domestic railway terminals carry out cargo loading and unloading operations, coming from or destined for different railway lines or other modes of transport, in the national territory. In the nation here are currently 14 rail networks terminals in operation for transport and distributed. The proposed CDL and airport at Canela is planned as the 15th CDL terminal for South Brazil.

MOVEMENT OF FREIGHT CARGO

In Brazil, rail transport is used in a complementary way, feeding the other terminals. Domestic railway terminals carry out cargo loading and unloading operations, coming from or destined for different railway lines or other modes of transport, in the national territory. The main function of the train lines of the freight railways is to carry out the transport of these items for domestic consumption or for export. That is why the terminals must be built close to the main destination of the lines, or close to the industrial and agricultural production sectors, facilitating the loading and unloading of cargo. In these Rail Cargo Terminals, the items produced are positioned in the train wagons, thus being able to continue the journey to the desired destination.

Over long and medium distances, rail transport tends to have lower private and social costs. The energy efficiency of rail transport is proven for distances greater than 500 km and less than 1,000 km. In these cases, the efficiency is greater than that of road transport. That is, the same load can be transported for the same distance with less energy if the modal used is rail and with lower emission of pollutants. Greater energy efficiency results in lower private rail transport costs that are not reflected in freight prices.

A Cargo Rail Terminal also serves as the terminus of rail lines, as well as at the Road Terminals. However, the Cargo Railway Terminal, its operation has some differences. It is at these end points of a line where the loading or unloading of cargo takes place. As the lines make circular paths, that is, they always return to the same terminal, there is a whole logistics stipulated so that the loads are loaded or unloaded in an efficient and adequate way. Therefore, Rail Cargo Terminals can be defined as a series of facilities and equipment for loading, unloading and transferring products or even passenger transit. They can be located at the ends of the railway lines or even at intermediate points. The infrastructure conditions of the terminals, specialized for the different types of cargo, are of great importance for the efficiency of the transport system, involving aspects of agility, information and safety in the transhipment of cargo. Rail freight is also safer than road freight, with a lower accident rate and a lower incidence of theft and robberies.

In Brazil, rail freight transport has the following characteristics:

- Great load capacity in its wagons forming convoys.
- Suitable for long distances, ideal between 500 km to 1,000 km.
- High energy efficiency in cargo transport, in relation to the fuel consumption.
- Low level of pollution in relation to other modes.
- High value with the implementation cost.
- Low cost of transport in relation to the road modal.
- Low maintenance cost of machines and wagons.
- Greater safety of the cargo transported in relation to the road modal, since that there are few accidents, thefts and robberies.
- Slow transport due to its loading and unloading operations on the wagons,
- Low flexibility in relation to the small length of the rail network.
- Low integration of rail networks between Brazilian states.

The legislation provides tangible incentives for companies looking to develop innovative projects. For instance, companies engaging in innovative activities can benefit from a reduction in the ISSQN tax. This proactive approach not only attracts existing businesses to explore new areas of innovation but also encourages startups and entrepreneurs to choose Caxias do Sul as their base. Another groundbreaking aspect of the Innovation Law is its openness for companies from other states to test their technologies in Caxias do Sul. This allows the municipality to become a "testing ground" for innovations, where new ideas can be validated and refined in a real environment. By doing so, Caxias do Sul benefits by becoming an innovation hub, attracting talent, investments, and, of course, cutting-edge technologies.

Furthermore, it establishes a specific investment fund for innovation is another notable feature of the law. This fund allows the public power to raise resources from different spheres to invest directly in innovative projects, ensuring that the most promising ideas receive the necessary financial support to materialize. Caxias do Sul's Innovation Law is more than just a legal document; it's a statement of intent. It shows that the city is committed to positioning itself at the forefront of innovation in Brazil, offering an environment where innovative ideas are not only welcome but actively encouraged and supported. In a constantly changing world, with technology playing an increasingly central role in our lives, initiatives like the Innovation Law are crucial to ensure that Caxias do Sul continues to thrive and lead in the 21st century.

3. ENGINEERING AND INFRASTRUCTURE DETAILS

Railway System's Infrastructure:
Excavation for Rail Bed, Laying Tracks, Bridges, Tunnels, Signaling, and Switching Stations;

Multimodal Stations Interconnectivity:
Includes Stations, Bridges, Viaducts, Tunnels, and Roadways;

Energy and Utilities Systems:
Efficient low impact, and above all must be generationally sustainable;

Works of Art Applications:
Inclusive of community involvement local artisan participation for stations;

The engineering for each phase and aspect of the project's development must take into consideration the projected demographics, but also, the geographic characteristics of the environment. In addition it must also identify and apply innovative solutions to minimize potential impacts and maximize efficiency across all the interconnected systems. It is imperative that redundancy and backup systems be in place to maintain stability for all operations.

RESOURCES FOR THE RAILWAY LINES

In addressing the engineering interconnectivity aspects of the RAILWAY, ROADS, ENERGY, INFORMATION, and TELECOMMUNICATION SYSTEMS development, we have taken into account several measures to mitigate disruption and projected future requirements. The cost factors, identified within, are conservative and justified to meet the next 7 to 10-year demand for a recovery from the 2024 disasters, which crippled the regions GDP. The following narrative will provide an overview of the components being considered for the interconnectivity of a sustainable transportation ecosystem.

RAIL & ROAD SYSTEMS ACCESS

METHODOLOGIES

The conventional planning method is a process that uses a combination of a Geographic Information System (GIS) and (CAD) computer-aided design tools (such as; Civil3D, MicroStation, and ArcView) to help evaluate a route. These tools, however, were developed for use in the initial planning phases, in both the conceptual and executive projects' implementation, making the planning process slower and less assertive. Subsequently, these tools, fall short of the technical characteristics needed for the analysis that are now required to comprise a holistic approach to the activities of the tools and techniques being utilized for precise decision-making, for a good final product.

The conventional process requires time and several resources. The traditional methods of – GIS and CAD tools – make it impossible to analyze the complexities that are linked to a collective ecosystem's development. This process involves multiple engineering variables, environment, community restrictions, and now, with requirements for adaptive climate change measures to help mitigate the effects from atmospheric disturbances. With these integrative levels of planning incorporated into the development the loss of profits, property and more importantly life, can be minimized, which are the primary considerations for sustainable development. The ability to consider multiple and potentially conflicting restrictions in a study to increase the number of options and a range of viable alternatives with solid bases to be explained as to the "WHYs," allows for best practices to be applied. These alternative solutions become more viable to respond timely when new restrictions are presented. The limited sensitivity analyzes when comparing time vs. costs is critical. These are some of the characteristics that exemplify why the conventional no longer meets the expectations linked to viable infrastructure expansion, and development plans for roads and railways modes of transportation. This brings us to consider the usage and advantages for employing a Quantm® software system to optimize solutions.

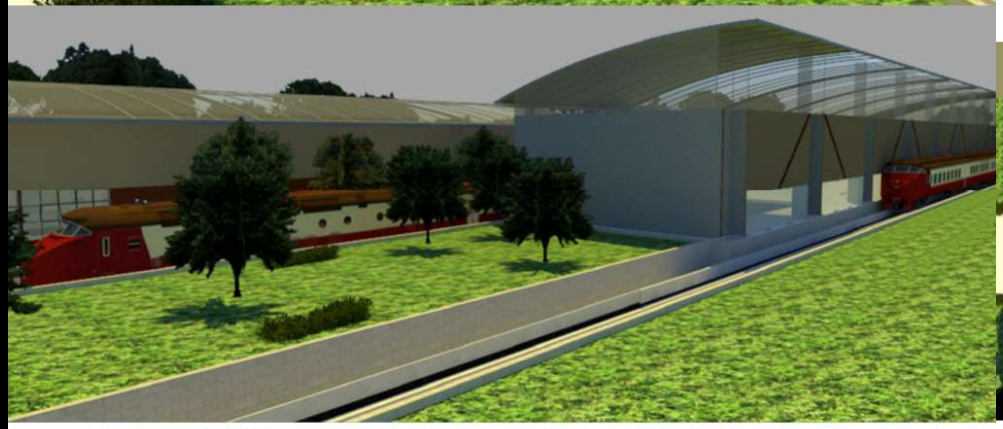
Quantm provides the capability to expedite workload and solve the complexity of variables associated with linear infrastructure projects. The system can demonstrate a variety of alternative best practice solutions for compliance with the imposed social and environmental constraints. The Quantm software application is built upon leading technology in route optimization and is supported by engineers, planners, GIS technicians, transportation specialists, mathematicians, and software programmers. This allows its users to employ the most advanced technology in the world to integrate complex constraints, community, and environmental aspects into the planning process and selection of alternatives.

Quantm's ability to simultaneously consider the environment, community, cultural aspects, flood areas, existing linear objects, and diverse geologies has been independently documented in projects in the USA, Canada, France, Spain, South Africa, China, Australia, New Zealand and Brazil. In these projects, compliance with the restrictions was improved by reducing the environmental impact and the analysis of the routes was delivered in a considerably shorter period of time compared to the traditional method.

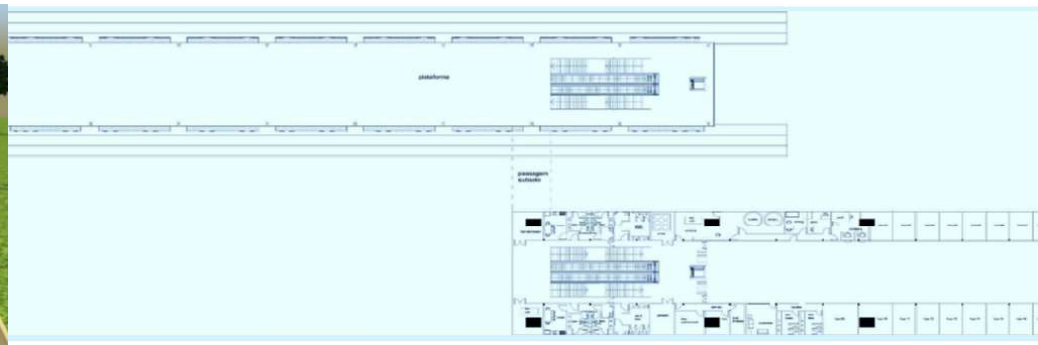
Where it was possible to make a comparison between the traditional method v/s Quantm, most of the savings were made in the costs of cut/fill, movement and transportation of the raw materials excavated. It is also capable of reductions in structures such as bridges, tunnels, walls, culverts, etc. With Quantm, new route generation can be done quickly and efficiently, by investigating and evaluating literally millions of routes that meet the constraint conditions. In this way, Quantm has repeatedly enabled planners and designers to deliver with significantly improved construction costs while meeting the environmental, community and engineering constraints imposed on the projects.

In considering environmental, social and urban constraints, Quantm software enables users to identification low-cost route alternatives that reduce, and in some cases eliminate, the project's impact on certain environmental, social and urban areas. If routes that meet all restrictions cannot be identified, the system identifies these occurrences so that the team can make subjective decisions based on the information obtained by the software. The speed of the system allows the team to quickly and efficiently generate routes with varied geometry conditions and environmental restrictions. In this way, the team will have a greater and better quantity and quality of information to make recommendations when presenting alternatives to stakeholders and the community. In projects where Quantm was used, its ability to evaluate, compare and document information and alternatives provided by a previously conducted study allowed the team to quickly continue studying new alternatives, which resulted in greater viability. All of this was done in a short period of time and without friction or wear and tear on the relationship between the participating entities.

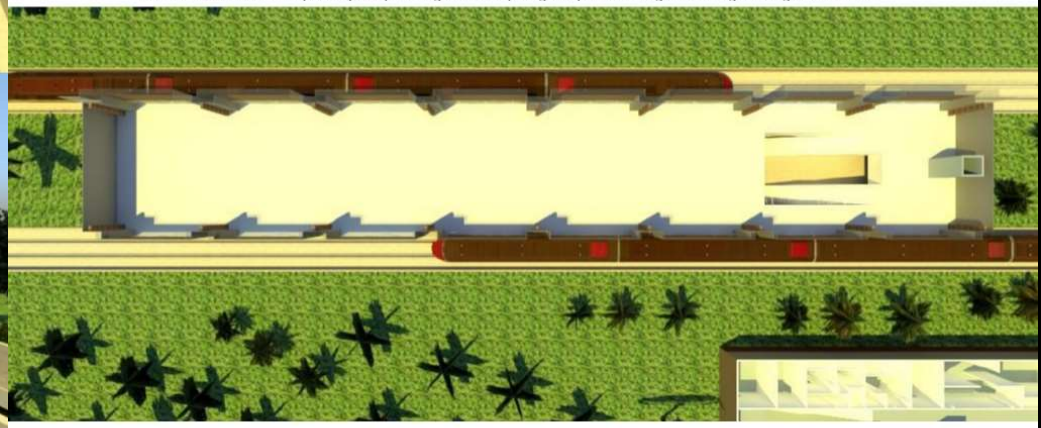
Where it is not possible to maintain the desired geometry conditions (a condition that can occur due to multiple restrictions), the system clearly indicates these violations. In this way, the team will have information at hand to make adjustments and apply criteria in the decision-making process. All routes are presented in 3 dimensions with horizontal and vertical geometry that can be seen in plan, profile and dynamic cross-section with their respective offset. Determining the most economical option that complies with the defined restrictions are benchmarks to the development. It has been consistently and repeatedly demonstrated that, when there is a route made using the conventional method, compared to alternatives generated by Quantm, savings can range from 7% to 20%, even when the corridor is previously defined.



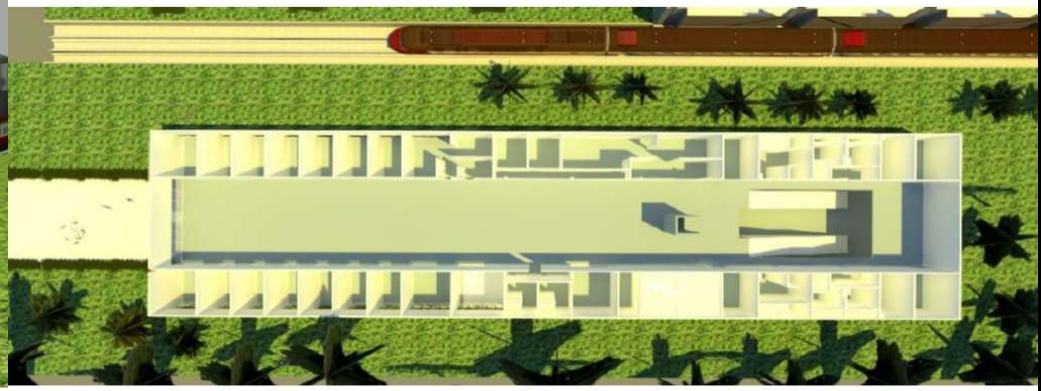
Aerial view: *Conceptual model illustration of the proposed passenger station entrance, single rail tracking configuration, and cargo depot.*



Above: *illustration blueprint of the passenger station, cargo depot and single tracking management area.*



Above: *Conceptual model illustration configuration of passenger embarkation and debarkation area.*



Above: *Conceptual illustration configured for facilities management of single rail tracking operations.*

ENERGY RESOURCES

We have orchestrated alliances within our development matrix with RGE for the electric power to support the train's energy requirement. Initially eighty 80% of the electricity will come from the isolated dedicated substations for electricity energy supply and distribution directly in each of the 14 municipal cities' stations, and eventually, the latter 2 stations to come on line in the second phase going to Arroio do Sal and Flores da Cunha. The arrangement calls for power to each of the train stations and depots, the surrounding infrastructure of the roads lighting systems and various other support systems primarily for the passenger trains.

The proposed electrical conduits and distribution lines will be deployed underground with sensor arrays for monitoring to minimize the threat of potential power outage or distribution disruption. In preparation for laying the train's bed and the security fencing where applicable, the installation of a solar array will be applied. This measure will also call for an isolated, dedicated power storage and distribution network system to be constructed at points along the train's path. The initial eighty percent of electric power supplied by RGE will be supplemented by 20% from alternative self-sustained renewable solar and wind power. Once fully operational with adequate generation and storage capacity, the train's energy system will transform its power ratios from the 80% supplied by RGE to 80% supplied through its internal solar and wind array resources installed along the train's route and maintained by the Serra Gaúcha Regional Train.

INFORMATION SYSTEMS

The information systems are being designed as a property standalone system for the train's operations, coordination, and scheduling. To ensure the continuity of regulatory procedures, a reciprocal concession from SIGA, for the first 10 years the central operation department will be interconnected with all the official departments of transportation in the State of Rio Grande do Sul and Brazil to ensure continuity in the quality of services, and once again more importantly, operational safety.

The platforms will be somewhat similar to those use in USA and Europe as an integrate system online and on time by satellite connection so everybody knows everything all the time. However, additional element will provide analyst data from the train's consistent route, monitoring the various elements programed into the sensor array for computing and modeling of specific environmental and economic variables.

TELECOMMUNICATIONS

The telecommunications will be comprised of an internal operating system connected via hard lines and satellite connections to the internet with either Voice over Internet Protocols (VoIP), and/or Session Initiation Protocols (SIP) data transmission. The hardlines, cellular phones, and other platforms within the operations will be maintained through the internal server system. All passenger trains will have free WiFi signal to the internet. We will consider a range of telecom providers such as Embratel and/or other national internet providers. The train's internal operations management will have supplemental emergency communication systems of 2 and 3-way nationwide access long-range Walkie Talkie frequencies, equivalent to paraphilia utilized by the First Responders systems directly linked into their chain of command.

4. HERITAGE PRESERVATION AND CONTINUITY IN THE DEVELOPMENT

HERITAGE PROTECTION AND CONNECTIVITY

The preservation of the historical and cultural heritage of the region is imperative during the implementation of the rail line, adapting the project or creating protective measures when necessary, above all else.

From the tours stats, among the major events hosted by Caxias do Sul, the traditional Grape Festival and Mercopar are the most prominent. The Grape Festival is a nationally renowned event, held since 1931, celebrating the culture of Italian immigrants who made the region of Caxias do Sul their home. The event takes place in February at the Mário Bernardino Ramos Exhibition Park, one of the most traditional venues in the Serra Gaúcha, featuring: a showcasing artistic displays, parades, grape tasting, gastronomy, national/regional shows, and an agro-industrial fair. The last fair, held in 2022, attracted nearly 350,000 visitors with 250 exhibitors from industry, commerce, services, entities, and sponsors, as well as over 150 regional artists.

JOB CREATION PROJECTIONS

The Thematic Attraction Index is an analytical tool that provides information on a city's ability to attract people based on the diversity of the Commerce and Services sectors. The index offers insights into the relative position of cities in terms of the provision of goods, services, and inputs, assisting in urban planning and investment decisions. Caxias do Sul stands out in some areas, demonstrating its regional potential and importance on the national stage. Caxias do Sul is particularly prominent in clothing and footwear shopping, holding the 33rd position in the national ranking—a notably high position compared to other categories. This ranking suggests significant regional attraction in the apparel sector, showcasing the city's potential as a hub for this market segment in the Brazilian landscape.

Oher crucial factors are the planned road connectivity, which promises to link Caxias to other key regions. The expansion in road infrastructure, development of the railway, coupled with the airport's capacity, will make the municipalities even more attractive for investments, business, and visitors. In Caxias do Sul, there are 22 cooperatives across six sectors, including agriculture, consumption, credit, infrastructure, health, and labor. These cooperatives foster economic and social development, offering better growth opportunities. The cooperative model is highlighted by the United Nations as a way to create wealth and alleviate poverty, promoting the pursuit of equality. The actions proposed by cooperatives are aligned with sustainable community development, which encompasses social, economic, and environmental dimensions.

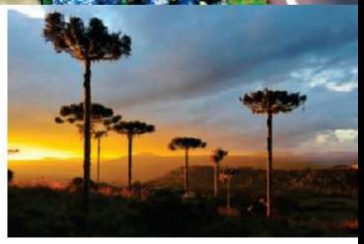
Mercopar is an industrial innovation fair that has been taking place for 30 years, aiming to connect national and international companies, facilitating the exchange of knowledge and industry trends among small, medium, and large businesses. The last edition (31st), held in 2022, generated R$430 million in business and attracted approximately 35,000 people (27,000 in-person visitors and 8,000 online platform accesses). There were 512 exhibitors from sectors including metalworking, information technology, energy and environment, rubber, industrial automation, plastic, electro-electronic, along with the handling and storage of goods.

Following the presentation of the New Municipal Tourism Plan, approved in 2021, a website with tourist information for the city was created along with actions to encourage both the local population and tourists to visit the city. An example of this was the Caxias do Sul Tourism Week, which aimed to showcase the city's potential. Another highlight of the Plan is the acquisition of the +TURISMO SEAL, a certification filed with the Ministry of Tourism, which if approved, would allow the municipalities to request federal resources for investments in the sector. We are projecting a 10-15 percent increase of the seasonal employment and a 5% increase to the employment statics within the first year of operations of the train and modes of transport systems.

TOURISM PROMOTION

Enhance the development of tourism in the region, taking advantage of the new transportation infrastructure to attract more visitors. The multimodal rail line between Bento Gonçalves and Bom Jesus has the potential to transform the region.

With careful planning, public participation and with a commitment to sustainability, we can create an infrastructure that will benefit future generations. Caxias do Sul offers seven tourist routes: Ana Rech, Colônia Paths, Caravaggio Paths, Criúva, Immigrant's Road, Urban La Città, and Trentino Valley.



1. The Ana Rech route stands out for the traditions and customs of Italian immigrants, with an emphasis on the craft culture.
2. Colônia Paths integrates the municipalities of Caxias do Sul and Flores da Cunha, highlighting gastronomy and wines.
3. The Caravaggio Paths comprise a pilgrimage route that passes through the municipalities of Canela, Gramado, Nova Petrópolis, Caxias do Sul, and Farroupilha, connecting the Our Lady of Caravaggio Sanctuaries in Canela and Farroupilha.
4. Criúva was named after a typical tree in the region and is known for its ecological trails and sports activities, as well as its religious aspect.

5. The Immigrant's Road route encompasses the path that the first immigrants traveled upon their arrival in the Serra Gaúcha region in the mid-20th century. Among the route taken by tourists, there is a focus on centuries-old tourist spots, such as stone churches and caves.
6. The urban side tells the history of the city of Caxias do Sul through visits to places like the Municipal Museum, Ambience Museum, Stone House, and National Immigrant Monument.
7. The Trentino Valley is a route known for the stages of wine production, from vine planting to wine age.

The city of Caxias do Sul boasts four Tourist Information Centers, providing details about the city's attractions and events. These centers are strategically located in key areas such as the Pavilions of the Grape Festival, the Airport, the Bus Terminal, and Dante Alighieri Square. During the first semester of 2022, there were 15,013 flights at the state's airports, with Caxias do Sul being the second most frequented destination, hosting 339 flights and serving 15,638 passengers. Regarding road transportation, the average weekly passenger flow is 1,328, totaling 34,533 passengers in the first semester of 2022. There was a notable increase in the daily average of passengers, reaching 4,144, representing a 212% surge in early March, coinciding with the celebration of the National Grape Festival ([Tourism Observatory RS, 2022).

COMPENSATION OPTIONS FOR EMINENT DOMAIN DISPLACEMENT

Develop efficient environmental compensation plans to mitigate the project's unavoidable impacts. As further explained under Compensation Options for areas of land where the train will pass the following are compensating options:

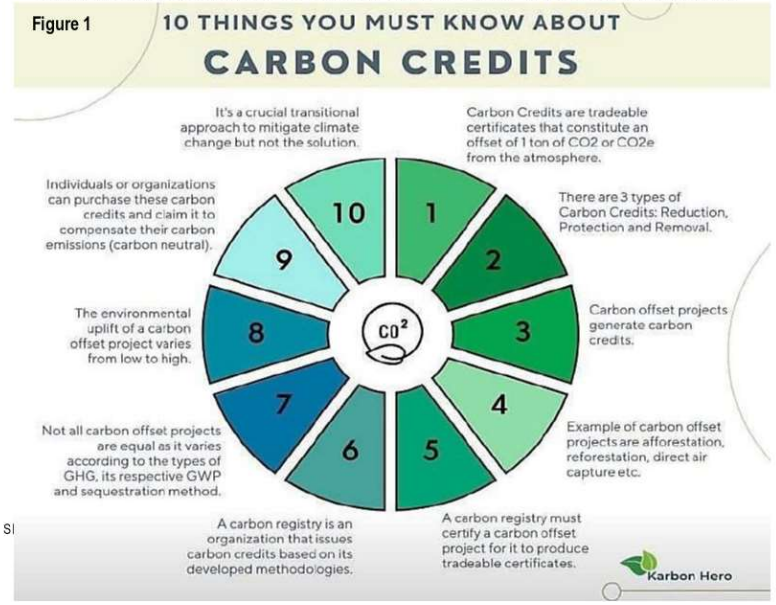
- Magnetic Transportation Cards may be issued to family that owns land in question for a period of 35 years, renewable for another 35 years to use the trains between the 14 municipalities indefinitely.
- Land will be purchased from the owner and the right of possession and ownership will be transferred via deed to the company. The amount to be paid will be at the market value of the land, in the municipality where the area is to be compensated.
- The family or enterprise may receive a ready-made store at the passenger stations to be built in each municipality and/or at the cargo transfer stations. There will be clothing stores, appliance stores, shoe stores, toy stores, markets, bars, restaurants, bookstores and hotels. This will be at the passenger and cargo stations. All storage, transportation, loading and unloading systems will be prioritized for the owners of the land areas to take over these businesses, generating employment and income for their families and the municipalities in question.
- Carbon Credits, where families will be compensated with an annual amount during the 35 years of the concession or bidding in relation to the zero carbon project that the winning company implements in relation to mitigation, additionality and compensation in an area of 10m wide on each side along the entire length of the train line. With the advantage that the carbon credit tends to increase annually. In addition to all other carbon modalities in the process.

CARBON CREDITS USAGE & TECHNOLOGIES

As the world faces the challenges of climate change, businesses, and individuals are increasingly turning to carbon credits as a way to reduce their carbon footprint and support sustainable development. In the preliminary studies cited the generation of carbon credits are but a fraction of the potential available assets proposed in the development of the train, stations depots and merchants establishment that will be required to be in compliance with the sustainable eco regulations. In the estimates of the Serra Gacha Regional Train buffer strip, the following considerations are being taken into account to utilize the Carbon Credits that are available to help offset the cost of development along with the raw materials from excavation.

- Carbon credits are a way to offset greenhouse gas emissions by investing in projects that reduce or remove carbon dioxide from the atmosphere. By purchasing carbon credits, individuals and businesses can support projects such as renewable energy, reforestation, and energy efficiency, and reduce their environmental impact.
- Carbon credits are traded on carbon markets, where they have a monetary value based on the amount of carbon dioxide they represent. Each carbon credit represents one tonne of carbon dioxide equivalent (CO_2e) that has been avoided or removed from the atmosphere. Companies or individuals can purchase these credits to offset their own carbon emissions, thus supporting sustainable projects and reducing their environmental impact.
- Carbon credits not only help to reduce greenhouse gas emissions, they also support sustainable development by promoting clean energy, protecting forests, and improving access to clean water and sanitation. Furthermore, carbon credits can provide economic opportunities for developing countries and communities, as they can generate revenue from sustainable projects and support local employment.

Figure 1



8. AVAILABLE CARBON CREDIT [CO^2E] FOR PROJECTS DEVELOPMENT

The following is a limited offer from the cooperative for the sale of Carbon Credits. The evaluations are for access to the Equivalent Carbon Credit Project [CO^2e], totaling with specifications described below:

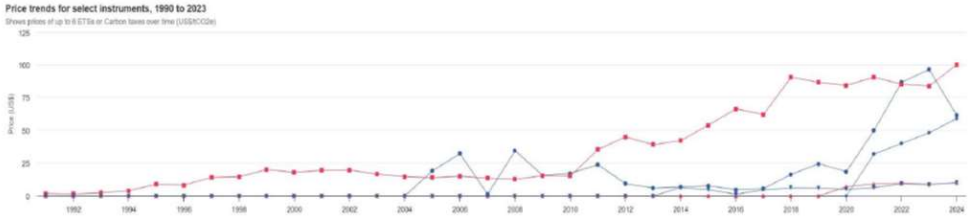
Lots 1 to 4 CCs available = 35 Million Tons. Projections for 285 Million Tons in 4 years upon verification
Certification: VCS (Verified Carbon Standard)
Type: REDD ++; Reducing Emissions from Deforestation and forest Degradation
Type of Project: Reforestation - 80% from (Projects Amazon & Atlantic Forest) and 20% relative to Biomass

Certification

The projects described are approved and certified, with Mandated representatives assigned to projects;

- **All projects current with environmental licenses;**
- **All projects duly licensed and registered with the UN;**
- **All projects with credits approved by the UN; Custody - IHS MARKET.**
- **Carbon Credits will be utilized for opportunities for sustainable development**

SUMMARY OF GLOBAL MARKET PRICING FOR CARBON CREDITS



The consortium of landowners represented by SIGA/GROTTO in Rio Grande do Sul will entertain offers for negotiated pricing. The purchase of Carbon Credits at a reduced price is an incentive to secure funding requirements for the Serra Gaúcha Region planned infrastructure projects for the Regional Train System and the International Airport. The acquisition of these Credits will aid in the restoration from the May 2024 devastation, and provide the knowledge base and engineering for the infrastructure that will be required to mitigate the anticipated effects of Climate Change. The primary incentive being offered is requirements for term contract agreements of not less than five to seven years for the purchase of products at 2% to 7% above fair market price for products from the region.

Monitoração via Satélite

In Brazil, it is no different. Social concern about the climate crisis has been growing every year, and one of the solutions found to overcome this challenge is to invest in decarburization practices. Carbon Credit is not only a financial tool but also an environmental asset, intending to encourage the reduction of greenhouse gas emissions by people, companies, organizations, and countries. A carbon credit is a unit of measurement that represents the reduction of one metric ton of carbon dioxide (CO2) or equivalent greenhouse gases (GHG) from a specific activity or project over a certain period. An accurate measure of the carbon footprint that calculates the equivalent carbon emission into the atmosphere by a person's activity, event, company, organization, or government can be quantified.

Carbon credits have different natures. In the regulated market, they will be monitored by governments, while in the voluntary market, they depend on the interest of individuals, to buy and sell independently. The main benefit of the carbon credit system is that it provides a financial incentive for companies and organizations to reduce their greenhouse gas emissions. This helps accelerate the adoption of more sustainable practices and the transition to low-carbon technologies.

Project development and certification for environmental projects are actions and goals carried out to preserve the environment and can be carried out by companies, public bodies, institutions, and associations, among others. Through our techniques and application of CarbonSat technologies, and certification via Safeweb, our objectives are the stabilization of greenhouse gas concentrations in the atmosphere. At a level that prevents dangerous anthropogenic interference is possible with a climate modeling system, to allow ecosystems sufficient time to adapt naturally to climate change. The convention under this scenario is to ensure that food production is not threatened and to allow economic development to continue to maintain sustainably.

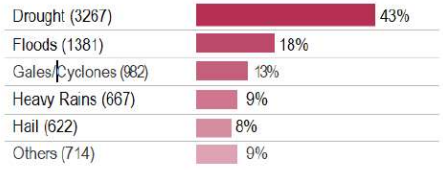
An offset credit is a tool for governments and companies to achieve the carbon reduction targets set by the Paris Agreement. Individuals or companies that want to offset their own greenhouse gas emissions can purchase these credits through an intermediary or from those who directly capture the carbon. The entire process is certified by independent entities or those linked to the UN. According to the Kyoto Protocol, they include carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), sulfur hexafluoride (SF6), as well as two families of gases: hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs). The management of forests to obtain and secure economic viability, social, and environmental benefits, while respecting the mechanisms that support the ecosystem is the object of management. Considering, cumulatively or alternatively, the use of multiple timber species, multiple non-timber products and by-products, as well as the use of other forest goods and services is being adapted.

With the state's conservation and environmental management actions, the Campos do Sul Program stands out, which supports rural landowners in implementing sustainable management practices that preserve the biodiversity and ecosystems of the Pampas; the Certified Management Seal, a pioneer in Brazil in enabling the regularization of the sustainable and commercial use of native flora; and the Long-Distance Trails, which are paths planned to connect Conservation Units and create ecological corridors, playing a fundamental role in the integration between protected natural areas.

CLIMATE CHANGE VULNERABILITIES AND ADAPTATION ACTIONS

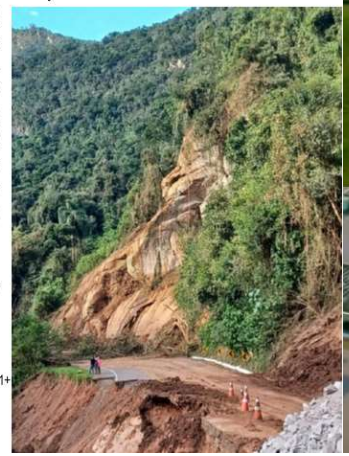
Disaster records from 2000 to 2023

According to the Digital Atlas of Disasters in Brazil, the accumulated data concerning disaster records that occurred in the period from 2000 to 2023 in Rio Grande do Sul show that 21.92 million people were affected. The state suffered public losses, especially in water supply, energy distribution, and sanitation, and private losses, especially in agriculture. During this period, there was a greater occurrence of droughts and dry spells.



Source: *Prepared from MIDR (2024).*

There were 153 deaths, more than 886.5 thousand people displaced, R$8.82 billion in material damages, R$3.52 billion in public losses, and R$121.54 billion in private losses, not counting the great flood that occurred in 2024 (MIDR, 2024). Between April and May 2024, the state faced the worst calamity in its history, with 96% of its municipalities impacted, totaling more than 183 deaths and billions in losses (Governo RS/Casa Militar/Defesa Civil, 2024; Metró-poles, 2025), which highlighted the state's climatic fragility to face events of this magnitude, never before reported in the history of RS. After the historic floods, the state received several federal financial aids to help with its reconstruction, in addition to a package of measures. The considerations would include suspension of payment of the state's debt with the Union, exempting the payment of interest on stock during that period (totaling R$23 billion). Maintenance of ICMS credits, credit lines with subsidized interest to help individual micro-entrepreneurs (MEIs), microenterprises and small businesses affected by the floods (Banrisul), prioritization in income tax refunds, and extraordinary resources for the health area, among others.



Photos: May 2024, damages to roads and bridges along the major mountain route 116 between Caxias do Sul to Nova Petropolis presented a real cause for concern.

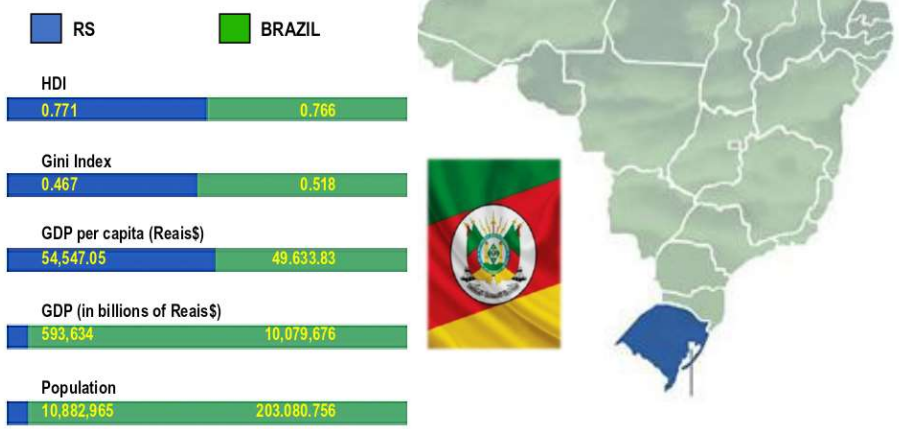
The various initiatives announced by the federal government for the reconstruction of the state totaled more than R$100.4 billion (Ministry of Finance, 2024). The Rio Grande Plan, created for the reconstruction, adaptation, and climate resilience of the state, proposes measures to mitigate the impacts caused by the 2024 flood. The plan articulates emergency actions, such as strengthening the early warning system, and reconstruction actions and long-term climate resilience initiatives, such as nature-based actions, drainage projects, etc..., (Governo RS/SERG), 2024). For this purpose, the Secretariat for Rio Grande do Sul Reconstruction (SERG) was created, in addition to the Scientific Committee for Climate Adaptation and Resilience, with the Planning Council's governmental participation. There is also a special public fund to finance the Plan's actions through (FUNRIGS). Since 2020, a collaborative project between the World Bank and the Southern Regional Development Bank (BRDE) has sought to increase the resilience of cities in the states of Paraná, Santa Catarina, and Rio Grande do Sul. The initiative has faced several obstacles, such as the pandemic, difficulties in the Senate, and in defining viable projects (World Bank, 2022). As of June 2024, the project was in the subproject selection phase, with Porto Alegre, Chapada, and Torres as possible candidates.

Photos: Prior to May 6th throughout the next following 7 day period of torrential rainfall would expanded the levels of sedimentation from the mountains' runoff. The remainder of the month and in to the next, rain would rotate on a 7 day and 2 -3 days rain over an extend area reaching Porto Allegra and the Airport in the day's bringing murky muddy waters and debris as the rivers and streams would make their downhill descent to the ocean.

ASSETS & VIABILITY OF RIO GRANDE DO SUL

INDICATORS SOCIOECONOMIC

Proportions of the socioeconomic indicators of RS, in comparison to the nation state of Brazil:



Source: Prepared from IBGE Cidades e Estados (2023), IBGE/SIDRA (2023), IBGE/SCR (2023) and Atlas Brasil

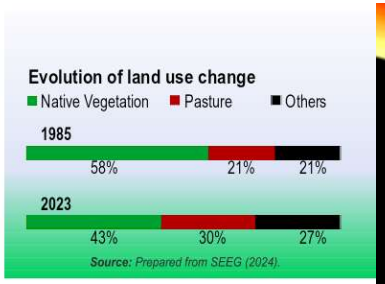
Rio Grande do Sul (RS) is the sixth most populous state in Brazil, with a Municipal Human Development Index (**HDI**-M) of 0.771, tied with Espírito Santo (**ES).** It has the sixth lowest (**Gini Index),** an indicator which reflects the status of social inequality, and fifth-largest Gross Domestic Product **(GDP)** in the country. This indicates a robust and varied economy with an emphasis on agribusiness, vehicle, and footwear sectors.

GOVERNANCE AND CLIMATE FINANCING

The state participates in international agreements, such as Regions Adapt (COP 21), Under-2° Coalition, and Race to Zero and Race to Resilience. It is part of national initiatives such as the Governors for Climate coalition and the Green Brazil Consortium, the Alliance for Climate Action (ACA Brasil), and collaborates with CDP, and participates in Abema. At the regional level, it leads efforts to promote climate change (CBC, 2023).

In 2022, RS launched ProClima 2050, a comprehensive plan that seeks to establish Climate Compliance, covering: Implementation of the Climate Governance Plan, in partnership with ICLEI; Carrying out the GHG Inventory by 2025; Risk and Vulnerability Analysis and the Climate Action Plan, roadmaps for decarbonization and climate regulations that ensure the transversality of actions. This program also includes the PSA and Biogas programs (Government of RS, 2023). In 2024, at COP 29, it launched the Climate Roadmap for municipalities in Rio Grande do Sul, an initiative partially financed by UNDER2. Among the municipalities verified by the Climate Roadmap, there were only two stated that had climate action plans, *(Government of RS/IEDE, 2025).*

AGRICULTURE AND LAND USE CHANGE



Source: *Prepared from SEEG (2024).*

From 1985 to 2023, the area of native vegetation was reduced by 15% in the state, while areas designated for pasture increased by 9%, *(MapBiomas, 2024).* However, there was a reduction in deforestation rates from 2022 to 2024. In the period from July 2023, to June 2024, 1,688.3 hectares were deforested, a reduction of 66% compared to the same previous period (July 2022 to June 2023), when 4,968.4 hectares were deforested. In the periods analyzed, in relation to the biomes that affect the state, there was a 55.6% reduction in the deforested area in the Pampa biome, and an 82.2% reduction in the deforested area in the Atlantic Forest biome *(MapBiomas Alerta, 2024).* Although the ABC+ Plan prioritized the recovery of degraded pastures, there is still room for progress in this area, but the state has higher average costs (R$/hectare) than other biomes, *(FGV, 2022).*

Since the creation of the ABC Program, Renovagro and Pronaf ABC+ credit lines for rural producers in Rio Grande do Sul have financed R$4,161,297,072 in credit lines and 10,283 contracts. This has resulted in an expansion of approximately 1,274,299 hectares of land and the integration of sustainable technologies, *(Governo RS/SEAPI, 2024).* Thus, it can be seen that rural credit is essential to achieving the sector's decarbonization goals. According to Embrapa, in Rio Grande do Sul more than 85% of the agricultural area is dedicated to the Crop-Livestock Integration, (ILP) system. In almost 9 million hectares (of which 70% are soybean crops, 10% corn, 10% rice and 10% corn silage and others), alternating winter crops and fallow in 80% of the area, or is used for cover crops such as black oats and rye grass, and are also used for grazing dairy cows and fattening heifers. The Crop-Livestock-Forest Integration (ILPF) and Livestock-Forest Integration (IPF) systems use eucalyptus, black acacia, pine, yerba mate and citrus (ILPF Network, 2024). According to the National Registry of Organic Producers (MAPA, 2025), RS is the second largest producer of organic products in Brazil, and has laws to encourage agroecological, organic, and bio input production (Law 14,486/2014). The State Program for the Recovery of Native Vegetation in Rio Grande do Sul (PRO-VEG), from 2022, has the goal of restoring 12 million hectares by 2030 (Governo RS/SEMA, 2022). The Gaucho Program for Environmental Services rewards the landowners who have adopted state environmental conservation, protection, and recovery practices.

Countries that fail to meet targets can buy credits from nations that have reduced their emissions. The same logic applies to companies. Due to the extra cost of the purchase, an incentive is created for companies to reduce emissions or invest in projects that yield credits. Brazil, as it has a large area of both planted forests and native forests, has potential in relation to this system, which in addition to being a measure allied to the environment, it can bring financial compensation to the country.

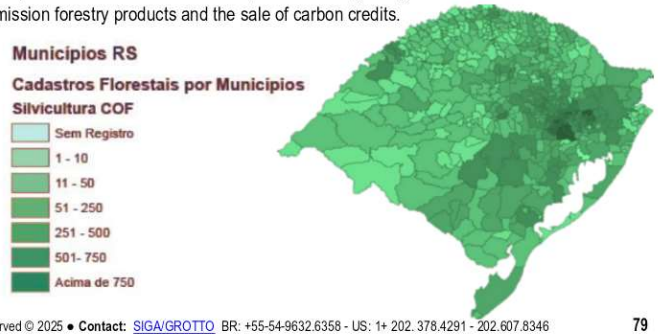
It is important to note that for carbon credits are accepted and traded on international markets, they must be certified by entities recognized by the UNFCCC and comply with international guidelines and regulations. Additionally, carbon credits must be issued in accordance with standards and methods specific to ensure that they represent a real and measurable reduction in greenhouse gas emissions greenhouse gases. Therefore, the certification of regulated carbon credits involves a rigorous verification process in accordance with national and international standards. With this factor in mind, SIGA has taken what it feels to be necessary steps to establish contractual engagements with corporations developing technologies for verification of said credits and with associations such as AGAFLOR, Gaúcha Association of Foresters and AGEFLOR, Gaúcha Association of Forestry Companies that will encore the continuous production of CO2 inhibitors from the forestry and agricultural industries in South Brazil.

FOREST PLANTATION AREAS

The planted forest sector stands out for its potential impact in relation to climate change mitigation through its extensive forest areas, which can be considered a renewable resource and a recycling source of carbon, with storage and storage being of fundamental importance in terms of sustainability and reducing climate impacts. The carbon balance in forest ecosystems is represented by net primary production, which is defined by difference between the chemical energy fixed by photosynthesis and the loss between heterotrophic and autotrophic respiration and mortality. Planted forests have a great capacity to remove CO2 from the atmosphere, inserting carbon (C) into the plant biomass and, consequently, in the soil, thus allowing an excellent carbon balance.

At the national level, planted forests have high potential for carbon sequestration, and for With 9.6 million hectares of plantations, the country stores around 1.9 billion tons of carbon dioxide (IBÁ, 2021). Already the Legal Reserve (RL) and Permanent Preservation Areas (APP) areas total around 6 million hectares and stores around 2.06 billion tons of carbon dioxide IBÁ, 2021 (Figure 2 below). These advantages allow the carbon balance of planted forests to be favorable, even enabling the generation of income from the certification of low-emission forestry products and the sale of carbon credits.

Figure 2



The RS Regional Development Councils were created by Law 10,283/1994 and regulated by Decree 35-764/1994. Their objective is to promote harmonious and sustainable regional development; the integration of government and region resources and actions; improving the population's quality of life; the equitable distribution of the wealth produced; encouraging people to stay in their region; the preservation and recovery of the environment. The State is divided into 28 Regional Development Councils (COREDEs), Coredes, aiming to define public policies aimed at each of the regions. The Coredes that have the highest coverage of planted forests can be seen in Table **1**.

Table 1 – Evolution of Planted Area by gender in RS

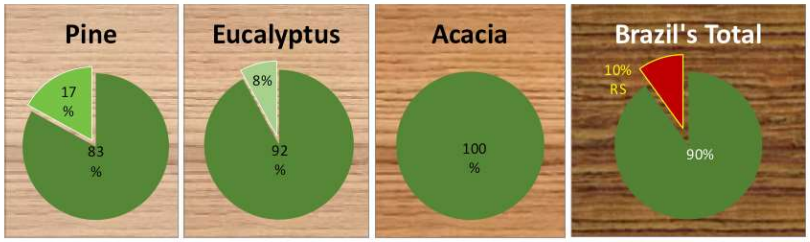
COREDE	EUCALYPTUS	PINE	ACACIA	TOTAL
Sul	74.292	49.828	34.765	158.885
Vale do Rio Pardo	72.274	20.638	16.712	109.625
Centro-Sul	80.292	4.567	11.032	95.891
Hortênsias	3.103	92.262	135	95.500
Fronteira Oeste	42.202	2.404	52	44.658
Campanha	33.261	657	9.637	43.556
Campos de Cima da Serra	1.024	42.116	-	43.141
Metropolitano Delta do Jacuí	30.533	4.384	7.169	42.086
Litoral	12.090	28.318	-	40.408
Jacuí-centro	16.000	8.825	658	25.483
Vale do Jaguari	18.494	303	30	18.828
Vale do Taquari	15.504	522	404	16.429
Vale do Caí	4.354	-	7.503	11.857
Outros	23.284	9.776	1.497	34.557

Source: *AFUBRA, AGEFLOR, FEPAM, SEMA*

In Rio Grande do Sul there are approximately 780.9 thousand hectares cultivated with planted forests, which corresponds to 2.7% of the 28.2 million hectares of forest within Rio Grande do Sul's territorial boundaries. The total area of properties where forestry is the predominant and active is an estimated total area of 1.84 million hectares. At the national level, the planted area in RS corresponds to approximately 10% of the total area of planted forests in Brazil. Eucalyptus plantations represent 54.6%, while pine and acacia represent 33.9% and 11.5%, respectively.

In the national context, planted forests in Rio Grande do Sul represent 10% of the national total, with emphasis on the acacia genus in which the State holds practically 100% of the plantations, followed by pine and eucalyptus plantations, with 17% and 8%., respectively, as shown in Figure 3 on the next page.

Figure 3 – Representativeness of RS in terms of forest planting



Source: *FEE the State Statistics Foundation*

The history of the planted area in Rio Grande do Sul is presented in Table 2 below. It should be noted that the significant difference in the planted area from 2015 to 2016 does not reflect an increase in the planted area, but rather a greater availability of data and a change in the methodology for collecting information.

Table 2 – historical of RS in terms of forest planting

YEAR	PINE	EUCALYPTUS	ACACIA	TOTALS
2006	18 1.4	184.2	142.4	508.0
2007	182.4	222.2	159.0	563.6
2008	173.2	277.3	18 8.3	638.8
2009	171.2	272.0	139.I	582.3
2010	169.0	273.0	89.9	53 1.9
2011	164.8	280.2	89.1	534.I
2012	164.8	284.7	90.2	539.7
2013	164.2	316.4	88.8	569.4
2014	184.6	309.I	103.6	597.3
2015	184.6	308.5	100.0	593.I
2016	264.6	426.7	89.6	780.9

Source: *AFUBRA, AGEFLOR, FEPAM, SEMA*

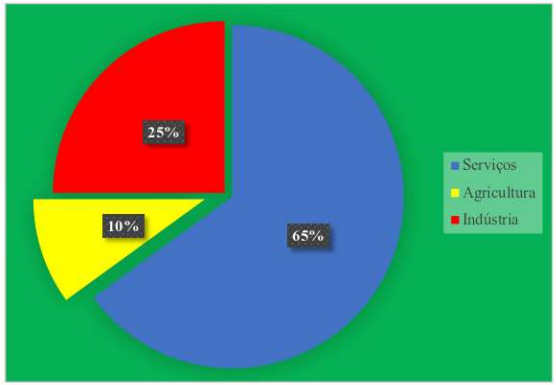
CERTIFIED FORESTS

The forest certification process aims to guarantee that the wood comes from areas where forest management is ecologically correct, socially fair and economically viable. To achieve this, one of its criteria is full compliance with current legislation. Given this scenario, forest certification is used as a marketing element for companies, contributing to the enhancement of image and products, in addition to facilitating access to international markets. In Rio Grande do Sul, around 300 thousand hectares planted are FSC certified areas. Figure 4 shows the participation of certified areas in relation to the total, in Brazil and in the State.

Figure 4 - Composition of National and State

Source: *FSC Certification (Forest Stewardship Council)*

Figure 5 - Composition of State GDP



Source: *FEE State Statistics Foundation*

10. FINANCIALS

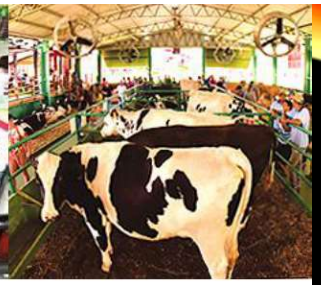
BUDGET USAGE ITEMS	QUANTITIES	COST in USDs
Cargo Wagons, Construction of railway superstructure bed, & solar/wind array Construction of passenger and cargo depot stations.	300 438 Km of railway bed 14 passenger & 4 cargo	**1,374,997,041** Bil
Freight Locomotives, & Passenger VLT Compartments	03 Engines / 50 Tram Cars	**320,967,180** Mil
Engineering, Social Environmental Attributes and Elaboration of specifications for project's deliverables.	01	**149,993.399,** Mil
Indemnities for land acquisition, 2000 land owners payment	(1. Hector), & (2. 2 Hectors)	**150,000,000** Mil
TOTALS: CapEx Est. from 06/2024 1,570,000,000.00 Bil	**TOTAL: 2025**	**1,995,957,624 Bil**

The cost to develop the total train works has been estimated at US $1.995, 957,624.00 billion from the initial projection of $1.570, 000,000 billion from 2022 until 2024 requiring a re-engineering and after the 2024 devastation. The breakdown of Capital Expenditures (CapEx) values are delineate in the delivery schedule below. The 14 passenger stations, the tunnels, the bridges, the lighting of the entire route, the local access roads, and the solar/wind array. The rail path also includes the planting of forests to generate carbon credits in the form of a double green belt along the first 372.28 km.

150 Mil. Indemnification of land owners, from eminent domain in the areas of the train line,
300 Mil. Construction of 14 terminal stations, 4 cargo bays, parking and loading zones,
836 Mil. The excavation of the land, electrification and laying 438 Km of tracks
300 Mil. Construction of warehouses, utilities, and access on 100 hectares of land, and
320 Mil. 3 locomotive engines, 300 freight cars, and 50 Marcopolo VLTs passenger compartments.
TOTALS: 1,570,000,000, as projected from 12/2024 for 372 Km), an increase of **$425,957,624.00**

BUDGET SUMMARY OF DELIVERABLES TIME SCHEDULE

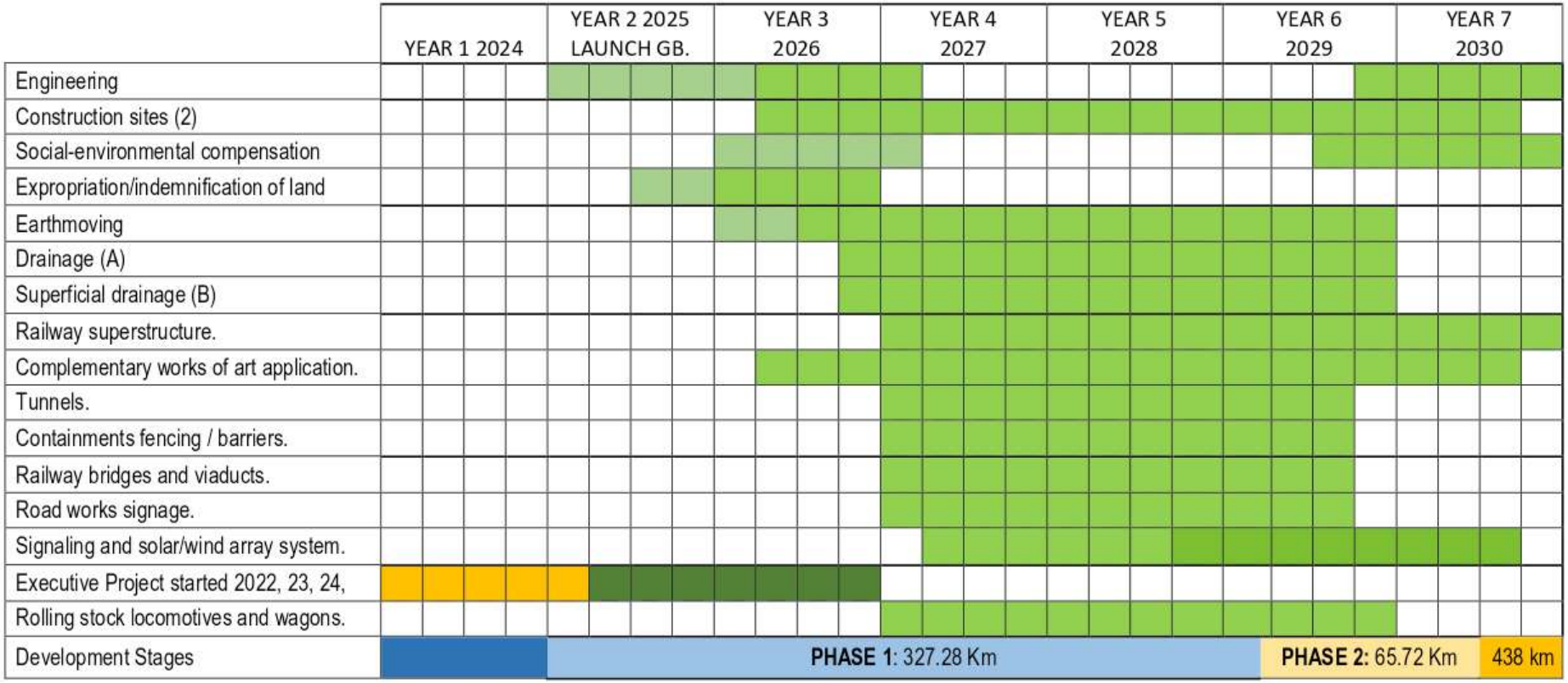
	Cost (BRL)	Cost (USD)	TIME LINE
Engineering	347,903,268.90	60,086,920.36	10
Construction sites (2)	232,531,396.16	40,160,862.89	18
Social-environmental compensation	275,668,711.38	47,611,176.40	6
Expropriation/indemnification of land	868,900,015.24	150,069,087.26	4
Earthmoving	2,119,727,680.59	366,101,499.24	14
Drainage ducks A	120,306,080.17	20,778,252.19	13
Superficial drainage B	342,608,745.83	59,172,494.96	13
Railway superstructure bed	1,606,274,625.70	277,422,215.15	16
Complementary works of art	1,431,910.92	247,307.59	18
Tunnels	856,961,965.04	148,007,247.85	11
Containments: fencing / barriers	946,990,665.28	163,556,246.16	11
Railway bridges and viaducts	1,315,064,211.22	227,126,806.77	11
Road works signage	6,854,284.34	1,183,814.22	11
Signaling/Solar/wind array systems	653,297,002.00	112,831,951.99	14
Executive project/working capital/	2,640,000.00	455,958.55	12
Rolling stock locomotive/wagons	1,858,400,000.00	320,967,184.80	12
Total	**$ 11,556,594,643.83**	**$ 1,995,957,624.15**	



THE CITIES & INDUSTRIES TO BE TRANSFORMED

1. André da Rocha
2. Antônio Prado
3. *Bento Gonçalves
4. Bom Jesus
5. *Canela
6. Carlos Barbosa
7. Casca
8. *Caxias do Sul
9. Coronel Pilar
10. Cotiporã
11. Dois Lajeados
12. Fagundes Varela
13. *Farroupilha
14. *Flores da Cunha
15. Garibaldi
16. Gramado
17. Guabiju
18. *Guaporé
19. Ipê
20. Marau
21. Montauri
22. Monte Belo do Sul
23. Nova Alvorada
24. Nova Araçá
25. Nova Bassano
26. Nova Pádua
27. Nova Petrópolis
28. *Nova Prata
29. Nova Roma do Sul
30. Paraí
31. Pinto Bandeira
32. Protásio Alves
33. Santa Tereza
34. Santo Antônio do Palma
35. São Domingos do Sul
36. São Francisco de Paula
37. São Jorge
38. São José dos Ausentes
39. São Marcos
40. *São Sebastião do Caí
41. São Valentim do Sul
42. São Vendelino
43. Serafina Corrêa
44. União da Serra
45. *Vacaria
46. Veranópolis
47. Vila Flores
48. Vila Maria
49. Vista Alegre do Prata
50. *Campi da UCS

SCHEDULE OF DELIVERABLES FOR DEVELOPMENT STAGES



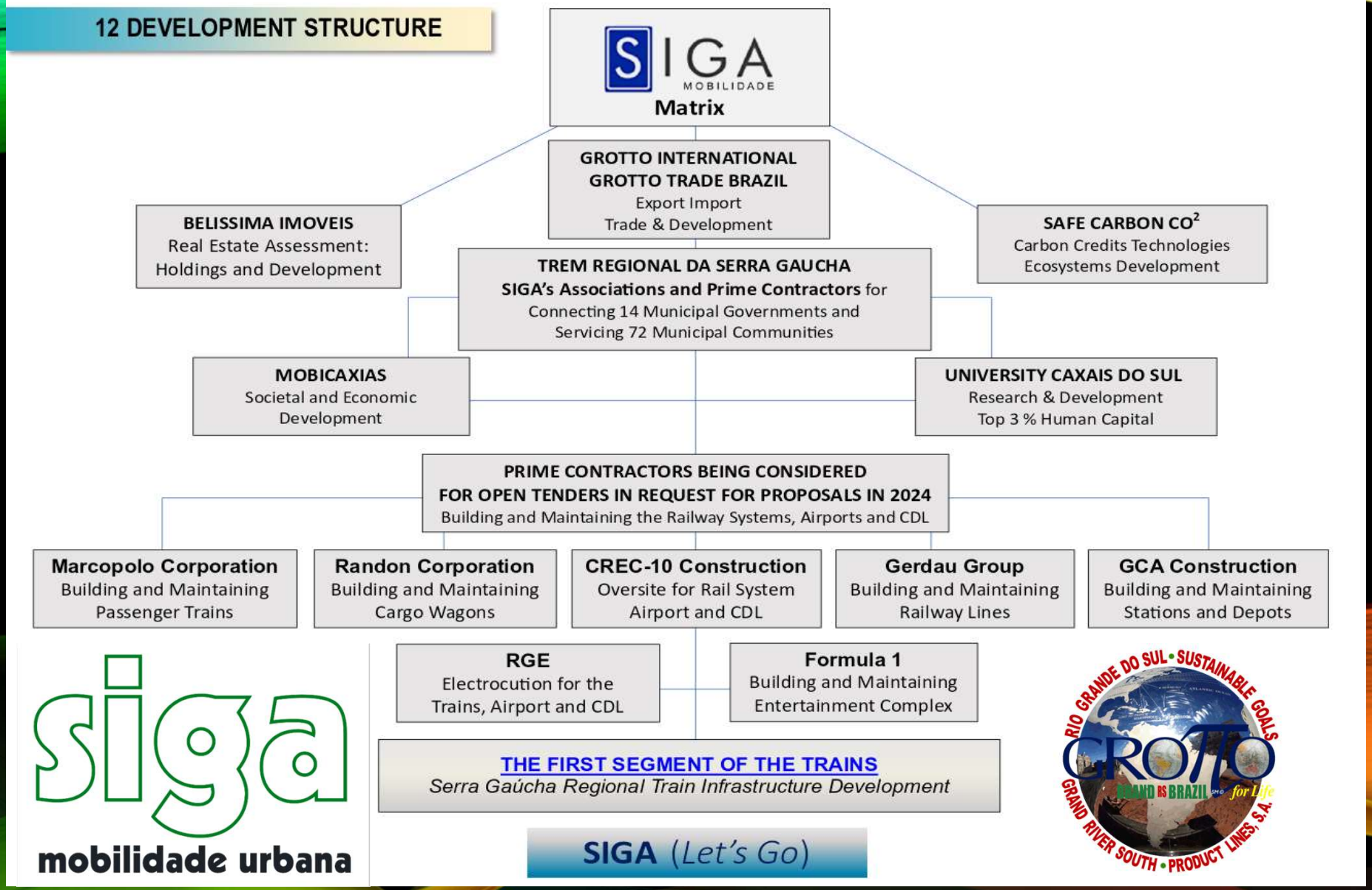
Executive development
Resources accusation & development
Duration period for completion of aspects

The proposed schedule of delivery for the first 327.28 km will be accelerated by the instillation of 2 construction sites to ensure the projected construction delivery schedule within 3.5 years from the ground breaking in 2025.

Total: 438 Km, for the completed railway system's deliverables.

1. Bento Goncalves	Switching Yard End Station
5. Caxias do Sul	Construction Yard site 1
11. Vacaria	Switching Yard End Construction site 2
14. Jaquirana	Switching Station
	Switching tracks between railway stations Nos.: 9. Cambará do Sul, 12. São José dos Ausentes. and 10. Bom Jesus to 15 Porto de Arroio do Sal

12 DEVELOPMENT STRUCTURE



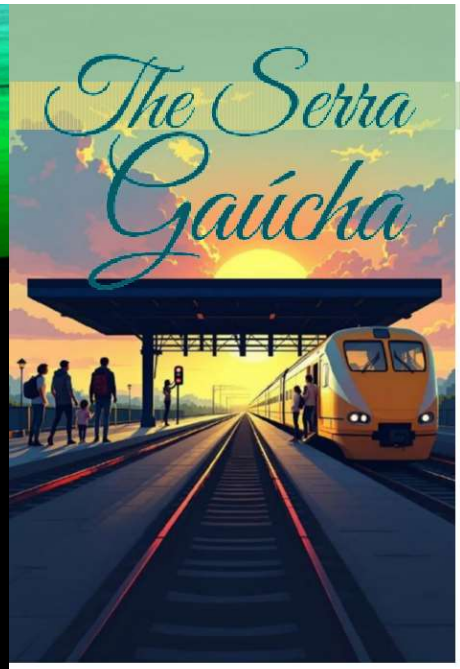
14. INVESTMENT OPPORTUNITIES WITH SIGA MOBILIDADE URBANA AND ITS SERRA GAUCHA REGIONAL PROJECTS, IN RIO GRANDE DO SUL, BRAZIL

Proposed ROI (Return On Investments), In US Dollars / Capital Markets Equivalents:

Development Bank Institutions at: 05-07% of Total Invested **(15 Years 500M and Above)**
Private Equity Institutions at: 07-10% of Total Invested **(10 Years 200M and Above)**
Individual Private Investments at: 12% of Total Invested **(5 Years 25M up to 75M)**
Individual Common Stock at: 15% of Total Invested **(3-5 Years 25K up to 125K)**

ASSURANCES FOR RETURNS ON INVESTMENT (ROI) IN SOUTH BRAZIL

As of March 2023, the infrastructure projects were presented in the request for securing public and private investments. Please note that by Brazilian law, all Foreign Investments must file an application to CDNR (Cadastro Declaratório de Não Residente) CDNR-SISBACEN must be applied for before the banks can receive funding from outside the country. The requirements are established to ensure that foreign investments are held safe and to monetize via the Brazilian Federal Governments' Central Bank, to this matter, all foreign investments are guaranteed and the returns on investments ROIs are assured. For details, please reference to this web link https://www.bcb.gov.br/estabilidadefinanceira/capitaisestrangeiros for the foreign investors.



16. CONCLUSION & NEXT STEPS

1 DETAILED STUDY

We have initiated both the feasibility and environmental impact studies.

2 PUBLIC ENGAGEMENTS

We have engaged and conduct public consultations with each of the 14 initial Municipal governments and the State Legislature establishing channels of communication within each of the governing bodies and the communities.

3 PARTNERSHIPS AND FINANCING

We have identified strategic partnerships and diversified funding and underwriting sources.

4 EXECUTIVE PLANNING

We have developed timelines for phase of the planned implementation for the multimodal rail line between Bento Gonçalves to Vacaria railway and stations to transform the region and state of Rio Grande do Sul. Our investigations, planning, public participation, with a commitment towards sustainability, we will create a transportation infrastructure and ecosystems beneficial for the next 7 to 10 years, and future generations to come.

CONSIDERATIONS

- **A.** Environment integrity,
- **B.** Cost of lands expropriation,
- **C.** Acquisition of capital, and sale of the natural resources from the development's excavation,
- **D.** Integration of the regional ecosystems,
- **E.** Carbon Credits assessments for development,
- **F.** Logistics for utilities & ground transportation,
- **G.** Installation of 14 passenger stations, along with four 4 loading depots to serve an estimated 42 surrounding communities, increasing their capable of expanding production of products for market access to export, creating an increase in the regional GDP.
- **H.** Assessments of rail engineering, and maintenance variables.

- Updates to completing technical and engineering.
- CCs initiated for infrastructure development.
- Documented for 99 years of operation of the train.

Trem Regional da Serra Gaúcha

APPENDIX: PARTNERS & SUPPORTING ORGANIZATIONS

SIGA MOBILIDADE

CG/LA INFRASTRUCTURE

Agassis & Sibemberg
Gestão Jurídica Empresarial

PROJECT BLUE WORLD

IDI International Development Institute

IRAPURU OPERADOR LOGÍSTICO

ORA ET LABORA
SOARES & KURY ADVOCACIA

BELISSÍMA IMÓVEIS
CRECI 23034-J

EVR EXPRESSO VALE REAL

Surya PROJETOS

UVERG

Somos o cooperativismo no Brasil somos coop

FARRAPO TRAVEL

GEOCULTIVA

Câmara de Comércio Brasil Paraguai

safe carbon CO2 neutral

Instituto safeweb

ALOISE Consultoria e Projetos

CNM

SolluS

GENESYS DESENVOLVIMENTO E NEGÓCIOS

Convidamos todos os cidadãos da Serra Gaúcha a participar conosco desses importantes empreendimentos para o futuro da região.

We welcome participation from every citizen of the Serra Gaúcha, to join us in these most important developments for the region's future.

NOSSO AGRADECIMENTO A VOCÊ; SUA PRESENÇA FOI ESSENCIAL PARA QUE CONSTRUÍSSEMOS, JUNTOS, ALTERNATIVAS SUSTENTÁVEIS E INOVADORAS DE DESENVOLVIMENTO URBANO
E INTEGRAÇÃO TERRITORIAL.

FIM