Brazil's Priority Transportation Projects

A RESOURCE GUIDE

FOR U.S. INDUSTRY

SPONSORED BY THE U.S. TRADE AND DEVELOPMENT AGENCY

The U.S. Trade and Development Agency

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1. INTRODUCTION

1.1 Brazil Market Challenges and Entry Strategies

Conducting business in Brazil requires a thorough knowledge of the local environment and a corresponding strategy. U.S. companies seeking to invest in Brazil should take the time to learn about potential costs such as those related to distribution, Government procedures, employee benefits, environmental laws and the tax structure. The local public procurement process in particular can be difficult for outsiders to navigate. The Brazilian Government is the country's biggest buyer of goods and services, and a likely consumer of U.S. exports, so it is important to develop an understanding of the procurement system. U.S. exporters may find themselves at a competitive disadvantage in Brazil if they do not maintain a presence on the ground, such as established partnerships with Brazilian companies or some type of local subsidiary.

U.S. companies will have to pay tariffs, and they will face complex customs and legal systems. There are also local content regulations in place for foreign companies that manufacture equipment in the country, requiring that a minimum percentage (varying depending on the type of equipment) of domestic content (materials and parts) are made in Brazil rather than imported.

Even among all of these challenges, partnering with the right Brazilian company could help in managing some of these burdens. Success in Brazil's business culture relies heavily upon developing strong personal relationships. In most cases, U.S. firms need to develop a local presence and they should invest time in developing relationships by making frequent visits to Brazil. The U.S. Commercial Service suggests that U.S. businesses meet one-on-one with potential partners, and even offers a slate of services such as the Gold Key Matching Service, which facilitates meetings with pre-screened potential clients or partners.

U.S. companies should also consider working through a qualified representative or distributor when developing new business in the Brazilian market. Some firms may need to establish an office or joint venture in Brazil (depending on the type of business) as it is difficult for U.S. companies to participate in the public sector procurement process at the federal or state levels without a Brazilian partner or a physical presence in-country.

The Brazilian Government's procurement rules apply to purchases made by public entities including state-owned companies. Brazil has an open competition process for major Government procurements. The Government may not make a distinction between domestic and foreign-owned companies during the tendering process; however, when two equally qualified vendors are considered, the law's implementing regulations allow for a preference to Brazilian goods and services.

Brazil uses least-cost procurement methods and price is the overriding factor in selecting suppliers. However, the law allows for the consideration of non-price factors, giving preferences to certain goods produced in Brazil, and stipulating local content requirements for fiscal benefits eligibility. Additionally, nearly all bids require establishment of a local representative for any foreign company participating in the process. Foreign competition in Brazil's transportation sector is strong, with a solid presence of European and Asian companies. Therefore, U.S. should be prepared to compete in that environment.

1.2 Brazil's Transportation Sector

In 2007, the Brazilian Government launched the Growth Acceleration Program (PAC) to promote the planning and execution of large infrastructure works, as well as urban and logistics initiatives. The PAC aimed to help the country maintain sustainable growth within a short period of time (PAC1: 2007- 2010; PAC2: 2011- 2015). The program's goals were to increase economic productivity, boost technological modernization and advance the country's competitiveness.

The PAC invested nearly $320 billion into Brazil's infrastructure throughout its first four years. The program proved successful, triggering productivity and ultimately allowing Brazil to overcome economic stagnation. Additionally, the PAC sought to improve the logistics strategies for investors interested in leasing port operating areas. Other investments, such as dredging and cargo security were made possible with PAC1 and PAC2 resources.

In August 2012, the Brazilian Government launched the Logistics Investment Program, known locally as the PIL, with the goal of developing transportation systems to accommodate growing populations across major cities. The PIL features an investment model that favors public private partnerships (PPP). Some concessions have been awarded to PPPs for many highway projects that use Intelligent Transportation Systems (ITS). Also, public-private partnerships have formed between the Brazilian Government and private investors, resulting in concession contracts for improving railway infrastructure. Between 2012 and 2014, the Government concessioned approximately 7,500 Km of highways and nearly 10,000 Km of railways, along with several port areas and airports.

The Brazilian Government has a solid track record of implementing PPP projects. Under the PIL, the public sector delivered more than 50 transportation infrastructure projects to the private sector. Project highlights include:

- Six international airports auctioned to the private sector (Natal, Sao Paulo-Guarulhos, Rio de Janeiro-Galeao, Brasília, Belo Horizonte-Confins and Campinas-Viracopos);
- Six highways auctioned to the private sector, totaling 4,872 Km including five major highways and one major toll bridge (Rio-Niteroi Bridge) that will generate an estimated $11.1 billion in new investment over the 30-year contract period; and
- More than 36 private port terminal projects have been approved for concessions.

On June 9, 2015, the Government unveiled a new infrastructure concessions program intended to draw $64 billion in investment over the next five years. The program will focus on upgrading highways, railways, ports and airports across 20 states. The new concessions will have less access to state bank financing than previous projects, and bidders will be expected to use private financing.

In past years, Brazil´s demand for infrastructure services has increased sharply. The demand in the airline traffic, for instance, grew 182.5%[1] from 2002 to 2012. In the same period, vehicles sales grew 153.5% and port traffic grew over 18%. Over the next decade, Brazil will see greater demand with its infrastructure matrix, particularly from a substantial rise in oil production, new mining projects and agribusiness expansion. This uptick likely will be due to growth in markets and demand for commodities, coupled with greater market access for Brazilian food products abroad.

[1] In millions of passengers per year

Brazil's transportation infrastructure is in need of significant upgrade and expansion to include airports, highways, ports, railways and public transportation. The most commonly used method of freight transportation is trucks hauling cargo, requiring an extensive network of roads and highways for the distribution of goods. Only about 20% of Brazil's roads are currently paved and the larger cities face major traffic congestion problems. Long truck lines back up before the ports, causing substantial delays for imports and exports. This situation impacts the cost of logistics in Brazil, which is one of the highest in the world. In a study by the World Economic Forum, Brazil ranked 119 out of 142 countries in terms of road quality and 130 in terms of quality of ports.

The Brazilian Ministry of Transportation indicates that reducing bottlenecks will cost up to $220 billion between 2008 and 2023. The funding will support the extension of highways and railways, interconnection of the North-South Regions with the Southeast Region, as well as port construction and modernization. In preparation for the 2014 World Cup and the 2016 Olympic Games, Brazil has made investments in its transportation infrastructure, however, much more is still needed. The Brazilian Government is developing new concessions and public-private partnerships to leverage the private sector's resources in a way that is mutually beneficial.

The Brazilian Government continues to pursue the concession of port terminals and port areas as a means to solicit funding and enhance infrastructure. The private sector finds the concession initiatives to be attractive and the Government intends to expand the program to port facilities in the future.

There is opportunity for market entry in the aviation sector as well. Several key airports such as Guarulhos Airport in Sao Paulo, Galeao in Rio de Janeiro, and the Brasilia, Natal, and Campinas airports have been concessioned successfully. Notwithstanding these concessions, aviation infrastructure still requires a great number of upgrades across the country.

While the use of freight rail is well-developed in urban areas, there are limited passenger rail networks offered. The freight railway system involves several private operators. To support increased trade, Brazil requires significant investments to expand the railway network to the ports, offering an alternative to its congested highways.

1.2.1 New Measures Adopted for the Transportation Sector

In 2015, the Government presented new transportation infrastructure projects in the areas of aviation, highways, ports and rail. Last year, the Government adopted new measures to enhance the attractiveness and profitability of infrastructure projects, specifically addressing regulatory risks and governance structures for the transportation sector. These measures seek to mobilize private capital and increase the efficiency of public resources. As announced by the Brazilian Ministry of Finance, the following are the new measures set to solicit private sector participation in the new transportation concession programs:

Higher Profitability in Infrastructure Projects

- The Internal Rate of Return (IRR) for the next concession of highways, ports and airports will align the risk-return ratio and make investments more profitable for investors and ultimately consistent with global competition.
- The projected increase in rate of return should attract global pension funds, investment funds, equity funds and insurance companies. Over the next 15 years, investment in infrastructure worldwide is projected to be $90 trillion, and Brazil hopes to attract a greater proportion of that through its concession initiatives.

Reforming Infrastructure Investments through Institutional Changes

- The Brazilian Government has requested institutional support from the World Bank, the Global Infrastructure Facility (GIF) and the Inter-American Development Bank (IDB) in preparing and reviewing infrastructure projects, especially in terms of contracts, the regulatory environment and the financial structuring of the new projects.

Additional Measures to Reduce Regulatory Risk

- In August 2015, the Ministry of Finance published Ordinance No. 640 creating a working group to study, consolidate and propose measures to improve regulatory standards, increase legal certainty for investors and ultimately enhance Brazil's business environment.
- The Multilateral Investment Guarantee Agency (MIGA) and the Brazilian Government are holding negotiations in terms of MIGA supporting guarantees for new infrastructure projects in Brazil.

Additional Rules for the Highway Concession Program

- New rules have been established for the next highway auctions, specifically lifting the minimum net equity requirement for companies to qualify for participation.
- Contracts will now establish specific procedures and deadlines for the National Land Transportation Agency's (ANTT) review of requests to re-establish the economic-financial balance (cost adjustment) of projects. Previously, there were no clearly defined deadlines for ANTT to review these requests. The change brings greater predictability to investors in economic and financial recovery processes.

1.2.2 Procedure of Expression of Interest (PMI)

The PMI allows the Brazilian Government to request information from the private sector on projects related to aviation, highways, ports and railways. Requests may include project proposals, surveys, investigations, modeling and/or feasibility studies. The Government can use this information to evaluate the technical and financial viability of transportation infrastructure projects.

This measure aims to increase industry participation through the development of studies on ports, roads, airports and rail. The PMI also seeks to provide greater legal certainty for potential investors and public agencies executing the concessions program.

Companies may forward proposals to the relevant Government agency for the opening of a PMI. The proposal should reference the project's description, scope and the public need that the project fulfills. The Government evaluates and selects the best, most viable projects to support the concession's bidding process. The winning concessionaire can obtain a refund for funds spent on the development of projects, analysis and feasibility studies, with a ceiling of 2.5% of total estimated value of the investment.

The following are the Government agencies that typically receive these proposals:

- ANTT for highway and railway related projects;
- Secretariat of Civil Aviation (SAC); and
- Secretariat of Ports (SEP) and National Waterway Transportation Agency (ANTAQ).

The PMI has served as a useful tool in concessioning transportation infrastructure projects and the Government will continue using it for the next round of concessions. It is important for U.S. industry to

take notice of companies participating in the PMI process to determine project needs and to identify technologies and services that may be required for the project's completion.

As a Government agency initiates the PMI process, information on the type of project, including details on interested companies that have submitted letters of intent, is published on the websites of: www.antt.gov.br, www.sac.gov.br, www.sep.gov.br, or www.antaq.gov.br. That information should help U.S. companies to determine early on who the key players are in the PMI process, so they can begin establishing business relationships to promote U.S. products and services. In most concession projects, companies that opt out of the PMI process are still allowed to participate in the public bid.

2. AVIATION

2.1 Aviation Opportunities in Brazil

The Brazilian Government's June 2015 decision to concession airports in Florianopolis, Fortaleza, Porto Alegre and Salvador offers U.S. companies the opportunity for market entry.

LATAM Airlines' plan to develop a hub in the Northeast will likely require a substantial amount of airport technologies. Other aviation programs such as the Regional Aviation Development Program (PDAR), include the improvement and modernization of 270 regional airports, poses additional opportunities for U.S. exports.

Because new private airport operators are not bound by traditional public tendering procedures, U.S. companies may engage directly in an effort to feature their products and services. Given the challenging timelines in their concession investment contracts, operators are concerned with timely delivery of products and services.

U.S. businesses should expect private operators to take a long-term view on the technologies they select in that they value quality, and do not let price serve as the sole criterion. Private airport operators typically have a solid understanding of leading aviation technologies.

Current and future concessionaires will need to work with international suppliers of ICT services and systems that support airport applications, in order to improve their respective airports.

There is great opportunity in Brazil's aviation sector and the key for U.S. firms is to engage early in the process. They should make contact with potential private operators (consortiums) that will need aviation services and technologies to fulfill their contractual obligations with the state and federal Governments.

2.2 Federal and State Airport Concessions

On June 9, 2015, the Brazilian Government launched a new stage of the 2015-2018 Logistics Investment Program (PIL), a program to build up and modernize the country´s transportation infrastructure. In the airport sector, the program aims to expand aviation infrastructure, improve service quality, attract international human capital, boost tourism and improve cargo transportation. The PIL also aims to create new regional hubs through the concessions of the following airports: Hercilio Luz in Florianopolis (Santa Catarina-SC), Pinto Martins, in Fortaleza (Ceara -CE), Salgado Filho in Porto Alegre (Rio Grande do Sul-RS) and Luiz Eduardo Magalhaes, in Salvador (Bahia-BA).

The total estimated investment is nearly $3 billion for all four airports, with the breakdown as follows: Porto Alegre Airport at $806 million, the Salvador Airport at $967 million, the Florianopolis Airport at $485 million and the Fortaleza Airport at $580 million. The public sector financing is expected to come from the Brazilian Development Bank (BNDES) and the private sector financing depends upon each concessionaire's financial arrangements. The private companies participating in the upcoming concessions are likely to consist of partnerships between established airport operators, financing companies and construction contractors.

The Secretariat of Civil Aviation (SAC), which is now under the Ministry of Transportation, Ports and Civil Aviation, initiated a PMI process to prepare feasibility studies for the four biggest airports, managed by Infraero[2]. In June 2015, the Government issued the public announcement for the intent to concession the airports. Ten consortiums were selected (out of 30 consortiums that submitted PMIs) to conduct the viability and financial analyses for these airports. In October 2015, the selected consortiums submitted their feasibility studies which were subsequently analyzed by SAC and the National Agency of Civil Aviation (ANAC). SAC has officially announced the selection of the feasibility studies presented by the Aereo Brasil Consortium for the Fortaleza and Salvador Airports, and the Moyses & Pires Sociedade de Advogados Consortium for the Florianopolis and Porto Alegre Airports.

There will be a second Government approval process that requires authorization from the Federal Brazilian Court of Audit (TCU) before the projects can be announced for public bidding. Because there is a substantial amount of paperwork to be prepared for these airport bids, SAC expects the final bid announcements to occur mid-year of 2016. Appendix B of the guide includes a list of the ten consortiums that competed to have their viability studies selected. This information is being provided as these consortiums will have an opportunity to compete in the public bidding for all four of the airports and U.S. companies may wish to reach out to them to determine their interest in participating in the upcoming bids and ultimately offer their equipment and services.

While none of the companies that submitted studies under the PMI is a U.S. company, SAC officials have reported that U.S. companies can participate in supplying aviation technologies and professional services by working with the consortiums that end up winning the contracts.

In addition, the Government of Sao Paulo announced plans to concession six state airports to the private sector in 2016. The Government expects $30 million to be invested in the concession of regional airports across the cities of Araras, Braganca Paulista, Campinas (Amarais), Itanhaem, Jundiai and Ubatuba.

[2] Florianopolis, Fortaleza, Porto Alegre, and Salvador.

Similarly, the State of Goias has announced its intention to concession the Caldas Novas Airport, which requires airside and landside infrastructure improvements, terminal modernization and parking.

The figure below displays the expected locations of airport concessions in 2016.

Figure 1 – Federal and State Airport Concession Projects for 2016

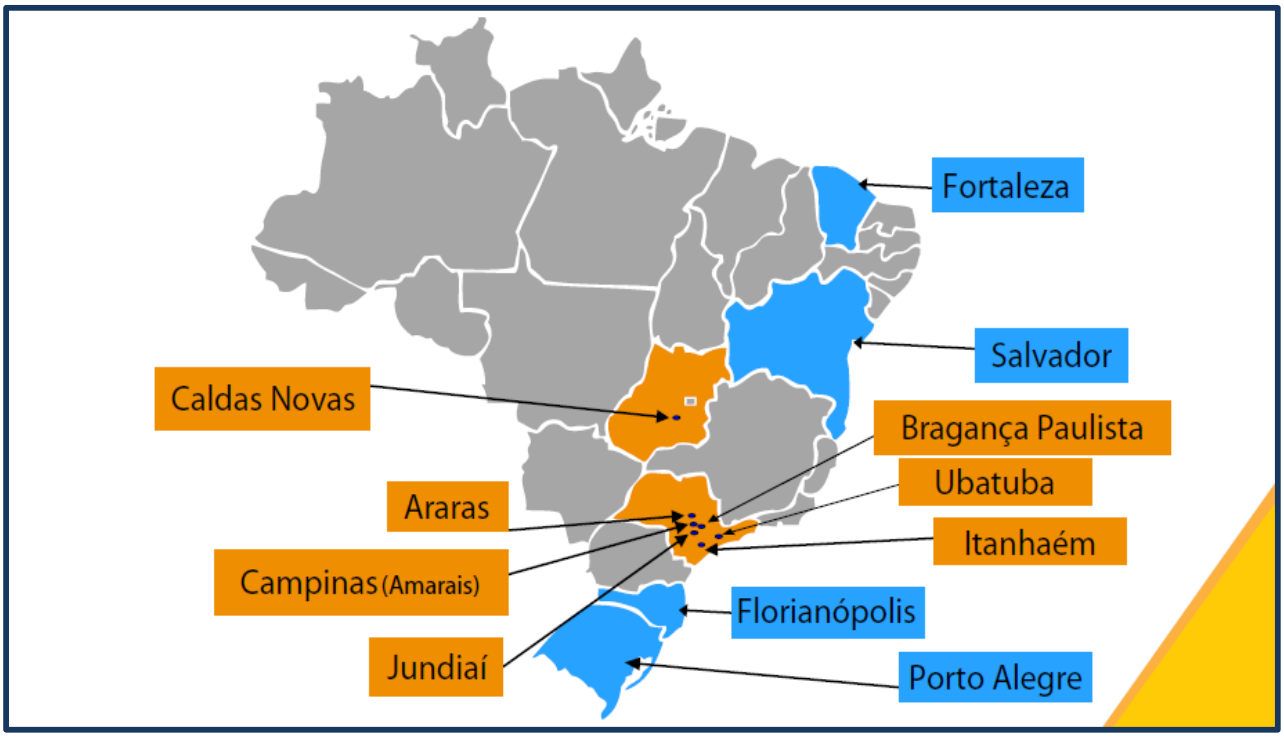

Table 1 provides a summary of Goias' and Sao Paulo's concession programs.

Table 1
Forecast for Regional Delegated Airport Concessions for 2016

Airport	Capex (U.S. $)	Typical Air Service	Concession Term (Years)
Araras/SP	2.5M	General Aviation	20
Braganca Paulista/SP	3.5M	General Aviation	30
Caldas Novas/GO	0.2M	Commercial Aviation	20
Campinas/SP (Amarais)	4.7 M	General Aviation	30
Itanhaem/SP	3.0 M	General Aviation	30
Jundiai/SP	7.3 M	General Aviation	30
Ubatuba/SP	4.0 M	General Aviation	30

These upcoming concessions pose many opportunities for U.S. exports, as the projects will require professional services and infrastructure financing. Specifically, upgrades will include new runways and taxiways, aprons, terminal renovation and expansion, as well as parking facilities. These projects are likely

to call for communication systems, airline and airside operational systems, landside operational systems, safety and security systems and airport administrative systems.

The government provides a basic reference to the areas of improvement for each airport and then the consortiums interested in participating in the concession bids present their viability studies, listing the anticipated needs for each airport. Subsequently, SAC selects the preferred viability studies that identify the projected investments and needs for each airport which may include improvements to the airfield, terminals and parking facilities. However, not until the public bid is officially announced, will the public be made aware of the specifics for each airport project in terms of improvements, technologies and final investment.

The following is a list of equipment and systems that will most likely be required for the airport concession projects.

Communications Systems

- Integrated 800 MHz Radio communications
- Private Branch Exchange (PBX) Telephone
- Cellular Telephone
- VoIP Telephone
- Premises Distribution Systems
- Cable Management System
- Network Management Systems
- Local Area Network (LAN)
- Wide Area Network (WAN)
- Virtual Private Network (VPN)
- Network Security Management
- Ethernet
- Wi-Fi
- Gateways
- Intranet
- Extranet
- Internet
- Interfaces to IT Help Desk
- Data Center and associated hardware

Airline and Airside Operation Systems

- Airport Operational Data Base (AODB)
- Resource Management Database (RMS)
- Gate Management System
- Ticket Counter Management System
- Baggage Carousel Management System
- Electronic Visual Information Display Systems (EVIDS)
- Visual Paging and Emergency Display Systems
- Flight Information Display Systems (FIDS)
- Gate Information Display Systems (GIDS)
- Ramp Information Display Systems (RIDS)
- Tug Drive Information Systems
- Baggage Information Display Systems (BIDS)
- Parking Information Display Systems
- Advertising Information Display Systems
- Way-finding Information Display Systems
- Passenger Check-In and Boarding
- Self-Service Kiosk (Check-In)
- Common Use Passenger Processing Systems (CUPPS)
- Common Use Self-Service Kiosks (CUSS)
- Common Use Terminal Equipment (CUTE)
- Departure Control Systems (DCS)
- Weight and Balance systems
- Airline Gateway Server Systems
- Baggage Handling Systems (BHS)
- Baggage Sortation Systems
- Baggage Tracking System
- Cargo Processing Systems
- Passenger Boarding Bridge Systems
- Flight Tracking Systems

- Noise Monitoring Systems
- Weather Tracking Systems
- Aircraft Refueling Systems
- Runway and Taxiway Lighting Systems

Airport Landside Operation Systems

- Parking Gate and Access Control Systems
- Parking Revenue Control Systems
- Parking Space Management System
- Transportation Dispatch System

Airport Safety and Security Systems

- Command and Control Center Systems
- Mobile Command Post Systems
- Computer Aided Dispatch (CAD)
- Closed Circuit Television Systems (CCTV)
- In-Line Explosive Detection Systems (EDS)
- Screening Systems
- Biometrics Systems
- Airport Access Control Systems
- Perimeter Intrusion Detection Systems (PIDS)
- Fire Alarm and Detection Systems
- Emergency Response Systems
- Customs/Immigration Process Systems
- Passenger Screening Systems
- Baggage Screening Systems

Airport Administrative Systems

- Financial Management Systems
- Procurement Management Systems
- Asset Inventory Management Systems
- Financial Assets
- Human Resources Management Systems
- Space and Lease Management Systems
- Property Management Systems
- Noise Monitoring Systems
- Airport Revenue Management System
- E-Commerce Website for Airport and Tenants
- Tenant Relations Systems (business service, billing, contracts, electronic payment, etc.)
- Database Management Systems
- Public Addressing System
- Tourism and Hotel Information Systems

Other Equipment

- Air Rescue and Fire Fighting systems (ARFF)
- Energy Efficient Lighting Systems
- Power and Utility systems (Central Energy Plant)
- Electric walkways, escalators, and elevators

Professional Services

- Airport planning and preliminary engineering services
- Engineering and design services
- Financial services
- Airport systems integration services
- Security planning and design services
- Testing and training services
- Operational and maintenance service contracts
- Project management services

2.3 Information on Airports to be Concessioned

PINTO MARTINS AIRPORT

Pinto Martins Airport Facts

- Located 9 Km away from downtown Fortaleza, in the State of Ceara
- 3rd busiest in the Northeast Region and 12th busiest airport in the country
- Average growth in passenger traffic between 2003-2014 was 12% per year
- Passenger Movement in 2014: 6.5 million
- Cargo Movement in 2014: 57,083 tons
- Traffic Growth in 2014: 10%
- Anticipated Project Investment: $ 580 million

Figure 2 – Pinto Martins Airport

Expected Areas of Improvements

- Improvement of the runway and taxiway systems
- Improvement/Expansion of Aircraft Apron
- Renovation/expansion Complete passenger terminal
- Construction of parking facility
- Upgrade of ATC and ARFF equipment
- Planning, engineering and design services

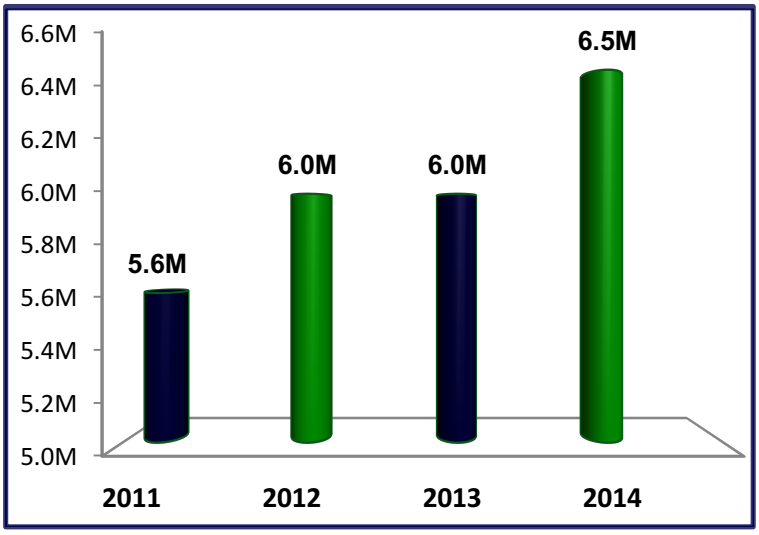

Figure 3- Pinto Martins Airport Annual Passenger Numbers (In Millions)

THE DEPUTADO LUIS EDUARDO MAGALHAES AIRPORT

Magalhaes Airport Facts

- Located 24 Km away from the capital city in the State of Bahia
- Most busy airport in the Northeast Region, and 8th busiest in the country
- Average growth in passenger traffic for 2003-2014 was 9.27% per year
- Passenger movement in 2014: 9.2 million
- Cargo movement in 2014: 36.613 tons
- Anticipated Project Investment: $ 967 million

Figure 4 – D. Luis Eduardo Magalhaes Airport

Expected Areas of Improvements

- Construction of new runway
- Expansion of the aircraft patio area
- Expansion/modernization of passenger terminal
- Vehicle parking
- Cargo terminal
- Upgrade of ATC and ARFF equipment
- Planning, engineering and design services

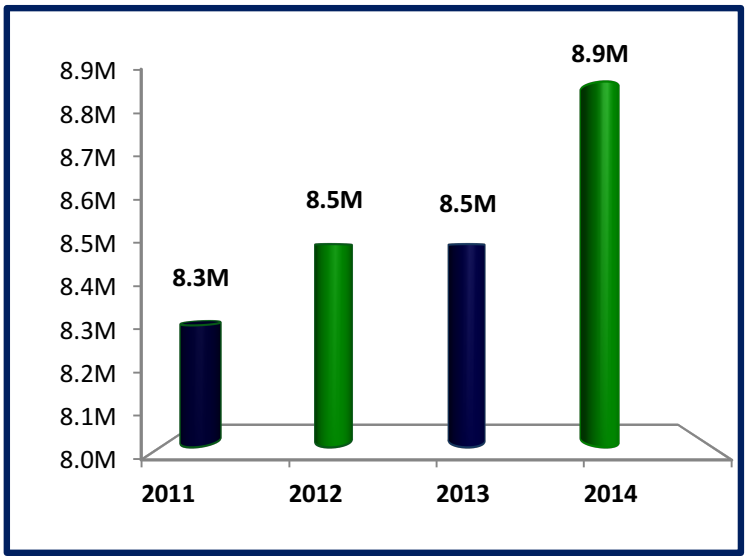

Figure 5 - Magalhaes Airport Annual Passenger Numbers (In Millions)

HERCILIO LUZ AIRPORT

Hercilio Luz Airport Facts

- Located 12 Km away from the capital city in the State of Santa Catarina
- 14th busiest airport in the country and 3rd busiest airport in the Southern Region
- Average growth in passenger traffic between 2003-2014: 9.9% per year
- Passenger movement in 2014: 3.6 million
- Cargo movement in 2014: 9,212 tons
- Anticipated Project Investment: $ 485 million

Figure 6 – Hercilio Luz Airport

Expected Areas of Improvements

- Upgrades to the runway and taxiway systems
- Construction of aircraft patio
- Improvement to passenger terminal
- Construction of parking facility
- Construction of cargo terminal
- Upgrades to ATC equipment
- Upgrades of ARFF equipment
- Planning, engineering and design services

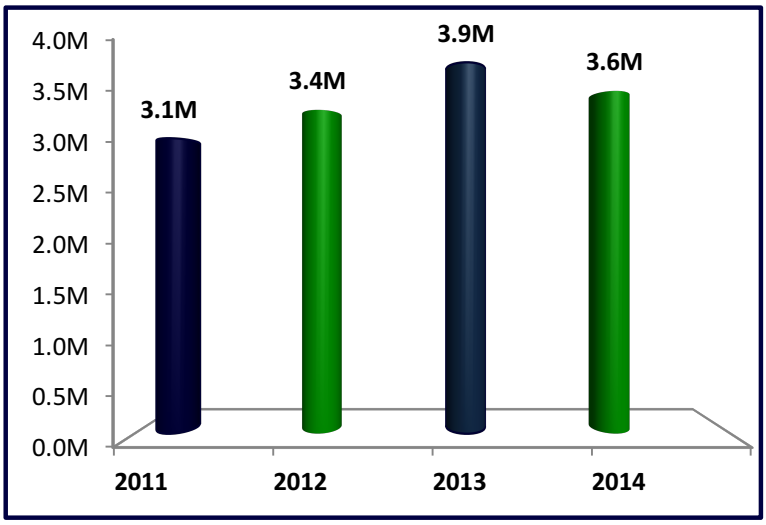

Figure 7 Hercilio Luz Airport Annual Passenger Numbers (In Millions)

SALGADO FILHO AIRPORT

Salgado Filho Airport Facts

- Located 7 Km away from the City of Porto Alegre, State of Rio Grande do Sul
- 9th busiest airport in the country and the most busy in the Southern Region
- Average growth in passenger traffic for 2003-2014: 10.2% per year
- Passenger movement in 2014: 8.4 million
- Cargo Movement in 2014: 29,227 tons
- Anticipated Project Investment: $ 806 million

Figure 8 – Salgado Filho Airport

Expected Areas of Improvements

- Expansion of the existing landing / take-off runway
- Expansion of aircraft patio area
- Construction of new passenger terminal and expansion of existing one
- Construction vehicle parking
- Construction cargo terminal
- Upgrade of ATC equipment
- Supply/upgrade of ARFF equipment
- Planning, engineering and design services

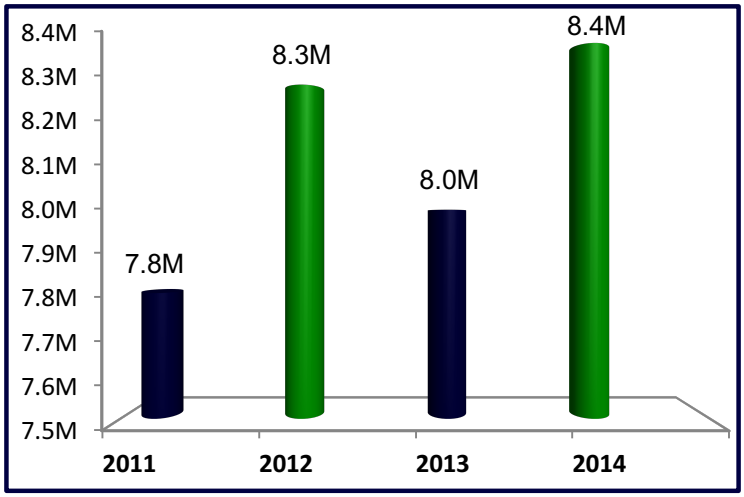

Figure 9 – Salgado Filho Airport Annual Passenger Numbers (In Millions)

Contacts

For more information on the projects listed in this section, please find the relevant contacts listed below.

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ROLIM ADOLFO AMARO AIRPORT

Projected improvements:

- Creation of a Runway End Safety Area (RESA) for both runway approaches
- Improvements to runway and taxiway including adding new lighting systems
- Expanding existing apron
- Construction of airside drainage infrastructure
- Construction of passenger terminal building
- Construction of parking facilities
- Installation of airside technologies
- Upgrades to landside equipment
- Improvements to ATC and communications equipment
- ARFF equipment
- Planning, engineering, design, and project management services

Figure 10 - Rolim Adolfo Amaro Airport

CAMPOS DE AMARAIS AIRPORT

Projected improvements:

- Construction of a Runway End Safety Area (RESA) for both runway approaches
- Improvements to runway and taxiway including new lighting systems
- Expansions of apron
- Construction of airside drainage infrastructure
- Construction of passenger terminal building
- Construction of parking facilities
- Implementation of airside technologies
- Upgrades to landside equipment
- Upgrades to ATC and communications equipment and ARFF equipment
- Planning, engineering, design and project management services

Figure 11 - Campos De Amarais Airport

UBATUBA AIRPORT

Projected upgrades:

- Creation of a Runway End Safety Area (RESA) for both runway approaches
- Improvements to runway including new lighting systems
- Reconstruction of apron
- Improvements to airside drainage infrastructure
- Construction of new passenger terminal building
- Construction of parking facilities
- Upgrades to navigational systems
- Upgrades to landside equipment
- ATC/communications equipment
- ARFF equipment
- Planning, engineering, design, and project management services

Figure 12 - Ubatuba Airport

BRAGANCA PAULISTA AIRPORT

Projected upgrades:

- Creation of a Runway End Safety Area (RESA) for both runway approaches
- Improvements to runway including new lighting systems
- Expansions of apron
- Construction of airside drainage
- Construction of new passenger terminal building
- Construction of parking facilities
- Implementation of airside technologies
- Landside equipment upgrades
- ATC and communications equipment upgrades
- ARFF equipment
- Planning, engineering, design, and project management services

Figure 13 – Braganca Paulista Airport

ITANHAEM AIRPORT

Projected upgrades:

- Implementation of security fencing for the airport perimeter area
- Upgrades to roadway
- Construction of communications station
- Improvements to drainage systems
- Construction of a new terminal building
- Construction of new parking facility
- Implementation of airfield lighting systems
- Construction of new fire station

Figure 14 – Itanhaem Airport

CALDAS NOVAS AIRPORT

Projected upgrades:

- Construction of new airport terminal
- Expansion/reconstruction of runways
- Construction of ATC tower
- Reconstruction/expansion of Apron areas
- Implementation of Navigational Aids (NAVAIDS)
- Upgrades to communication systems
- Upgrades to airport operating systems
- Upgrades to power and utility systems
- Construction of parking areas

Figure 15 –Caldas Novas Airport

2.4 Additional State Airports Expected to be Concessioned

The Bahia Government has been working with SAC to advance the concession of several state airports. SAC recently authorized the concession of the Comandatuba Airport, located in the Una Municipality. SAC also authorized the construction of the Vitoria de Conquista Airport, a city approximately 500 Km from Salvador. The project includes the construction of a runway and ramp that can accommodate Boeing 737s, as well as new power stations, lighting, security and fire-fighting stations. In Bahia, there are several other airports expected to be concessioned including the Barreiras, Caravelas/Teixeira de Freitas, and Lencois/Guanambi airports.

The Government of the State of Ceara is anticipating the concession of state airports such as Itapipoca, Iguatu, Campos Sales, Aracati and Caninde Airports. These airports will require engineering, design and project management services for constructing and improving airport terminals, runways and taxiways, ATC towers, NAVAIDS, airport operating systems, baggage handling systems, security systems, communication systems, energy efficient systems, as well as power and utility systems.

There are other state airports that may be concessioned in the near future (2016 or 2017). The official announcement for these airports will depend on how long it takes for each state to prepare the required documentation. The Zona da Mata Airport in the State of Minas Gerais has received the necessary SAC approvals, while the Pouso Alegre and Sao Lourenco Airports (Minas Gerais) is awaiting SAC's approval. Furthermore, SAC has approved the Campos dos Goytacazes Airport in Rio de Janeiro for concession, as well as the Araras and Guaruja airports in the State of Sao Paulo.

Other state airports that may be concessioned include Sao Paulo, Goias, Bahia and Rio de Janeiro.

Contacts

For more information on the projects listed in this section, you may reach out to one of the contacts listed below.

State of Sao Paulo Project Contact	U.S. Trade and Development Agency	U.S. Commercial Service Brazil
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State of Goias	**State of Bahia**	**State of Ceara**
Evandro Magal Mayor of Caldas Novas Avenida Antonio Coelho de Godoy, salas superiores, centro CEP: 75.690-000 Caldas Novas, Brazil Telephone: 55 64 3454-6853 **Ragnar Jose Prado** Caldas Novas Airport Director Telephone: 55 64 3454-3582	Marcus Cavalcanti SEINFRA Secretary CAB, 4 Avenida, No. 440, Paralela CEP:41.745-000 Salvador, Bahia-Brazil Telephone: 55 71 3115-2106 Email: marcus.cavalcanti@seinfra.ba.gov.br **Denisson de Oliveira** Director of Terminals and Airports	**Andre Macedo Faco** SEINFRA Secretary Ceara State Government Ave. General Alfonso Albuquerque Lima s/n – Ed. SEINFRA/SRH – 2 Andar – CEP 60822-325 Fortaleza, Ceara, Brazil Telephone: 85 3216-3713/3216-3719 Email: andre.faco@seinfra.ce.gov.br

	Secretaria de Infraestrutura CAB, 4 Avenida, No. 440, Paralela CEP:41.745-000 Salvador, Bahia-Brazil Telephone: 55 71 3115-8506 Email: denisson.deoliveira@seinfra.ba.gov.br	Joaquim Firmino Filho Executive Secretary SEINFRA Ceara State Government Ave. General Alfonso Albuquerque Lima s/n – Ed. SEINFRA/SRH – 2 Andar – CEP 60822-325 Fortaleza, Ceara, Brasil Telephone: 85 3216-3719 Email: Joaquim.firmino@seinfra.ce.gov.br

2.5 Private Airport and Air Hub Developments in Brazil

Given the growing demand for general aviation operations, private investors seek to explore the possibility of constructing new private airports. SAC has an established process that the private sector must follow in order to obtain the proper approvals and licenses for constructing and operating private airports. Currently, there is one private airport development project underway, which is the Sao Paulo – Catarina Executive Airport. The development of private executive airports for general aviation and tourism purposes will likely call for the services of FBO operators, aircraft maintenance services and equipment, and aviation technologies as the private sector begins to invest in private airport development projects.

2.5.1 Sao Paulo Catarina Executive Airport

JHSF is a major Brazilian commercial and real estate development corporation with substantial assets throughout Brazil and the U.S. JHSF is in the process of constructing a state-of-the-art general aviation executive airport, The Sao Paulo Catarina Executive Airport, in the City of Sao Roque about 35 Km west of the City of Sao Paulo. The new executive airport is designed to accommodate general aviation flights and executive operations, given that general aviation operations at the surrounding airports is very limited.

Figure 16 - Sao Paulo Catarina Executive Airport

Summary of the Sao Paulo Catarina Executive Airport

- Designed to accommodate general aviation flights
- Will improve airport infrastructure
- 24-hour operation without hourly restrictions
- Runway will span 2,470 meters x 45 meters
- Accommodates large business jets, such as the Gulfstream G650 and G550, Bombardier's Global 6000, and Dessault Falcon's 8x and Falcon 2000

- 14-minute helicopter flight from Sao Paulo
- Includes 50,000 square meters of hangars and 50,000 square meters of aprons in the first phase
- Features a General Aviation Terminal (GAT) for executive aviation, equipped with complete infrastructure in support of passenger and crew, with baggage inspection equipment
- Service and Maintenance Center
- Helipad offered to passengers for connection to the state capital for business

Expected equipment and services needed for this project:

- Fixed Base Operators (FBO)
- Navigational Systems
- ATC tower equipment
- Communications systems
- ICT systems
- Baggage inspection equipment
- Maintenance, Repairs, and Overhaul (MRO) services.

Contacts

For more information on this project, please reach out to one of the project contacts below.

Project Contact	U.S. Trade and Development Agency	U.S. Commercial Service Brazil
Kathleen Elizabeth Marcus Weiss **JHSF** Analista Comercial Av. Magalhaes de Castro, 4.800 -27 Andar – Torre 03 Cidade Jardim Corporate Center – Continental Tower CEP 05502-001 – Sao Paulo/ SP Telephone: 55 11 3199-0310 Email: kathleenweiss@jhsf.com.br	**Gabrielle Mandel** Country Manager for Brazil 1000 Wilson Boulevard Suite 1600 Arlington, VA 22209 Telephone: (703) 875-4357 Email: Gmandel@ustda.gov **Rodrigo Mota** Brazil Country Representative Consulate General of the United States of America Rua Henri Dunant, 700 04709-110 Sao Paulo SP, Brazil Telephone: 55-11-3250-5335 Mobile: 55-11-97575-9844 Email: rmota@ustda.gov	**Landon Loomis** Commercial Officer Embassy of the United States of America SES, Qd. 801, Lote 03 70403-900 – Brasilia, DF Brazil Telephone: 55-61-3312-7249 Email: Landon.Loomis@trade.gov **Genard Holmes Burity** Business Development Specialist Consulate General of the United States of America Av. Presidente Wilson, 147 20030-020 Rio de Janeiro, RJ Brazil Telephone: 55-21-3823-2401 Email: genard.burity@trade.gov

2.5.2 LATAM Airlines Group S.A.

LATAM Airlines Group S.A. recently became one of the largest airline groups in the world, as a result of the merger between TAM S.A. and LAN Airlines S.A.

In 2015, LATAM announced the launch of feasibility studies to establish the first international and domestic hub in Northeast Brazil. LATAM is considering three cities as potential hosts for the hub: Fortaleza, Natal and Recife.

The main objective is to expand LATAM's operations between Europe and South America, and the geographic position of Northeast Brazil serves a strategic location to do so.

The Northeast hub will offer significantly shorter flights between Brazil and the U.S, and between Brazil and Europe, compared to Sao Paulo and Rio de Janeiro. The location will facilitate better connections and connecting times, creating efficiency for the airline.

Figure 17 - TAM Airlines

Expected Category of Airport Systems and Services

- Communication systems
- Airline and airside operational systems
- Landside operational systems
- Safety and security systems
- Airport administrative systems
- Other equipment and professional services to be determined as the project develops

Contacts

For more information on this project, please reach out to one of the project contacts below:

Project Contact	U.S. Trade and Development Agency	U.S. Commercial Service Brazil
Ruy Amparo Vice President of Operations and Maintenance LATAM Airlines Group Avenida Jurandir, 856 Hangar VII CEP 04072 000 Sao Paulo – SP Brazil Telephone: 55 11 5582-8817 Email: Ruy.amparo@tam.com.br **Audrey Mourao Hilzendeger** Coordenadora OTP Estrategico LATAM Airlines Group Avenida Jurandir, 856 Hangar VII CEP 04072 000 Sao Paulo – SP Brazil Telephone: 55 11 4517-4051 Email: Audrey.Hilzendeger@tam.com.br	**Gabrielle Mandel** Country Manager for Brazil 1000 Wilson Boulevard Suite 1600 Arlington, VA 22209 Telephone: (703) 875-4357 Email: Gmandel@ustda.gov **Rodrigo Mota** Brazil Country Representative Consulate General of the United States of America Rua Henri Dunant, 700 04709-110 Sao Paulo, SP Brazil Telephone: 55-11-3250-5335 Mobile: 55-11-97575-9844 Email: rmota@ustda.gov	**Landon Loomis** Commercial Officer Embassy of the United States of America SES, Qd. 801, Lote 03 70403-900 – Brasilia, DF Brazil Telephone: 55-61-3312-7249 Email: Landon.Loomis@trade.gov **Genard Holmes Burity** Business Development Specialist Consulate General of the United States of America Av. Presidente Wilson, 147 20030-020 Rio de Janeiro, RJ Brazil Telephone: 55-21-3823-2401 Email: genard.burity@trade.gov

2.6 Regional Aviation Development Program (PDAR)

In an effort to provide access to air travel for Brazilians living in smaller cities, the Government announced the Regional Aviation Development Program (PDAR) with infrastructure investments of $2.3 billion. The first stage of the PDAR will benefit 270 out of 689 local and regional airports across Brazil, allowing them to receive commercial flights. The airport owners and operators, mostly states or municipalities, were advised to submit an analysis of their investment needs in terms of financial viability and physical installations such as infrastructure, runways, aprons, terminals, ATC and aviation equipment.

The PDAR is a three-phrase process including:

- Feasibility studies;
- Project viability analysis; and
- Preliminary engineering for project development.

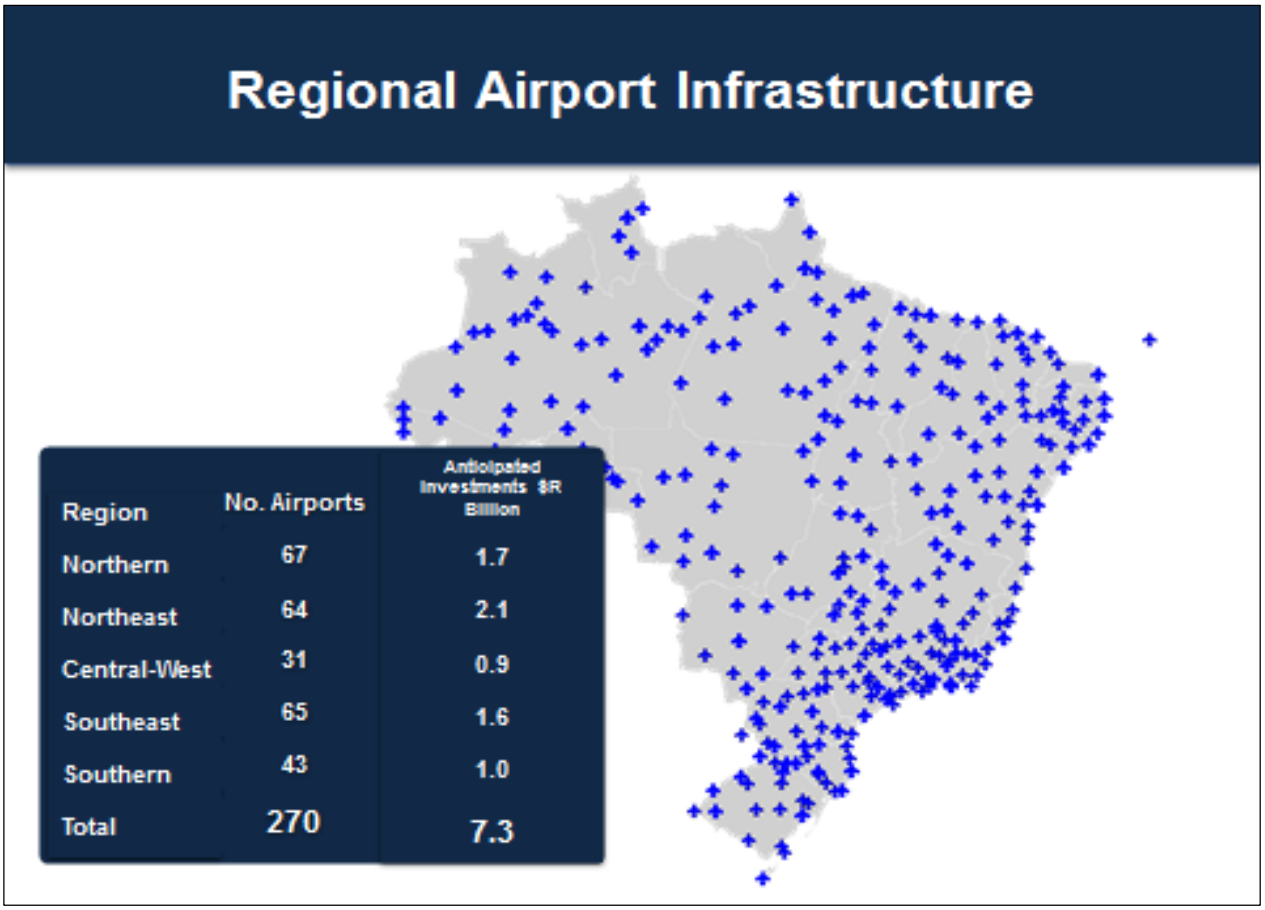
SAC is currently in the second phase of the process, project viability analysis, for all airports previously selected. Before the end of 2016, SAC will move on to the preliminary engineering phase for airports that represent viable opportunities for upgrades and potential concessions.

The FNAC Fund receives its revenues from airport tariffs and concession contracts from major airports across the country. The FNAC likely has a substantial amount of funds on the order of $2.5 billion, as revenues are collected by the Ministry of Finance, however, the funds have not yet been released by the Government. SAC currently is awaiting the Ministry of Finance's release of funds in order to support the PDAR.

Once SAC reaches an agreement with a state or municipality, these Governments can announce the public tender for their respective airport projects. The type of upgrades expected at each airport varies; some require rehabilitation of terminals and runways, while others require construction of new terminals, runways, ATC towers, navigational aids (NAVAIDS), energy and central utility systems and terminal systems. SAC expects to roll out the actual authorization for the regional airports in phases and as funding becomes available from the FNAC.

The Brazilian states that have been most engaged in this process are Sao Paulo, Goias, Bahia, Ceara, Rio de Janeiro and Minas Gerais. Additionally, the Government has announced that it will ease the restrictions for operators of private airfields. Private airfields will now be allowed to collect landing fees from executive aircraft and air taxis, and they can invest in and operate certain commercial facilities such as shops and restaurants. This liberalization is expected to stimulate further investments in both new private airfields and the modernization of existing ones.

Figure 18 – Regional Airport Development Program (In Brazilian Reales)



Contacts

For more information on the PDAR, please reach out to one of the project contacts below.

Project Contact	U.S. Trade and Development Agency	U.S. Commercial Service Brazil
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2.7 Brazil Aviation Overview and Regulatory Framework

Brazil has 2,463 airports registered by the national airports authority, National Agency of Civil Aviation (ANAC - Agencia Nacional de Aviacao Civil). Of those, 1,806 operate privately and 657 operate publically. The main commercial airlines are Azul, GOL Airlines and TAM Airlines (recently merged with LAN to form the LATAM Group). These airlines provide service to major cities across Brazil. Over the last ten years, the market has grown more competitive, driving down the cost of air travel. According to ANAC, more than five million passengers traveled between the U.S. and Brazil in 2014, making Brazil one of the top ten international destinations for travel to and from the United States.

The Brazilian regulatory agencies oversee concessionaires and their provision of public services. In addition to monitoring service quality, the regulatory agencies administer the development of concession programs and contracts, the establishment of aviation standards and the imposition of penalties.

The Secretariat of Civil Aviation (SAC) organizes the operation and development of all civil aviation activities. Composed of aviation authorities and institutions, SAC's goal is to support both military and civil aeronautical and aviation activities in Brazil. SAC draws from several funds such as the National Civil

Aviation Fund (FNAC) which allocates and distributes resources within the civil aviation system, and the Federal Program for Airport Assistance (PROFAA) which promotes flight safety and passenger comfort.

As a key agency within SAC, ANAC is responsible for regulating the security and safety of aircraft. It has authority on monitoring, licensing, concessioning and operations of aerodromes and airports. Also under SAC's purview, Infraero provides infrastructure, airport and air navigation services. Infraero is also charged with developing a list of airport improvement projects on an annual basis as part of the agency's Airport Infrastructure Investment Plan. The investment plan is approved by SAC and the Ministry of Finance as part of the national budget.

3. HIGHWAYS

3.1 Highway Concession Project Opportunities

In June 2015, the Brazilian Government selected 15 highway corridors as candidates for concession. U.S. companies may benefit from these concessions, especially in terms of supplying ITS systems and heavy duty construction equipment. The Government may announce additional concessions in 2016 and U.S. companies should follow this process closely to determine how they can become involved.

New highway operators are not bound by tedious public tendering procedures, allowing U.S. companies to engage directly with concessionaires, as well as those competing for new contracts in 2016. U.S. companies should keep in mind that highway operators face strict timelines, and will require rapid delivery of products and services.

One benefit for U.S. companies is that highway operators are not procuring solely based on low cost; they are looking to acquire quality, dependable highway technology such as ITS and ICT systems to support revenue collection operations. Additionally, the Brazilian Government selected standards from the National Transportation Communications for Intelligent Transportation Systems Protocol (NTCIP) for implementing ITS systems in the country. The type of equipment and services required by each highway concession project varies and that information will not be available until the official bidding begins.

The following provides a list of features, equipment and systems that will most likely be required for the highway concession projects.

ITS Systems Needed

- Implementation of digital monitoring system through CCTV-IVA for 100% highway coverage
- Radio and digital systems for the dissemination of highways conditions (events, closures, weather, etc.)
- Transmission of highway related information to control center
- Implementation of digital systems for managing highway projects such as information exchange between operator and highway users, highway assistance programs for all users (ambulance, towing, repair services)
- Access to highway information 24/7 through Wi-Fi
- Implementation of weigh-in-motion systems
- Implementation of traffic management and control centers
- Implementation/upgrade of electronic toll collection systems (ETC)
- Implementation of variable message sign systems
- Implementation of a "point to point" toll collection system
- ICT equipment such as servers, computers, software and hardware to support the operation and maintenance of the highways

Because highway operators are private entities, they can engage directly with foreign firms, bypassing the federal and state procurement processes, which translates into a less bureaucratic environment for U.S. companies. Some highway operators have import/export licenses that allow them to introduce technologies and equipment based on their demands, thus reducing the need for intermediary services or local agents. This dynamic facilitates the operators' ability to acquire equipment directly from foreign companies.

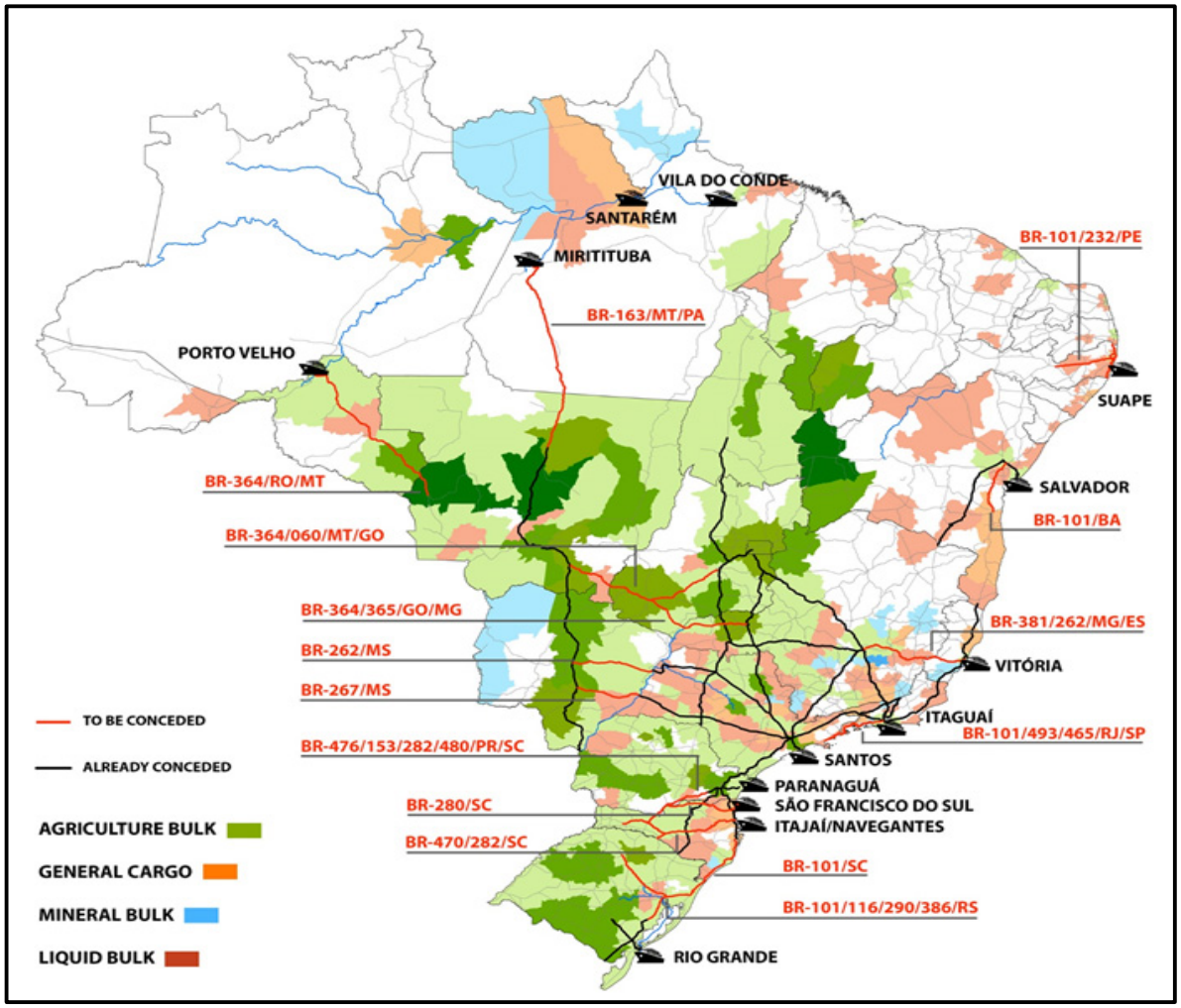
The key for U.S. firms is to engage early by making contact with private highway operators (consortia) who will require technologies and services to fulfill their contractual obligations with the state and federal Governments.

3.2 Highway Concessions

On June 9, 2015, the Government announced the second round of the Logistics Investment Program (PIL), investing in infrastructure to drive economic growth. The second stage will delegate 7,000 Km of highways and roadways to the private sector, with an estimated investment of $22 billion. Of that budget, $16 billion will target new highway concessions for contracts executed through 2016, and the remaining $6 billion will be invested in existing concessions. The primary goals of these concessions are to increase capacity and improve safety.

The figure below depicts highways expected to be concessioned in 2016.

Figure 19 – Highways to be Concessioned in 2016



3.3 2016 Highway Concessions – First Round

The following provides an overview of each highway project, which may present opportunities for U.S. firms to export ITS technologies.

Figure 20 – 2016 Highway Concessions (First Round)

3.3.1 Project BR-476/480 (PR/SC)

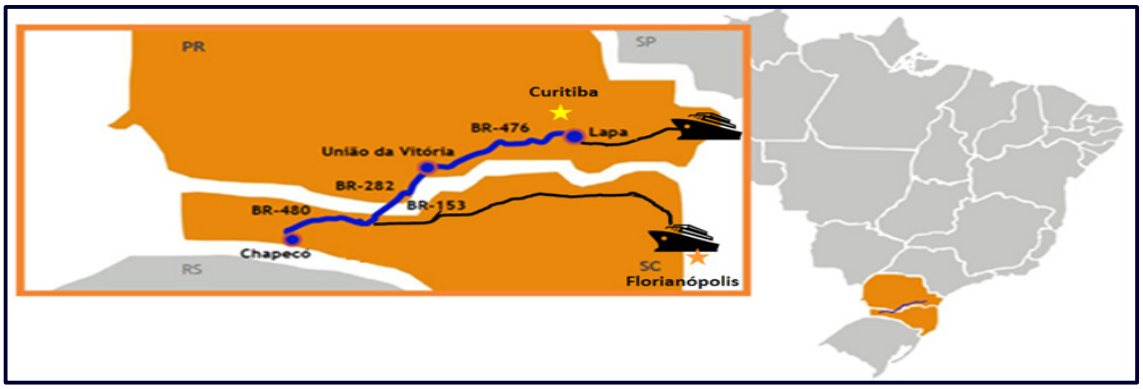


Figure 21 -BR-476/480 (PR/SC)

Project Description

The Ministry of Transport published the concession plan for the stretch of highways BR-476/480 (PR/SC), with an investment of $1.4 billion. The project will extend from the City of Lapa along BR-476 to the City of Uniao da Vitoria and BR-282/BR-480 from Uniao da Vitoria to the City of Chapeco. The project aims to facilitate the transport of poultry and agricultural products to the Southern ports.

The project stretches across 493.3 Km, featuring:

- BR-476/PR, between Lapa and Uniao da Vitoria;
- BR-153/PR/SC, between Uniao da Vitoria and the junction with BR-282;
- BR-282/SC, between the junction with BR-153 and the junction with BR-480; and
- BR-480/SC, between the junction with BR-282 and Chapeco.

Project BR-476/480 (PR/SC) will require engineering and design, paving, the construction of interchanges, access points, highway shoulders, drainage, implementation of toll collection plazas, lane markings, lighting, safety measures, highway assistance program, deployment of ITS systems, environmental mitigation and roadway maintenance.

Improvements

The upgrades will enhance highway capacity through road widening, mitigate congestion, improve operational measures, maintenance, implement ITS systems and implement toll collection systems.

Duration of Concession

30 years

Estimated Investment

$1.4 Billion

Environmental License

The Logistics and Planning Company (EPL) is responsible for obtaining the advance license (LP) and site license (LI) for the highway improvement works.

Project Status

The National Land Transportation Agency (ANTT) has submitted a draft bid notice, concession plan and studies corresponding to particular highway stretches to the Brazilian Federal Court of Audit (TCU) for review and approval.

3.3.2 Project BR-364/365 (GO/MG)

Figure 22 - BR-364/365 (GO/MG)

Project Description

Project BR-364/365 comprises a total length of 437 Km, including the BR-364/GO/MG stretch between the intersection with BR-060A (Jatai), until the junction with BR-153A/262A (Comendador Gomes). The project calls for engineering and design services, paving, construction of interchanges, access points, highway shoulders, and drainage, the implementation of toll collection plazas, lane markings, lighting, safety measures, and highway assistance program, as well as the deployment of ITS systems, environmental mitigation and roadway maintenance and operation.

Improvements

The improvements aim to connect the grain production region in Southern Goias to the Triangulo Mineiro area. The project will enhance highway capacity through road widening, mitigate congestion, enhance operational measures, maintenance, implement ITS systems and implement toll collection systems.

Duration of Concession

30 years

Estimated Investment

$903 million

Environmental License

EPL is responsible for obtaining the advance license (LP) and the site license (LI) for the highway improvement works.

Project Status

At a public hearing in 2015, ANTT presented drafts of the bid notice and concession agreement under the highway exploration program, as well as feasibility studies related to the concession of a 437-Km stretch of highways BR-364/365/GO/MG, between the junction with BR-060 in Jataí/GO and the junction with LMG-479 in Uberlandia/MG. The project is pending approval from the Brazilian Federal Court of Audit (TCU) prior to the public announcement for auction.

3.3.3 BR-364/060 (MT/GO)

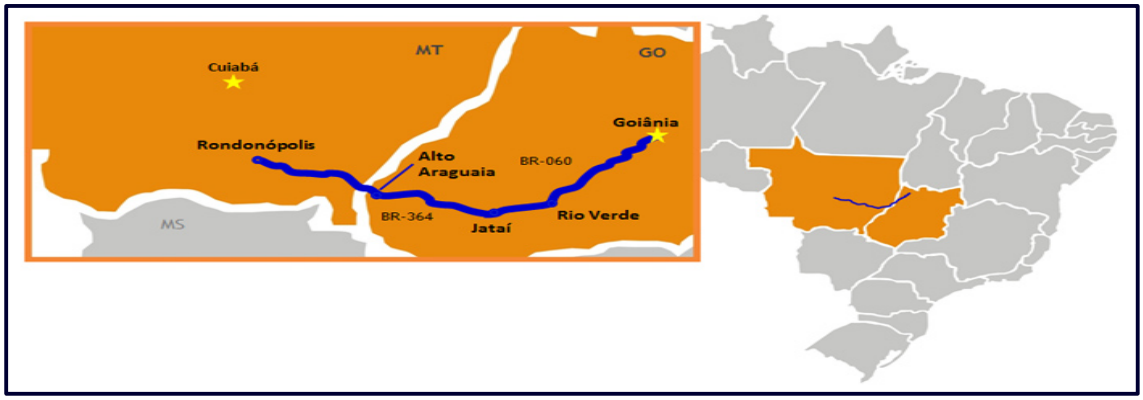


Figure 23 - BR-364/060 (MT/GO)

Project Description

Project BR-364/060 expands highway length by 704 Km, including the BR-364 and BR-060 between Goias and Mato Grosso. The project required engineering and design services, paving, the construction of interchanges, access points, highway shoulders, drainage, implementation of toll collection plazas, lane markings, lighting, safety measures and highway assistance, deployment of ITS systems, environmental mitigation and roadway maintenance.

Improvements

The goal of this project is to better connect the Central-West Region with ports in the North and South of Brazil by expanding highway capacity, mitigating congestion, implementing operational measures, conducting maintenance and conservation, adding toll collection infrastructure and implementing ITS systems.

Duration of Concession

30 years

Estimated Investment

$1.3 billion

Environmental License

EPL is responsible for obtaining the advance license (LP) and the site license (LI) for the road duplication and improvement works.

Project Status

The project is still under the early stages of the PMI process.

3.3.4 Project BR-163 (MT/PA)

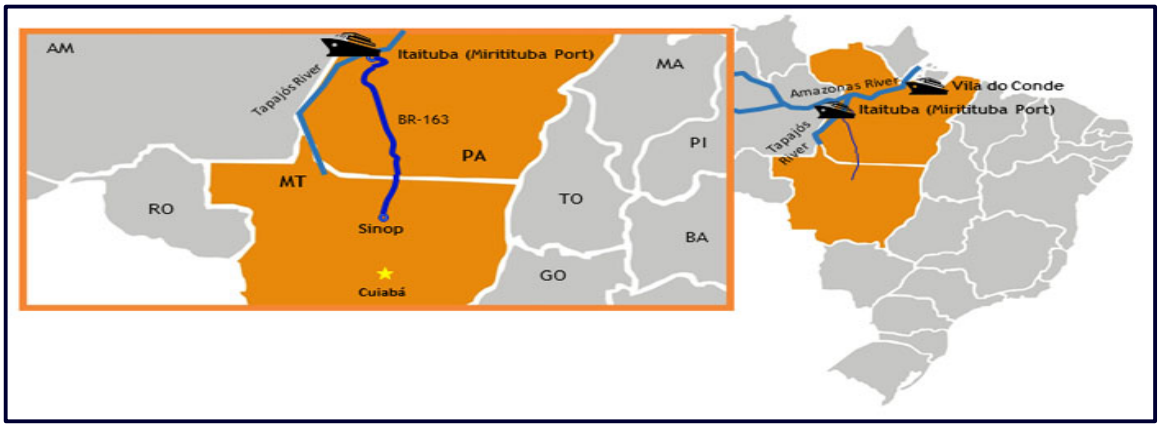


Figure 24 - BR-163 (MT/PA)

Project Description

Project BR-163 expands the length of 976 Km of highway including the following roads:

- BR-163/MT/PA, junction with MT-220 to the junction with BR-230 (A)
- BR-230/PA, junction with BR-163 (B) (Campo Verde) until Miritituba

The project calls for engineering and design, paving, the construction of interchanges, access points, highway shoulders, and drainage, the implementation of toll collection plazas, lane markings, lighting, safety measures, highway assistance program, deployment of ITS systems, environmental mitigation and roadway maintenance.

Improvements

The objective with this project is to streamline the movement of grain and other agricultural products to the northern ports, and it will be approached by widening the highway to increase capacity, mitigating congestion, implementing operational measures for the highway, conducting maintenance and conservation, collecting of tolls and implementing ITS systems.

Duration of Concession

30 years

Estimated Investment

$2.1 billion

Environmental License

EPL is responsible for obtaining the advance license (LP) and the site license (LI) for the road duplication and improvement works.

Project Status

The project remains in the early stages of the PMI process.

3.4 2016 Highway Concessions – Second Round

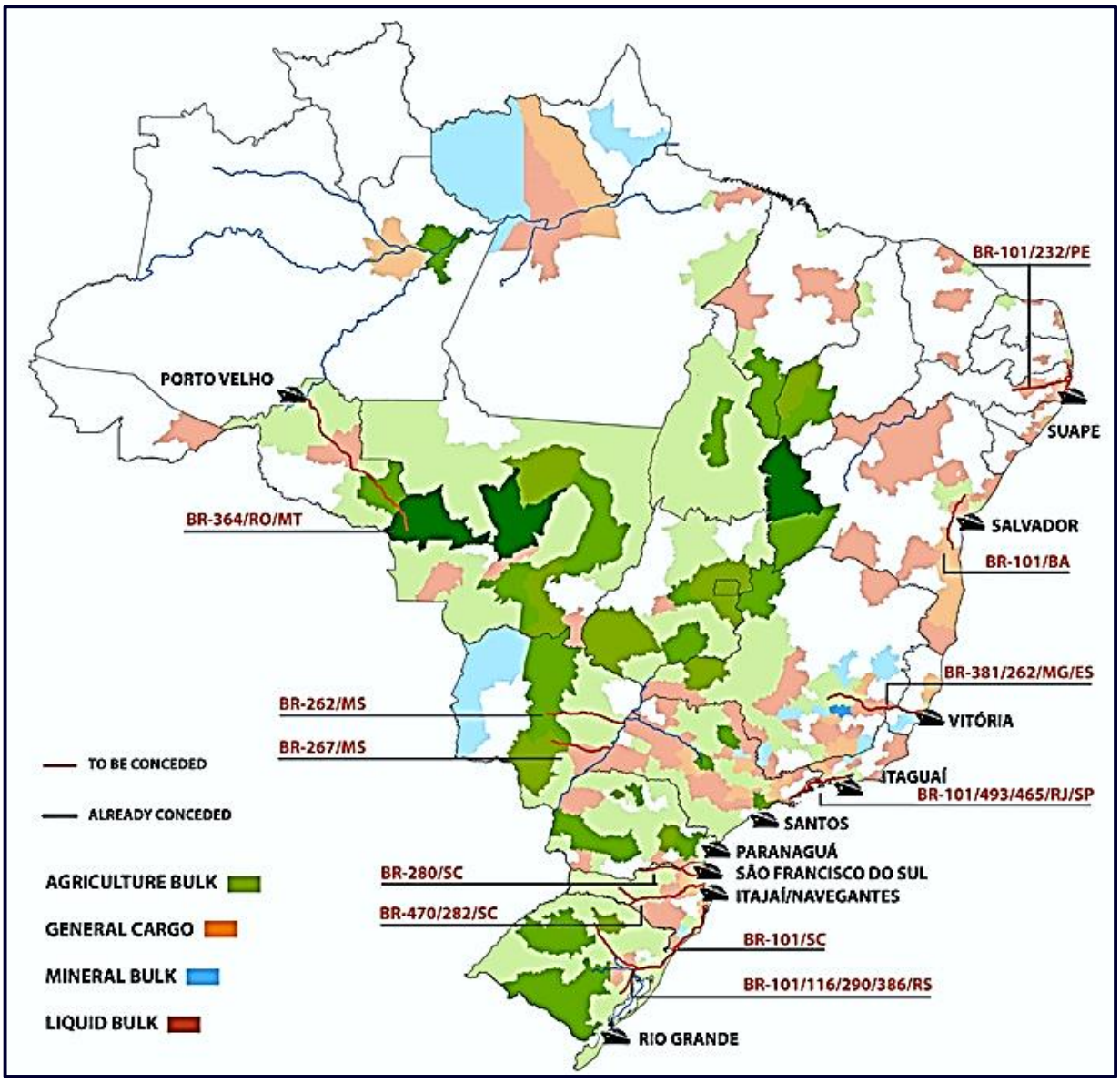
The following presents a summary of highway projects expected for the second round of highway concessions in 2016.

Table 2
Highway Concessions for 2016

Highways	Description
BR-101/BA	199 Km of highway BR 101 from Feira de Santana (State of Bahia) to Gandu (State of Bahia).
BR-101/SC	220 Km of highway BR 101 from Palhoca (State of Santa Catarina) to the state line between Santa Catarina and Rio Grande do Sul.
BR-262/MS	327 Km of highway BR 262 from Campo Grande (State of Mato Grosso do Sul) to Tres Lagoas (State of Mato Grosso do Sul).
BR-267/MS	249 Km of highway BR 267 from Nova Alvorada do Sul (State of Mato Grosso do Sul) to Presidente Epitacio (State of Sao Paulo).
BR-280/SC	307 Km of highway BR 280 from Porto Uniao (State of Santa Catarina) to the Port of Sao Francisco do Sul (State of Santa Catarina).
BR-364/RO/MT	806 Km of highway BR 364 from Porto Velho (State of Rondonia) to Comodoro (State of Mato Grosso).
BR-101/232/PE	564 Km of highway BR 101 from the state line between Paraiba and Pernambuco to the state line between Pernambuco and Alagoas; and a second segment (over highway BR 232) from Recife (State of Pernambuco) to Cruzeiro do Nordeste (State of Pernambuco).
BR-262/381/MG/ES	305 Km of highways BR 262 and BR 381 from Belo Horizonte (State of Minas Gervais) to the state line between Minas Gervais and Espirito Santo.
BR-282/470	455 Km of highways BR 470 and BR 282 crossing the State of Santa Catarina to the Ports of Navegantes and Itajai (State of Santa Catarina)
BR-101/493	357 Km of highways BR 101, BR 493 and BR 456 from Ubatuba (State of Sao Paulo) to BR 040 in the State of Rio de Janeiro.
BR-101/116	581 Km of highways BR 101, BR 116, BR 290 and BR 386 from Porto Alegre (State of Rio Grande do Sul) to Carazinho (State of Rio Grande do Sul), Camaqua (State of Rio Grande do Sul) and the state line between Rio Grande do Sul and Santa Catarina.

The Figure below represents the second round of highway concession projects in 2016.

Figure 25 - Upcoming Highway Concessions



3.4.1 Project BR-101/BA

Figure 26 BR-101/BA

Project Description

Project BR-101/BA involves 199 Km of highway, specifically the segment of BR-101 between Gandu/BA and the junction with BR-324. The goal is to duplicate the stretch between Feira de Santana/Gandu and improve cargo transportation between the Northeast and the Southeast Regions of the country. The project will call for engineering and design services, paving, construction of interchanges, access points, highway shoulders, drainage, implementation of toll collection plazas, lane markings, lighting, safety measures, highway assistance program, deployment of ITS systems, environmental mitigation and roadway maintenance.

Duration of Concession

30 years

Estimated Investment

$516 million

Project Status

Public Announcement expected in 2016

3.4.2 Project BR-101/SC

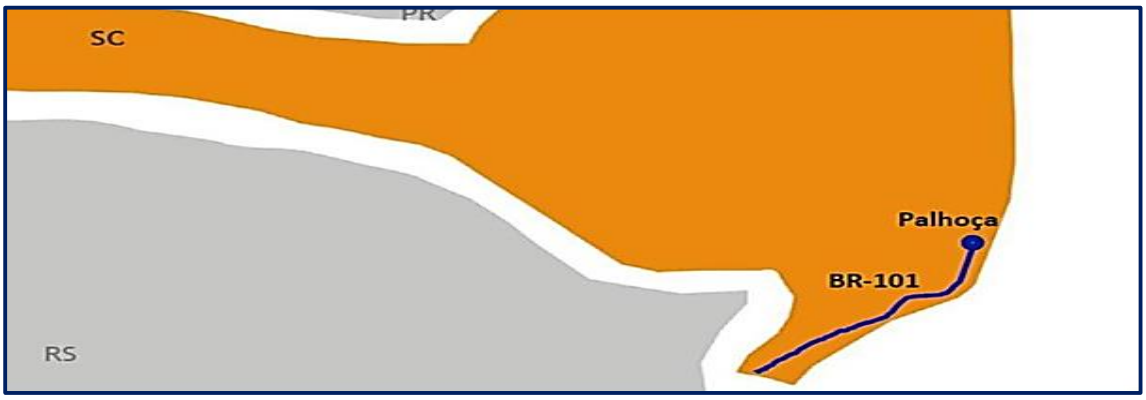


Figure 27 - BR-101/SC

Project Description

Project BR-101/SC includes 220 Km of road, specifically BR-101 between the bridge over the Madre River and the Santa Catarina and Rio Grande do Sul border. The objective is to increase capacity and improve road safety. The project calls for engineering and design services, paving, construction of interchanges, access points, highway shoulders, drainage, implementation of toll collection plazas, lane markings, lighting, safety measures, highway assistance program, deployment of ITS systems, environmental mitigation and roadway maintenance.

Duration of Concession

30 years

Estimated Investment

$355 million

Project Status

Public Announcement expected in 2016

3.4.3 Project BR-262/MS

Figure 28 - BR-262/MS

Project Description

BR-262/MS expands the length of 327 Km of highway including the stretch of the BR-262 between the junction with BR-163 (Campo Grande) and the MS/SP (Mato Grosso do Sul/Sao Paulo) border, with the purpose of widening the Campo Grande/SP border link and reducing the costs of transporting agricultural and livestock production via the ports of the Southern Region.

Duration of Concession

30 years

Estimated Investment

$806 million

Project Status

Public Announcement expected in 2016

3.4.4 Project BR-267/MS

Figure 29 - BR-267/MS

Project Description

Project BR-267/MS expands the length of highway by 249 Km, including the BR-267 distance between the junction with BR-163 and the MS/SP border. The goal is to widen the highway between Mato Grosso do Sul and the Sao Paulo border to better connect the states and reduce the costs of moving agricultural and livestock production via the Southern ports. The project calls for engineering and design services, paving, the construction of interchanges, access points, highway shoulders, drainage, the implementation of toll collection plazas, lane markings, lighting, safety measures, highway assistance program, deployment of ITS systems, environmental mitigation and roadway maintenance.

Duration of Concession

30 years

Estimated Investment

$645 million

Project Status

Public Announcement expected in 2016

3.4.5 Project BR-280/SC

Figure 30 - BR-280/SC

Project Description

Project BR-280/SC involves 307 Km of highway featuring the BR-280 stretch between the Port of Sao Francisco do Sul and the Santa Catarina -Parana border (Porto Uniao / Uniao da Vitoria). This project will improve transport of agricultural products from Santa Catarina via the Southern ports. Project BR-280/SC will require services related to engineering and design, paving, the construction of interchanges, access points, highway shoulders, drainage, the implementation of toll collection plazas, lane markings, lighting, safety measures, highway assistance program, deployment of ITS systems, environmental mitigation and roadway maintenance.

Duration of Concession

30 years

Estimated Investment

$677 million

Project Status

Public Announcement expected in 2016

3.4.6 Project BR-364/RO/MT

Figure 31 - BR-364/RO/MT

Project Description

Project BR-364/RO/MT expands the highway by 806 Km, particularly the stretch of BR-364 between the junction with BR-174 (A) at Comodoro and Porto Velho (Ulisses Guimaraes access). The purpose is to improve the integration of the grain-producing regions of Mato Grosso and Rondonia and the waterway of the Madeira River. The project calls for services related to engineering and design, paving, the construction of interchanges, access points, highway shoulders, drainage, the implementation of toll collection plazas, lane markings, lighting, safety measures, highway assistance program, deployment of ITS systems, environmental mitigation and roadway maintenance.

Duration of Concession

30 years

Estimated Investment

$2.0 billion

Project Status

Public Announcement expected in 2016

3.4.7 Project BR-101/232/PE

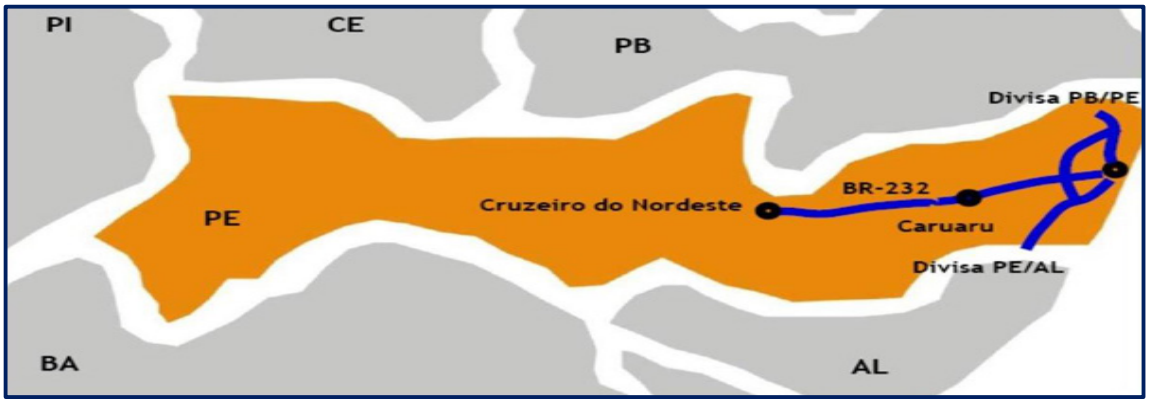


Figure 32 - BR-101/232/PE

Project Description

The purpose of this project is to open access to the Suape Port and widen the road at Cruzeiro do Nordeste. BR-101/232/PE involves 564 Km of highway, specifically, the stretch of BR-101 between the PB/PE (Paraiba/Pernambuco) border and the PE/AL (Pernambuco/Alagoas) border. The new Recife Metropolitan Arch from Cabo de Santo Agostinho to Igarassu, and BR-232 between the junction with BR-101 and Cruzeiro do Nordeste/PE. The project calls for services related to engineering and design, paving, the construction of interchanges, access points, highway shoulders, drainage, the implementation of toll collection plazas, lane markings, lighting, safety measures, highway assistance program, deployment of ITS systems, environmental mitigation and roadway maintenance.

Duration of Concession

30 years

Estimated Investment

$1.3 billion

Project Status

Public Announcement expected in 2016

3.4.8 Project BR- 262/381/MG/ES

Figure 33 - BR-262/381/MG/ES

Project Description

The purpose of this project is to widen the stretch between the Belo Horizonte and Espirito Santo (ES) border to improve safety and reduce transportation costs. Project BR- 262/381/MG/ES involves a length of 305 Km, particularly the BR-262 stretch between the junction with BR-381 (Joao Monlevade), as well as the junction with BR-101 (B). It also features BR-381, between the junction with BR-262 (Joao Monlevade) and the junction with BR-262 (A) (Belo Horizonte).

Duration of Concession

30 years

Estimated Investment

$613 million

3.4.9 Project BR-282/470

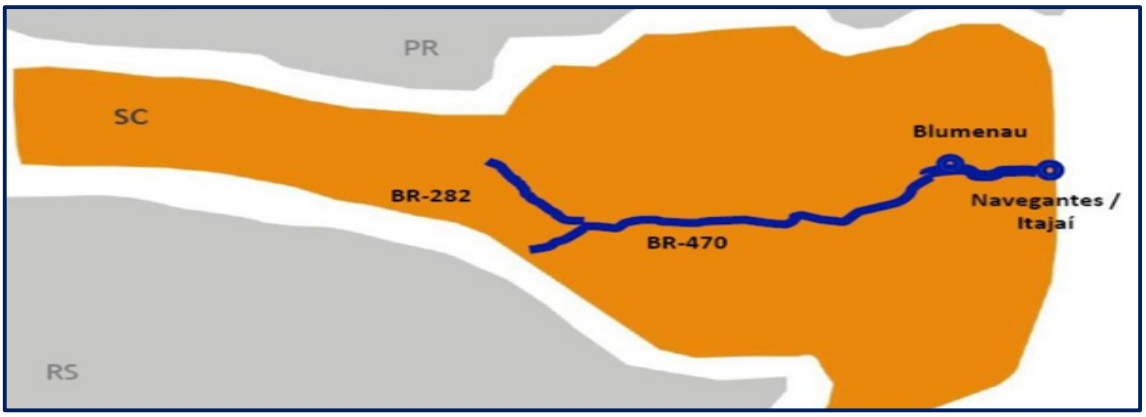


Figure 34 - BR-282/470

Project Description

The objective for this project is to widen the stretch between the agro-industrial Santa Catarina region to the Southern ports. BR-282/470 involves 455 Km of highway including the BR-470 stretch between Navegantes/SC and the Santa Catarina and Rio Grande do Sul border. It also features BR-282 between the junction with BR-470 and the junction with BR-153.

The project calls for services related to engineering and design, paving, the construction of interchanges, access points, highway shoulders, drainage, the implementation of toll collection plazas, lane markings, lighting, safety measures, highway assistance program, deployment of ITS systems, environmental mitigation and roadway maintenance.

Duration of Concession

30 years

Estimated Investment

$1.0 billion

Project Status

Public Announcement expected in 2016

3.4.10 Project BR 101/493

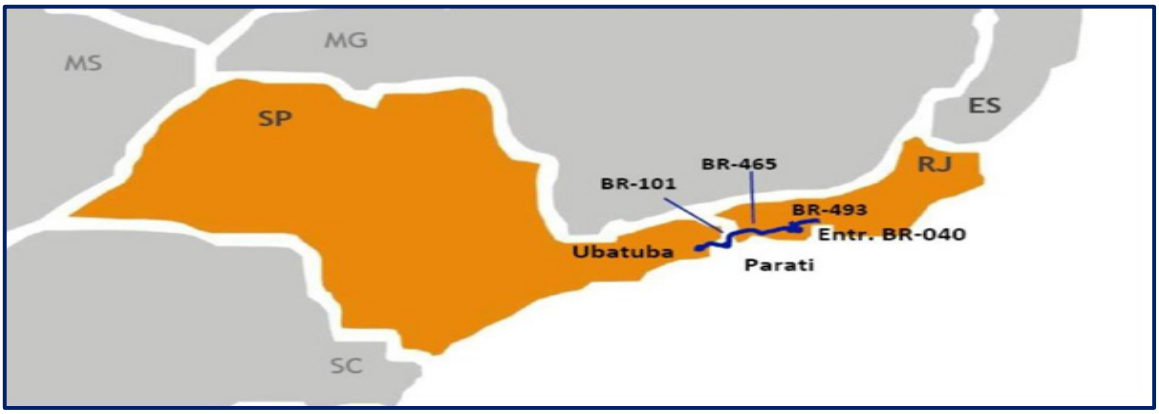


Figure 35 - BR-101/493

Project Description

BR 101/493 involves 357 Km of roads, specifically the stretch of BR-101 between the junction with BR-465(B)/RJ-071/097 (Santa Cruz) and Praia Grande in the Municipality of Ubatuba/SP; BR-465 between the junction with BR-101 and the junction with BR-116; and BR-493 between the junction with BR-101 and the junction with BR-040/116 (B).

The purpose is to expand road capacity of the Rio-Santos stretch until Ubatuba, a tourist road, with a concession for the Rio de Janeiro Metropolitan Arch. The project requires services related to engineering and design, paving, interchange construction, access points, highway shoulders, drainage, the implementation of toll collection plazas, lane markings, lighting, safety measures, highway assistance program, deployment of ITS systems, environmental mitigation and roadway maintenance.

Duration of Concession

30 years

Estimated Investment

$1.0 billion

Project Status

Public Announcement expected in 2016

3.4.11 Project BR 101/116

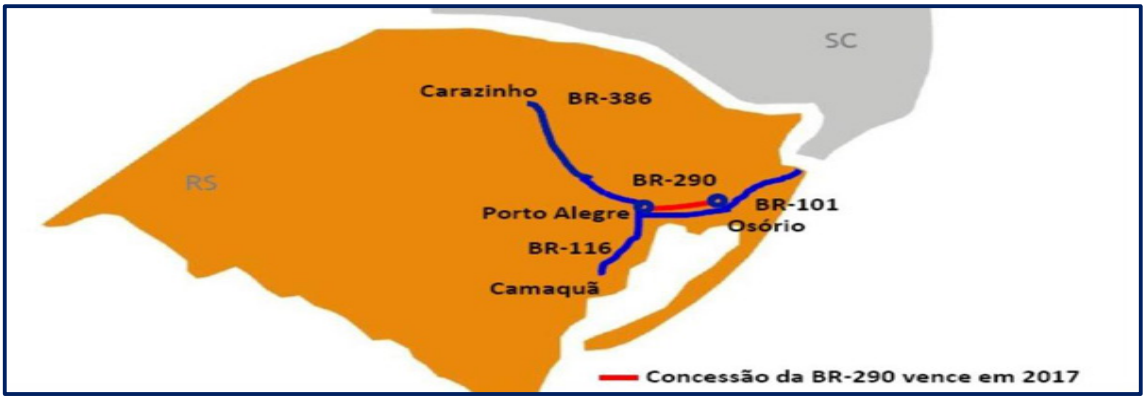


Figure 36 - BR-101/116

Project Description

The objective is to widen the Producao Motorway (Production Highway) until Carazinho and to widen the Porto Alegre-Camaqua stretch.

BR 101/116 involves 581 Km of highway including the length of BR-101 between the border of Rio Grande do Sul and Santa Catarina States and Osorio/RS; BR-116, between the junction with BR-290 (B) (to Arroio dos Ratos) and the junction with BR-470/RS-350 (to Camaqua); BR-290, between Osorio/RS and the junction with BR-116 (to Guaiba) and BR-386 between the junction with BR-116 (B)/290 (Porto Alegre) and the junction with BR-377 (A) (to Carazinho).

This concession calls for services such as engineering and design, paving, interchange construction, access points, highway shoulders, drainage, the implementation of toll collection plazas, lane markings, lighting, safety measures, highway assistance program, deployment of ITS systems, environmental mitigation and roadway maintenance.

Duration of Concession

30 years

Estimated Investment

$1.0 billion

Project Status

Public Announcement expected in 2016

Contacts

For more information on the projects listed in this section, you may reach out to the project contacts listed below.

Project Contact	U.S. Trade and Development Agency	U.S. Commercial Service Brazil
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3.5 State of Sao Paulo Highway Concession Program

In 2015, Sao Paulo issued a public announcement for concession of 2,266 Km of state highways, which should expand the state highway network by 25%. The highway concessions are divided as follows:

- Block A with 116 Km
- Block B with 481 Km
- Block C with 1,097 Km
- Block D with 572 Km

The private sector will likely invest $3.5 billion in this initiative.

Table 3
State of Sao Paulo Highway Concessions for 2016

Highway Blocks	Description
Block A	Block A includes highway SP-55 through Praia Grande and Itariri with two toll plazas.
Block B	Block B consists of highway SP-324 from Vinhedo a Campinas, SP-079 from Salto a Sorocaba, SP-264 from Sorocaba to Pilar do Sul, and SP-250 from Pilar do Sul a Ribeira, including seven toll collection plazas.
Block C	Block C consists of highway SP-255 from Araraquara to Avare, SP-191 and SP-304 from Sao Manuel a Rio Claro, SP-334 from Cristais Paulista a Rifaina, and highway SP-351 from Batatais to Santo Antonio da Alegria including seventeen toll collection plazas.
Block D	Block D consists of highway SP-333 from Borbonema to Florinia passing through Marilia e Assis, including segments on the Via Norte highway concession and the total number of toll collection plazas is estimated to be eight.

Financing will consist of 50% of the consortium's capital and 50% long-term financing, debenture initiatives and other financial arrangements. This project will involve road widening, upgrades to existing highways and construction of new highway segments. Services and technology required include engineering, design, construction, implementation of electronic toll collection systems, highway monitoring systems, control center equipment, highway information systems, variable message sign systems and other ITS equipment for the operation and maintenance of the highways. The type and quantity of ITS systems will vary by highway project and that information will become available when the public bids are announced.

3.6 Integrated Network for the Collection of Electronic Information Project

The State Secretariat of Infrastructure and Logistics (SEIL) for the State of Parana oversees infrastructure planning, development of logistics plans and project implementation. SEIL is in the process of developing a logistics platform that will likely feature the use of ITS systems for highways to improve traffic conditions, safety, efficiency, as well as monitoring and tracking of vehicular movements.

SEIL is developing an integrated network of electronic data collection, known as Rede Integrada de Coleta Eletronica de Informacoes (RECEI Parana). SEIL is coordinating a plan of action involving the application of ITS and ICT technologies necessary for creating a systematic method of data collection.

The proposed network involves implementing an electronic monitoring system for vehicles with the use of Optical Character Recognition (OCR) systems and cameras installed along the roadway. The cameras will detect and register license plates. The second phase of the concession will install Radio Frequency Identification (RFID) systems for tracking trucks. In preparation, the Brazilian Government has already enacted a law requiring all cargo vehicles be equipped with RFID devices. The data collection project will track freight/cargo trucks through cameras able to capture electronic images of license plates with OCR and RFID systems. The RECEI systems will ultimately represent a database to allow integration of other customized systems that SEIL needs to execute its strategic plan.

Currently, RECEI's top priority is installing the OCR cameras. The Government has identified 420 potential locations for the installation of 1,000 cameras.

The next phases of the RECEI project involves:

- Installation of camera/OCR systems;
- Implementation of central database bank and Operational Control Center;
- Development of the central system to be modeled and tested by other state institutions; and
- Deployment of RFID system.

SEIL is currently in the evaluation process for technologies such as ITS and ICT systems. The project awaits final funding from the state Government for construction. The bid should be announced in 2016.

The SEIL Project may provide U.S. firms with opportunities related to the design and supply of ITS and ICT systems including:

- CCTV cameras;
- OCR systems;
- RFID systems;
- Traffic data sensors;
- Communications systems;
- Technologies for operational control centers;
- Database center equipment and software;
- Workstations, servers, and operating systems;
- Video display systems;
- Power back-up systems; and
- Professional services (ITS and ICT systems) for highway related operations.

Contacts

For more information on this project, you may reach out to the project contacts listed below.

State of Sao Paulo	U.S. Trade and Development Agency	U.S. Commercial Service Brazil
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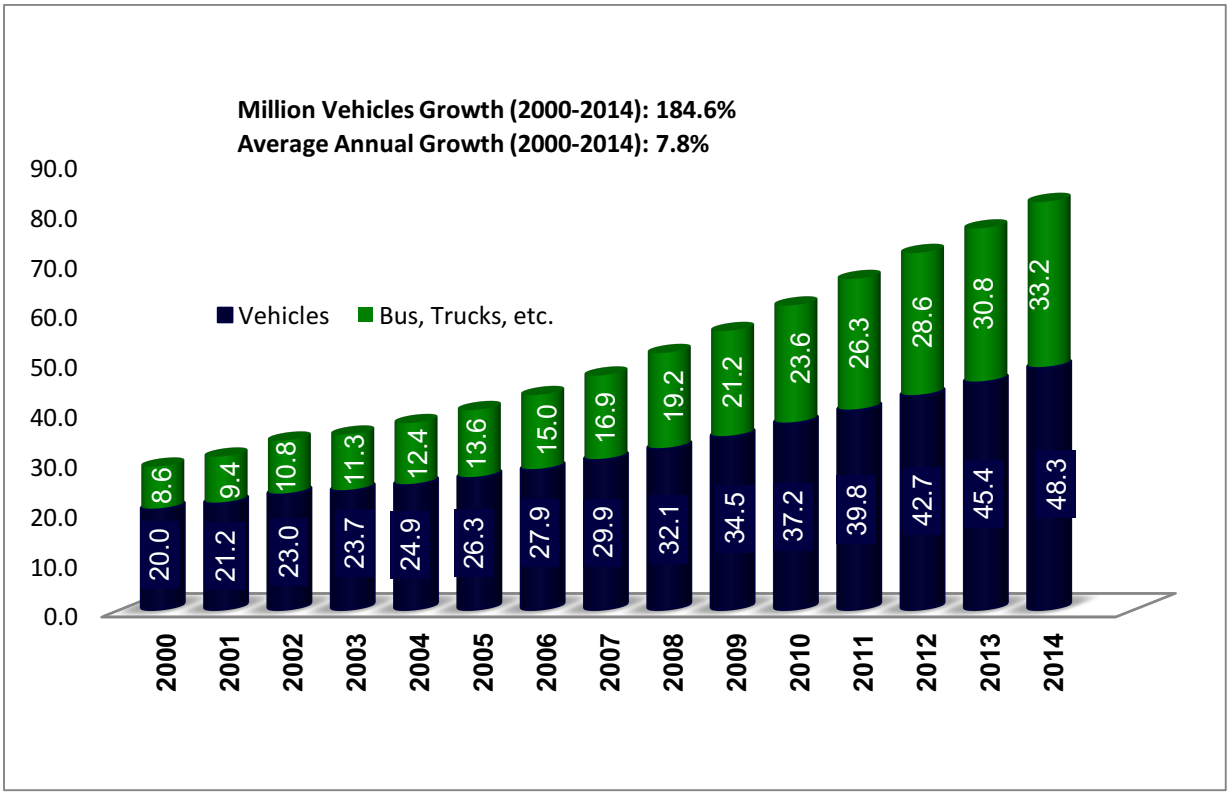
State of Parana		**U.S.-Brazil Transportation Partnership Highways Working Group**
Rejane Karam Chief Coordinator for Planning and Programs Secretaria de Estado de Infraestrutura e Logistica Avenida Iguacu, 420, Bairro Reboucas - Curitiba - Parana 2º andar - Sala de Situacao Telephone: +55 41 3304-8535 Email: rejanek@seil.pr.gov.br		**Nicole Bambas** U.S. Department of Transportation Washington, DC 20590 Telephone: 202 366-5058 Email: nicole.bambas@dot.gov

3.7 Brazil Highway Overview and Regulatory Framework

Highways represent over half of all surface transportation in Brazil, followed by railways (25%), inland waterways (17%) and others such as air transportation. The majority of cargo and passengers travel by roads in a network that stretches across 1.7 million Km. In the mid-1990s, Brazil launched its federal highway concession program and the country now has approximately 55 federal highways built and overseen by the private sector.

Brazil's recent growth in foreign trade and the emergence of private port operation has made residents and cargo even more reliant on the highway system. The lack of rail network connecting production centers to the ports limits most cargo movements to highway travel, increasing logistical and transportation costs.

[3]Figure 37 - Number of Vehicle Fleet in Brazil (In Millions)



The existing highway concession contracts feature projects such as new highways, expansion and modernization of existing highways, adding lane capacity, construction of new bridges, paving of unpaved roads, interchange construction to connect highways to communities and production centers, maintenance, safety improvements and the deployment of Intelligent Transportation Systems (ITS).

The concession program relies on tolls to generate revenue in support of these upgrades. The contract usually provides a 25 - 30 year period for the concessionaire to complete the improvements, including

[3] Source: Detran (National Department of Transportation)
*Bus, tractor truck, truck, pickup truck, minibus, motorcycle, bus and utility vehicles

highway operation and maintenance. The Brazilian Development Bank (BNDES) has been the primary funder, offering low-interest loans, and further promoting the Government's efforts to attract private sector investment.

While the concession program has already improved many key highways, much work remains to be done. U.S. companies may be able to export goods and services related to design, supply and implementation of ITS systems and ICT technology. Several years ago, the Brazilian Government elected to follow the standards of the National Transportation Communications for Intelligent Transportation Systems Protocol (NTCIP). Following NTCIP standards and implementing ITS systems should lead to compatibility between computers and electronic traffic control systems.

Brazilian highway regulatory agencies oversee the process of delegating public services to private or public organizations. In addition to monitoring service quality, regulators are responsible for establishing rules and standards for highway construction, operation and maintenance. The major regulators in the highway sector include the Ministry of Transportation (MOT), the National Land Transportation Agency (ANTT) and the Ministry of Planning (MOP). MOP determines areas in need of highway connections to support the national strategic plan. The MOT and the National Land Transportation Agency organize the operation and development of all federal roadway activities with the goal of supporting the safe and efficient transport of goods and people traveling via the national highway system.

As a sub-agency of MOT, ANTT regulates vehicle and roadway safety conditions and oversees the monitoring, licensing and operating of the national roadway system. ANTT is funded through MOP's budget and partly by concession revenue.

Regarding state highways, each state has its own agency responsible for the planning, development, construction and operation of their respective highways. Some states such as Parana, Sao Paulo and Rio de Janeiro have adopted the federal highway concession model in an effort to develop and modernize their highways.

3.8 U.S. Department of Transportation (USDOT) and Brazil's Ministry of Transport (MOT)

The USDOT and MOT came together to form the U.S.-Brazil Transportation Partnership in order to improve transportation safety and connectivity, and to facilitate trade between the two countries. Under the Transportation Partnership, there are four working groups: Highways, Ports and Inland Waterways, Railways and Disaster Preparedness and Response.

The Highways Working Group (HWG) collaborates on key transportation issues, coordinates information exchange opportunities with transportation agencies and experts and develops program activities in areas of mutual interest. In 2015, the HWG held five technical exchanges on performance-based contracts addressing: load capacity for trucks, highways maintenance, hours of service and enforcement for commercial vehicle drivers, highway infrastructure financing and concessions.

The HWG has also addressed Intelligent Transportation Systems (ITS). In fact, the "ITS ePrimer" offers resources to Portuguese-speaking transportation professionals and students regarding fundamental concepts and practices for ITS technologies. The ePrimer is a valuable tool for understanding ITS technology and can be accessed at https://www.transportation.gov/office-policy/international-policy-and-trade/sistemas-de-transportes-inteligentes

4. PORTS

4.1 Market Opportunities in the Port Sector

Through recent investments, Brazil is making great strides to expand and enhance its port sector. The rapid growth at Brazil's production centers drive the need to invest in additional infrastructure expansion. U.S. companies may benefit from these projects in terms of supplying advanced technologies, professional services and civil works in terms of dredging. It is evident that the local Brazilian market on its own cannot supply all of the necessary services and technologies that the port sector needs, representing market entry opportunity for U.S. companies.

Over the next five years, Brazil's port infrastructure will receive an unprecedented flow of new investment, creating a unique window of opportunity for international investors, including U.S. companies. What's driving the investment is the growth of exports such as agriculture and mining commodities, including soy beans and iron ore. As a result of the PIL program, private sector companies will likely invest $12 billion in Brazil's ports and corresponding terminals.

Brazil has limited experience in deploying advanced port technologies, such as terminal operation and management systems, ICT systems for port operations, Vessel Traffic Management Systems (VTMS), communications and radar technologies, security systems, RFID and OCR systems. As U.S. companies have an excellent track record with feasibility studies, engineering designs and technology, this project may pose an opportunity for them to enter and thrive in the market of Brazil's port sector.

The national dredging program (PND2) expects investments of $1.8 billion, which U.S. companies may capitalize on. The port security market will likely grow. Brazil has not faced as many threats of terrorism as other countries, which means that until now, it was not highly focused on port security. As globalization continues to make our world more inter-connected, there will be stricter screening and security processes that all international shipments must pass through. There will be enhanced integration of general port security which is likely to require significant investment on security systems including features such as X-ray machines, cargo screening equipment, CCTV systems, OCR and RFID.

Technologies and Services Required in Port Concession Projects:

- Terminal operation and management systems
- ICT systems for port operations
- Vessel Traffic Management Systems (VTMS)
- Communications and radar technologies
- Security systems
- RFID and OCR systems
- Dredging operations

4.2 Vessel Traffic Management System (VTMS)

SEP, which is now under the Ministry of Transportation, Ports and Civil Aviation, is working to develop policies to advance port infrastructure development. SEP is evaluating advanced technologies such as the Vessel Traffic Management Systems (VTMS) to improve operational efficiency and safety conditions. VTMS is a system that provides electronic information for the safe and efficient navigation of vessels with the capability to provide active monitoring of maritime traffic through a specific area.

SEP has begun to develop its Intelligent Port Logistics initiative, which consists of planning for and implementing ICT for modernizing port operational and safety systems. As part of this initiative, SEP has begun to implement the VTMS system across the ports.

Under the PAC2, the VTMS projects will likely receive $53 million from the Government. The funding covers six ports in Phase I including Rio de Janeiro (RJ), Itaguai (RJ), Santos (SP), Salvador and Aratu (BA) and Vitoria (ES). The VTMS projects are handled through public bids. In the first round of VTMS deployment, SEP authorized Vitoria and the Santos Port to bid on procuring and implementing VTMS in their respective ports. These projects are currently under construction.

Companhia de Docas do Rio de Janeiro (CDRJ) will procure the second round of VTMS systems for the Rio de Janeiro Port and the Port of Itaguai. Because funds for these projects were already allocated, SEP and CDRJ officials expect bids for the project to be issued in 2016. The Ports of Itaguai, Salvador and Aratu remain in the development stage and awaiting the approval process for their VTMS systems. All ports must obtain approval from the Brazilian Navy prior to deploying VTMS systems, and until then the bidding process may not begin.

The third phase of the VTMS implementation features at least ten other ports including Fortaleza (Ceara), Rio Grande (Rio Grande do Sul), Belem (Para), Vila do Conde (Para), Itajai (Santa Catarina), Itaqui (Maranhao), Sao Francisco do Sul (Santa Catarina), Imbituba (Santa Catarina), Manaus (Amazonas), Suape (Pernambuco) and Santarem (Para). The definition of the VTMS projects is expected between 2016 and 2017, at which time financial resources will have to be allocated by SEP for project implementation.

The VTMS program offers market opportunities for U.S. firms in the following areas:

- Maritime vessel tracking systems;
- ICT technologies;
- Communication and radar technologies;
- CCTV systems, control center equipment;
- Computer equipment;

- ICT installation and integration services; and
- Professional services related to engineering, design and project management.

4.3 Portolog Program

The Secretariat of the Ports (SEP) is leading the Intelligent Cargo Supply Chain and Logistics Project, an initiative to track and monitor cargo vehicles passing through the ports. This solution allows for the management and sequencing of roadway access into the ports. It reduces traffic congestion, complies with international security regulations and provides information for more efficient cargo management.

The Intelligent Cargo Supply Chain and Logistics Project is supported by Portolog, a database of information regarding cargo origin to its final destination. Portolog aims to synchronize vessel and truck arrival dates, as well as truck schedules and credentials.

SEP launched Portolog to automate and integrate port operations related to cargo tracking. The system receives all relevant information on the movement of goods as trucks transport containers from one point to another. The Portolog Central System is already being developed by SERPRO, a federal public enterprise agency in Brazil, but the procurement and construction of the equipment at the various ports has yet to begin.

Portolog requires that at each port entrance, infrastructure and equipment be installed for Radio Frequency Identification (RFID) and Optical Character Recognition (OCR) to allow for information collection on a truck's cargo. Portolog also requires that biometric recognition systems be installed to detect and identify drivers; data that will then be logged and transmitted to the Portolog Central System. Each port connected to the Portolog system will be responsible for implementing the previously referenced technologies. The Port of Santos is expected to issue a tender in 2016.

Currently, port terminals use two pre-existing private regulator waiting areas to schedule truck traffic. Vehicles are authorized to drive to the port terminal only when there are available unloading spots. The Portolog system will direct trucks to the screening area before they arrive at the port. At the screening area, trucks are registered and scheduled to return to the port. Once there is an open spot near the waiting area, the scheduled trucks are directed to this area where they will be informed of their departure time.

PAC will likely invest $40 million into Portolog, which covers implementation at twelve ports: Santarem (Para), Itaqui (Maranhao), Pecem (Ceara), Fortaleza (Ceara), Suape (Pernambuco), Salvador (Bahia), Vitoria (Espirito Santo), Itaguai (Rio de Janeiro), Rio de Janeiro, Santos (Sao Paulo), Paranagua (Parana), and Rio Grande (Rio Grande do Sul).

The first ports to receive Portolog will be Santos and Vitoria. Two additional ports will also receive approval to implement the system. SEP will announce those ports in 2016. The other eight ports continue to await funding which may become available in 2016 or 2017.

SEP has decided to select the technical specifications for the RFID and OCR technologies to be open and non-proprietary, which allows the international community to participate in the bidding process. Portolog presents opportunities for U.S. companies in the following areas:

- Design;
- Engineering;
- RFID systems;
- OCR systems,
- Biometric detection technologies, and
- ICT infrastructure development.

Contacts

Project Contact	U.S. Trade and Development Agency	U.S. Commercial Service Brazil
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4.4 Dredging Projects

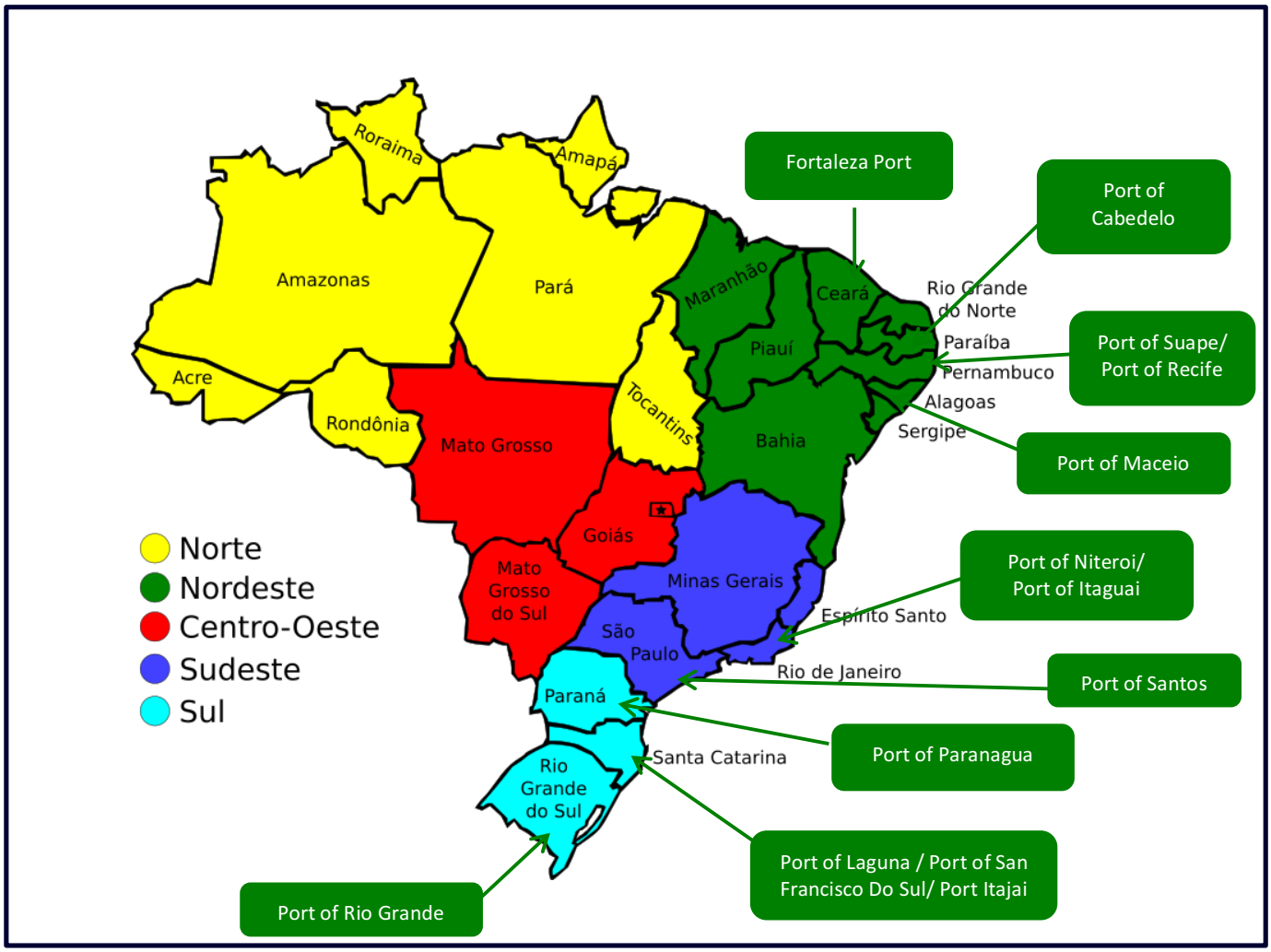
The national dredging program (PND2) seeks to deepen and maintain the access channels, turning basins and mooring berths in and around port areas. Dredging will allow ports to receive larger vessels, expanding capacity and increasing competitiveness. There is a high need for dredging projects across a number of ports and several projects remain only in the development stages.

Between 2012 and 2022, the Government anticipates significant investment in dredging projects. Over the next five years alone, the PND2 is expected to attract about $1.5 billion in investments for dredging at 20 Brazilian ports. These projects offer opportunities for U.S. companies in the dredging business.

The Port Secretariat manages the PND and oversees the procurement process. Information on the bidding documents, pertinent legislation and technical specifications about the port dredging project is available at www.portosdobrasil.gov.br/sobre-1.

The following graphic displays the Brazilian ports that the Government has identified for priority dredging projects.

Figure 38 - Dredging Projects at Brazilian Ports



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4.5 Port Concession Projects

On June 9, 2015, the Brazilian Government announced that it plans to invest nearly $12 billion in port development:

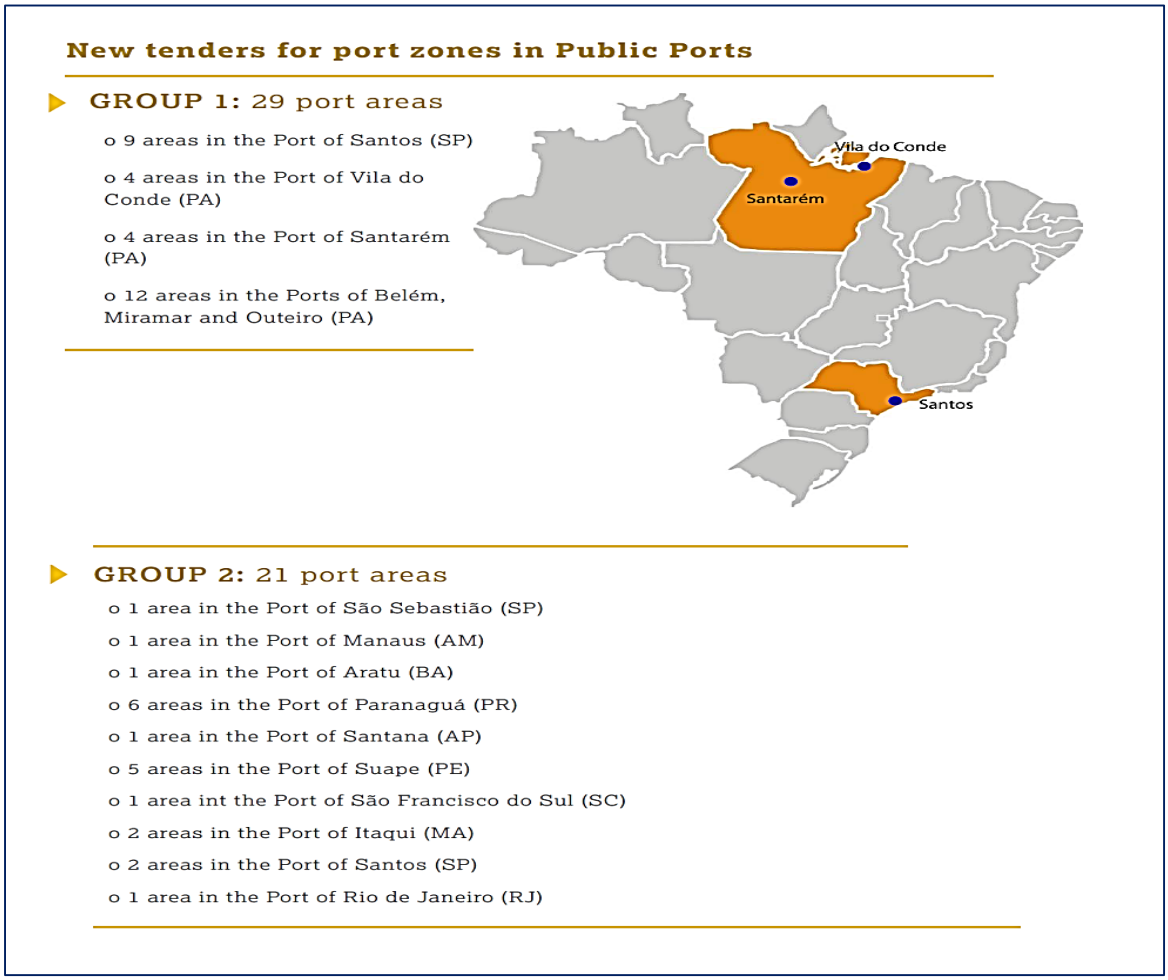
- $3.8 billion will support 50 new leases of port areas
- $4.8 billion will fund 63 new privately used terminals (TUPs)
- $3.4 billion will support lease renewals

The Government has announced the lease of port areas in two groups:

- Group 1 includes 29 terminals
- Group 2 includes 21 terminals

The figure below summarizes the upcoming port concessions.

Figure 39 - Brazilian Government Port Facility Leasing



4.6 Opportunities for Port Area Leasing: Step 1 for Group 1

The table below outlines the port area leasing opportunities offered by the Brazilian Government.

Table 1 Group 1 – Port Area Leasing	
State/City	**Step 1 of Block 1 Terminals**
Para	
	▪ 4 grain terminals ▪ 3 in Outeiros – Belem (Investments of $ 210 million) ▪ 1 in Santarem (Investments of $102 million)
	The step 2 of Block 1 (21 terminals)
Para	
	▪ 1 container and general cargo terminal ($47 million) ▪ 12 liquid bulk terminals ($340 million) ▪ 2 mineral bulk terminals ($160 million)
Santos	
	▪ 2 container and general cargo terminals ($76 million) ▪ 2 liquid bulk terminals ($111 million) ▪ 2 mineral bulk terminals ($92 million)

Group 2 includes 21 terminals distributed across the ports of Suape, Aratu, Rio de Janeiro, Sao Sebastiao, Santos, Paranagua, San Francisco do Sul, Manaus, Santana, and Itaqui.

Table 2
Group 2 – Port Terminal Leasing

State	City	Terminal Name	Terminal Type	Investment (In Millions)
AP	Santana	Santana - MCP01	General Cargo	15.2
AM	Manaus	MAO01	Containers	287
PE	Ipojuca	SUA05	Containers	327
PE	Ipojuca	SUA07	Minerals	218
PE	Ipojuca	SUA10	Minerals	117
PE	Ipojuca	SUAXX	Vehicles	14
PE	Ipojuca	SUAYY	Grains	13
MA	Itaqui	IQI18	General Cargo	67
MA	Itaqui	IQI31	Minerals	107
BA	Aratu	ATU12	Minerals	105
SP	Sao Sebastiao	SSB01	Ro-Ro, conteiner	347
SP	Santos	STSXX	Grains	306
SP	Santos	STSYY	Liquid	14
RJ	Rio De Janeiro	RDJXX	Grains	20
PR	Paranagua	PAR01	Cellulose	39
PR	Paranagua	PAR03	Minerals	60
PR	Paranagua	PAR07	Grains	90
PR	Paranagua	PAR08	Grains	65
PR	Paranagua	PAR09	Grains	37
PR	Paranagua	PAR12	Vehicles	17
SC	S. Francisco Sul	SFSXX	General Cargo	65

Port security is a critical matter and regulatory agencies are working to meet international safety and security standards. Projects related to port security may offer opportunities to U.S. companies specializing in design, engineering, supply of terminal operational and management systems, ICT systems, security systems and engineering design for port and terminal related infrastructure improvements.

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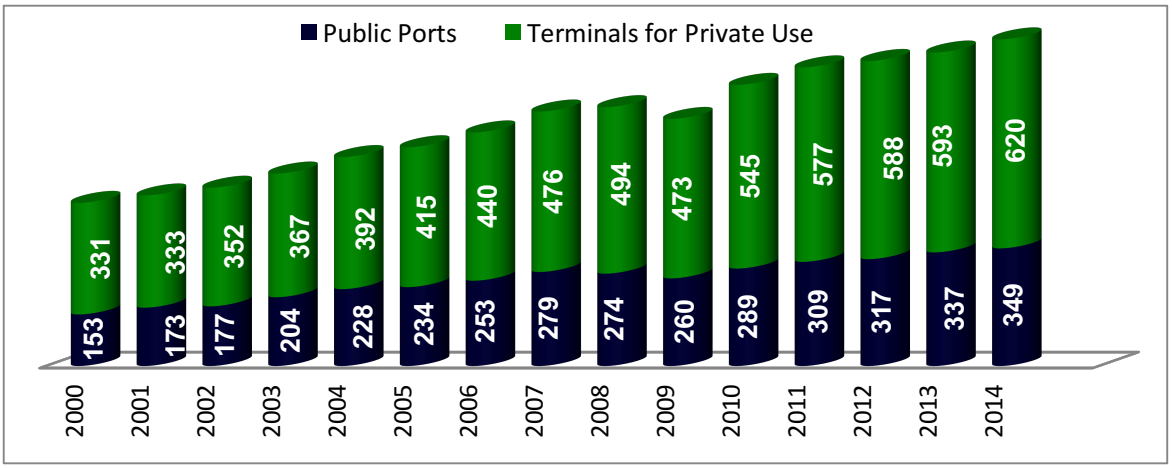
4.7 Brazil's Port Sector Overview and Regulatory Framework

Brazil's coastline stretches 8,500 Km from north of the equator to below the 30th parallel in the south. In 2009, there were 37 public ports (both seaports and river ports) and 128 privately used terminals (TUPs). The Secretariat of Ports (SEP) oversees 34 of the public ports, with 18 administered by state or municipal Governments, and 16 operated by the publicly-owned port authorities (Companhia Docas). The National Agency for Waterway Transportation (ANTAQ) oversees port regulation and financing under SEP.

The concession process has allowed Brazil to develop its ports with the help of the private sector. The Government oversees most multi-use ports and concessions of terminals to the private sector, typically with 25 year agreements. Through the Growth Acceleration Program (PAC1 and PAC2) investment plans, international companies have partnered with local Brazilian companies to gain access to port concessions and private use terminals (TUPs).

Of the 34 statutory ports the Secretariat of Ports administers 18, which are delegated, awarded or authorized to be operated by the state and city Governments. The other 16 ports are administered by port authorities, Companhia de Docas, which are shared private and public companies with the Brazilian Government as the major stockholder, and are therefore directly linked to SEP.

[4] **Figure 40 - Public Ports/Terminals for Private Use (Million Tons)**



The concessions and leases are dictated by a contract, preceded by the procurement process (PMI). The criteria for this process include the highest cargo handling capacity, smallest tariff and shortest cargo handling time. The criteria may be considered collectively or isolated on their own. ANTAQ authorizes port areas or facilities outside of the statutory ports. The duration of the concession period for areas outside the statutory ports will be up to 25 years, with the option to renew.

[4] **Note:** Considers embarkation or disembarkation in public ports and terminals for private use.

5. RAILWAYS

5.1 Brazil's Railway Opportunities

Brazil's rail technology market will develop dynamically over the next five to ten years. As the volume of raw materials for export grows, so will the demand to expand rail lines and connect them with the ports. If the Government continues investing in rail infrastructure, the private sector will likely commit to its share of investments. In addition to the agriculture sector, mining companies are big stakeholders in the rail sector and will likely push for development.

The concession of new rail corridors will create a market for products such as:

- Rolling stock;
- Train control systems;
- Signaling and communication systems;
- Track material and equipment;
- Installation of track systems;
- Track inspection systems;
- New freight wagons; and
- Rail maintenance equipment and locomotive spare parts.

The after-sales market (refurbishment, maintenance and repair of rolling stock, renewal and maintenance of infrastructure) is also expected to surge as the freight rail sector grows with more lines, and subsequently requires maintenance. Global leaders in the railway business have already made significant investments in Brazil's manufacturing plans, as they expect a high rate of return.

U.S. companies providing rail equipment and services such as GE, EMD, Progress Rail, RailPro and Harsco, have established manufacturing plants and/or offices in Brazil. U.S. companies should be able to compete in this market, notwithstanding the fact that these U.S. manufactures have to adhere to Brazilian "local content" regulations that require a minimum percentage of domestic content (materials and parts) to be made in Brazil, rather than imported.

5.2 Freight Rail Operators

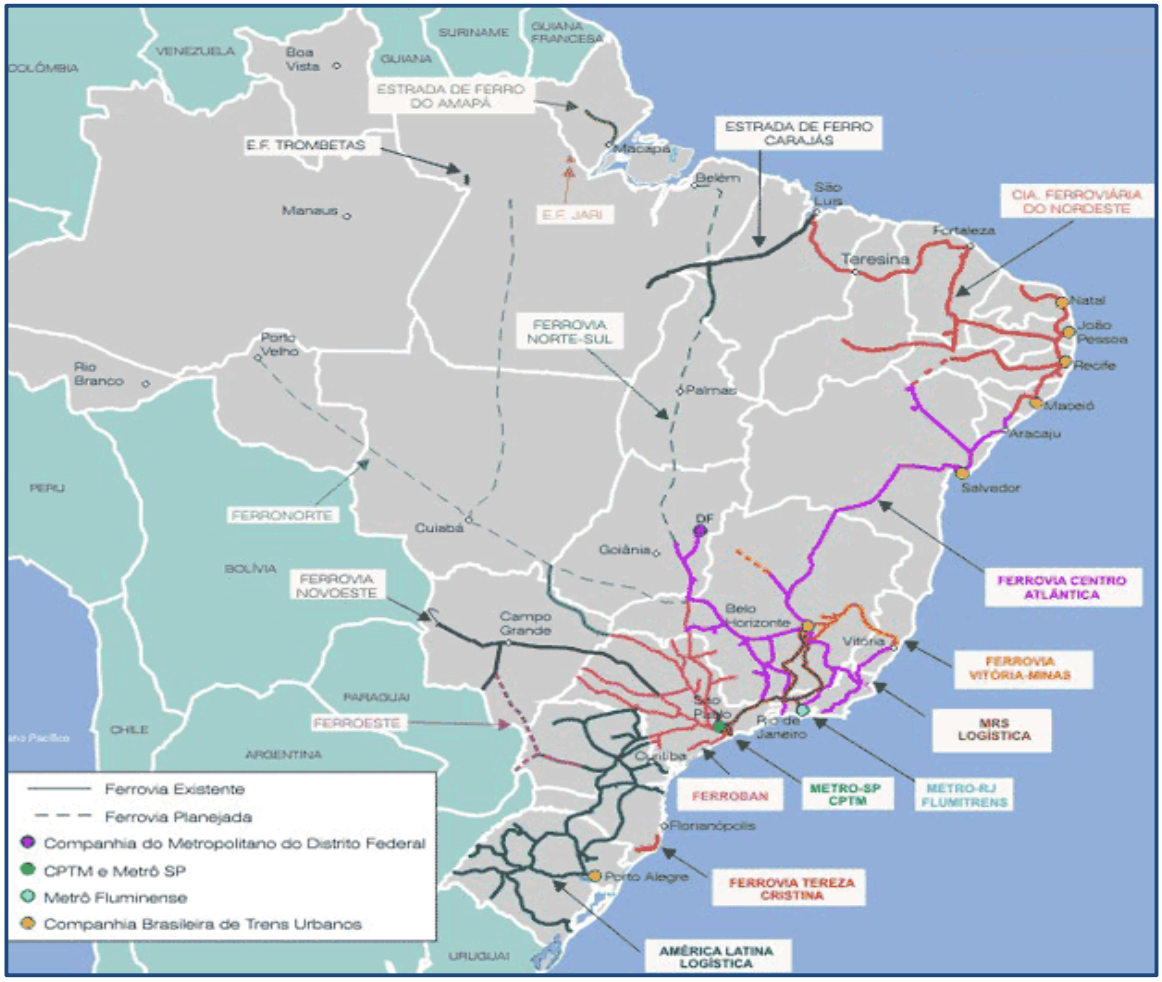
[5]The private rail operators in Brazil are Estrada de Ferro Vitoria a Minas (EFVM), Estrada de Ferro Carajas S. A. (EFC), MRS Logistica SA, America Latina Logistica SA Brazil (ALL Brazil) and Ferrovia Centro- Atlantica SA (FCA). These operators specialize in raw material transportation, mainly iron ore, and together operate more than 28,000 Km of railway lines.

The owner structures of the companies vary significantly. EFC, EFVM and FCA belong to the mining group, VALE. The primary owner of MRS is the steel producer, CSN Company. ALL is the holding company of its subsidiaries, ALLMS and ALLMN.

Figure 41 - MRS Freight Train

[5] Appendix A of this guide provides a complete list of the rail operators in Brazil.

Figure 42 - [6]Brazil Railways Map



5.3 Freight Railway Concession Program

In June 2015, the Government announced investment opportunities in the rail sector with the goals of expanding rail cargo transportation, creating a modern and integrated railway network, increasing the rail transportation capacity and reducing logistical bottlenecks. Investments could reach $28.8 billion in construction, modernization and maintenance of 7,500 Km of railway lines. The five new railway concessions set to take place before the end of 2016 represent 7,500 Km in extension with an investment of $23.5 billion. On top of that, an additional $5.3 billion will be invested into existing concessions.

The concession model will maintain broad gauge railways with high load carrying capacity, optimized geometric design and high speed. The model's premise is to ensure the right of way for integrating the network of existing and new concessions, improving competition in the vertical operator model, adopting

[6] Source: Brazil Ministry of Transportation

a bidding model by grants or shared investment and using the PMI procedure to develop the feasibility studies required for private concessions.

5.4 Railway Concession Opportunities in 2016

The following are the railway projects outlined by the Brazilian Government which are expected to be formally announced for bids in 2016:

Table 3
Upcoming Railway Concessions for 2016

Railway Segment	Description
North-South Railway	Two stretches (totaling 1,430 Km) over the North-South Line (FNS). The first from Barcarena (State of Para) to Acailandia (State of Maranhao) and the second one from Palmas (State of Tocantins) to Anapolis (State of Goias).
North-South Railway	Two stretches (totaling 895 Km) over the North-South Line (FNS). The first stretch is from Anapolis (State of Goias) to Estrela D'Oeste (State of Sao Paulo) and the second one is from Estrela D'Oeste to Tres Lagoas (State of Mato Grosso do Sul).
Lucas Do Rio Verde/MT-Miriticuba/PA	A 1,140 Km of stretch from Lucas do Rio Verde (State of Mato Grosso) to Miriticuba (State of Para).
Rio de Janeiro/RJ-Villa Velha/ES	A 572 Km of stretch from Rio de Janeiro (State of Rio de Janeiro) to Vitoria (State of Espirito Santo).

The figure below represents the railway corridors that the Government will offer for private concession.

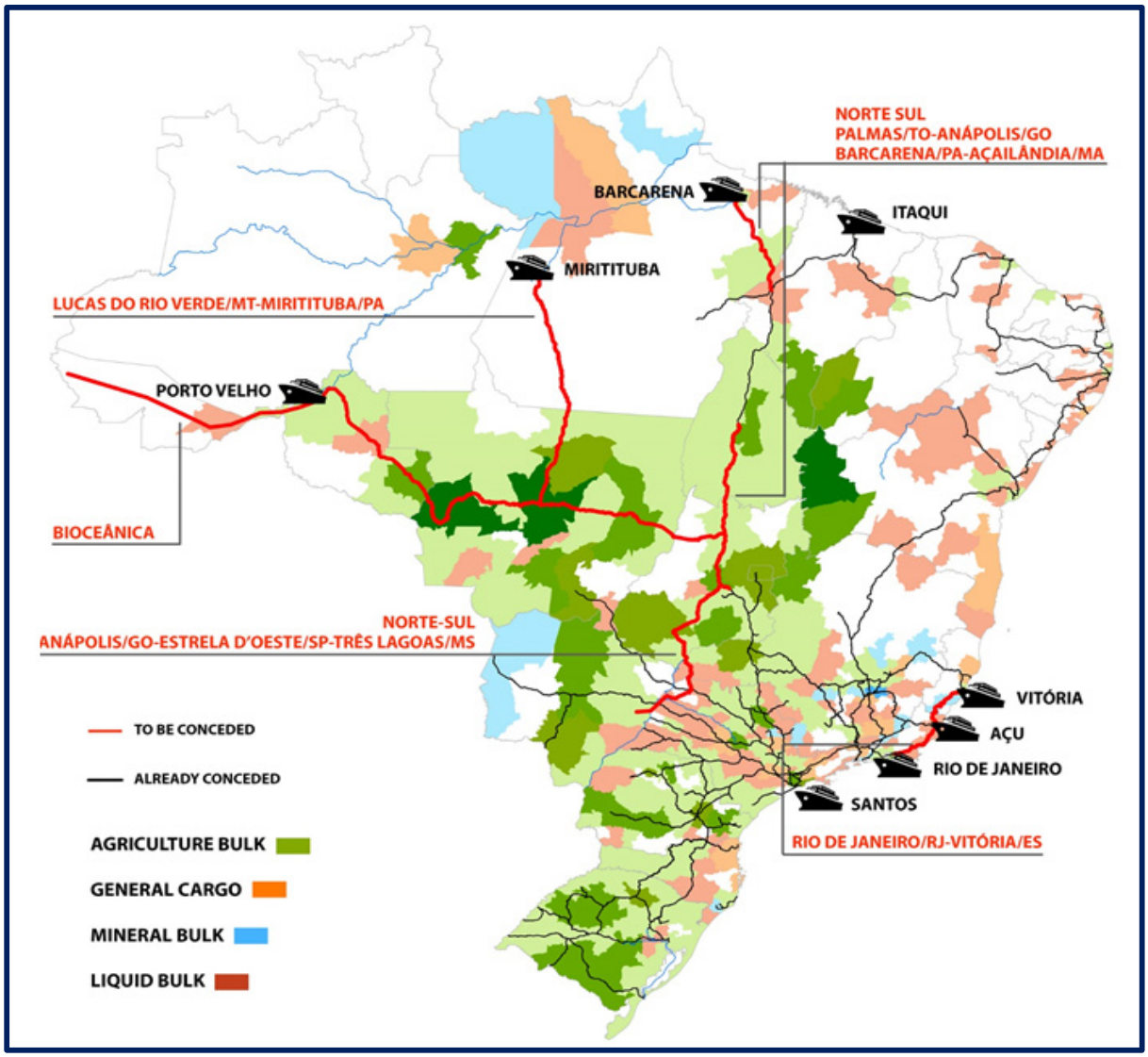


Figure 43 – 2016 Freight Railway Corridors for Private Concession

5.4.1 Project Norte–Sul Railway (Acailandia/MA-Barcarena/PA and Palmas/TO

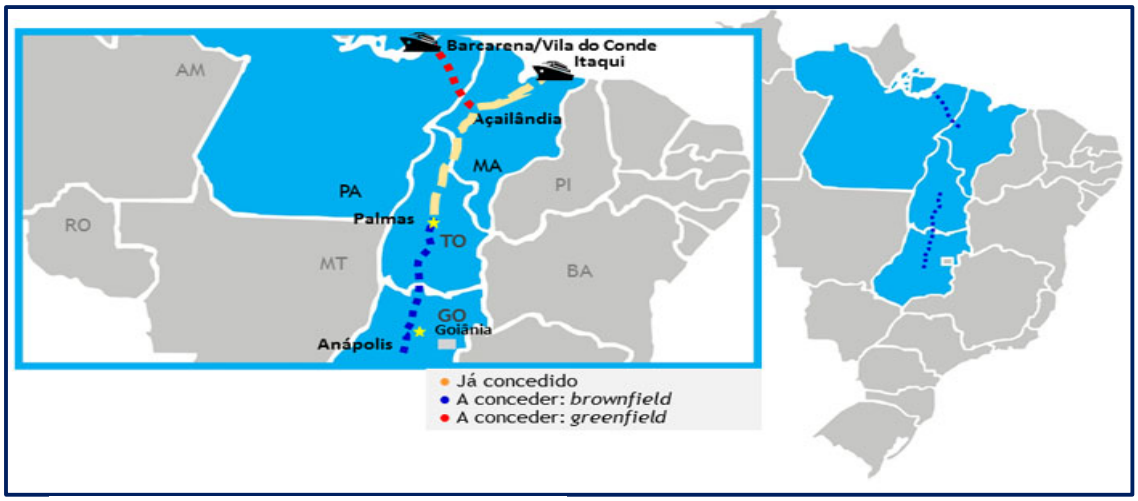


Figure 44 – Acailandia/MA-Barcarena/PA

Project Description

The Acailandia (MA) - Barcarena (PA) rail section is a Greenfield railway designed to grant access to the Port of Vila do Conde in the State of Para. Because of its relative proximity to European and North American markets, MA-PA is a competitive alternative to foreign trade. The Palmas (TO) – Acailandia (MA) rail section is already built and will serve as the core structure for railway transportation, connecting the logistics hub of Anapolis. The Palmas (TO) to Anapolis will complete the railway line from Anapolis all the way to the north at Barcarena and the Port of Vila do Conde as a brownfield corridor.

Anticipated Investment

$2.3 billion

Project Status

ANTT has accepted initial technical studies and now must assess these studies under the PMI Process. Subsequently, companies authorized under the PMI will complete their studies, ANTT will develop a draft contract and a notice of invitation to bid. From there, ANTT will develop and review financial and economic modelling and hold public hearings.

Once that process has been completed, ANTT will resend all documents to the Brazilian Federal Court of Audit (TCU) for approval prior to launching the official invitation to bid. Those companies choosing not to participate in the PMI process by submitting studies can still participate in the official public bid once ANTT announces it.

5.4.2 Project Norte-Sul Railway (Anapolis/GO-Estrela D'Oeste/SP -Tres Lagoas/MS)

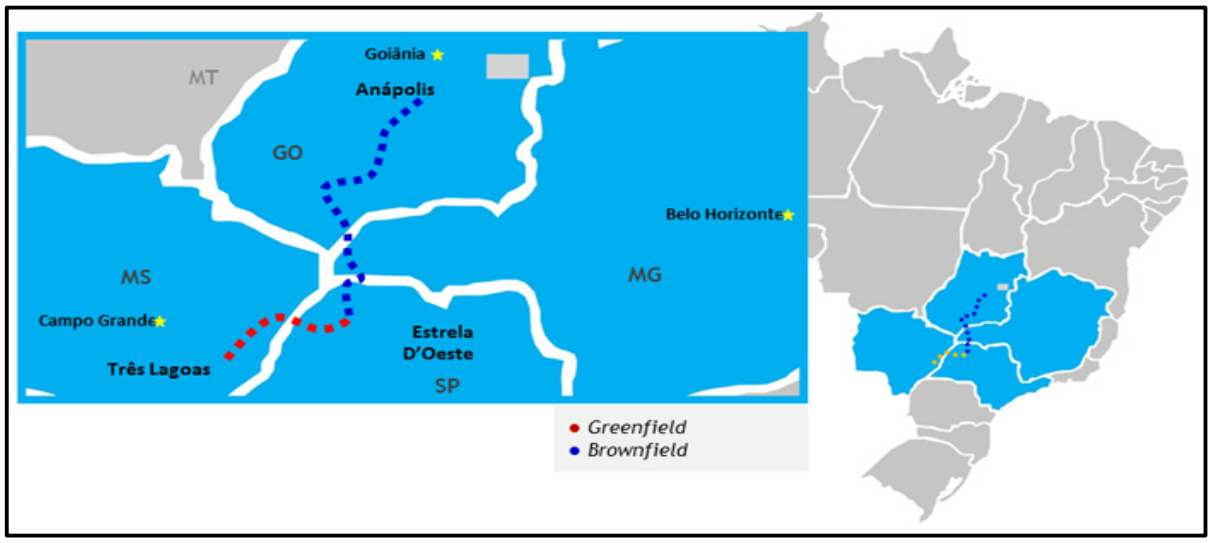


Figure 45 - Anapolis/GO-Estrela D'Oeste/SP

Project Description

The Anapolis/GO – Estrela D'Oeste/SP extends the Norte-Sul Railway in the states of Goias and Sao Paulo and this portion of the project is in the final phase of construction. The section between Estrela D'Oeste/SP and Tres Lagoas/MS will need to be constructed under a new concession and will pass through a region with agricultural and industrial potential. The rail connection at the Municipality of Estrela D'Oeste/SP will link the Norte-Sul Railway to the existing rail network granted to ALL Malha Paulista S.A., creating access to the Port of Santos.

Estimated Investment

$1.5 billion

Project Status

ANTT has accepted initial technical studies and now must assess these studies through the PMI process for the section between Estrela D'Oeste/SP and Tres Lagoas/MS. Subsequently, companies authorized under the PMI will complete their studies, at which point ANTT will develop a draft contract, and a notice of invitation to bid. From there, ANTT will develop and review financial and economic modelling and hold public hearings.

5.4.3 Project - Lucas do Rio Verde/MT-Itatuba/PA Railway Project (Miriticuba District)

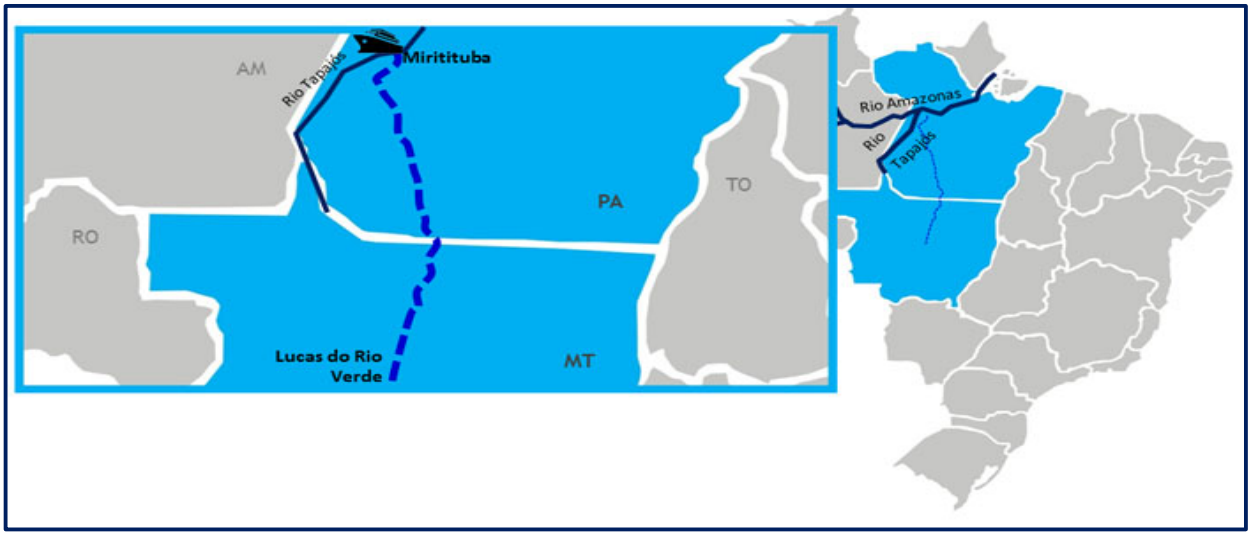


Figure 46 - Lucas do Rio Verde-Itaituba

Project Description

The Lucas do Rio Verde/MT-Itaituba/PA (District Miriticuba) Railway will improve the movement of agricultural production in the Midwest, connecting in Para to the Port of Miriticuba in the Tapajos waterway. Making logistics upgrades will allow Brazil to become more competitive with its agricultural commodities.

Estimated Investment

$3.3 billion

Project Status

ANTT has accepted initial technical studies and now must assess these studies through the PMI process. Subsequently, companies authorized under the PMI will complete their studies, then ANTT will develop a draft contract, and a notice of invitation to bid. From there, ANTT will develop and review financial and economic modelling and hold public hearings.

5.4.4 Project - Rio de Janeiro-Espirito Santo Railway

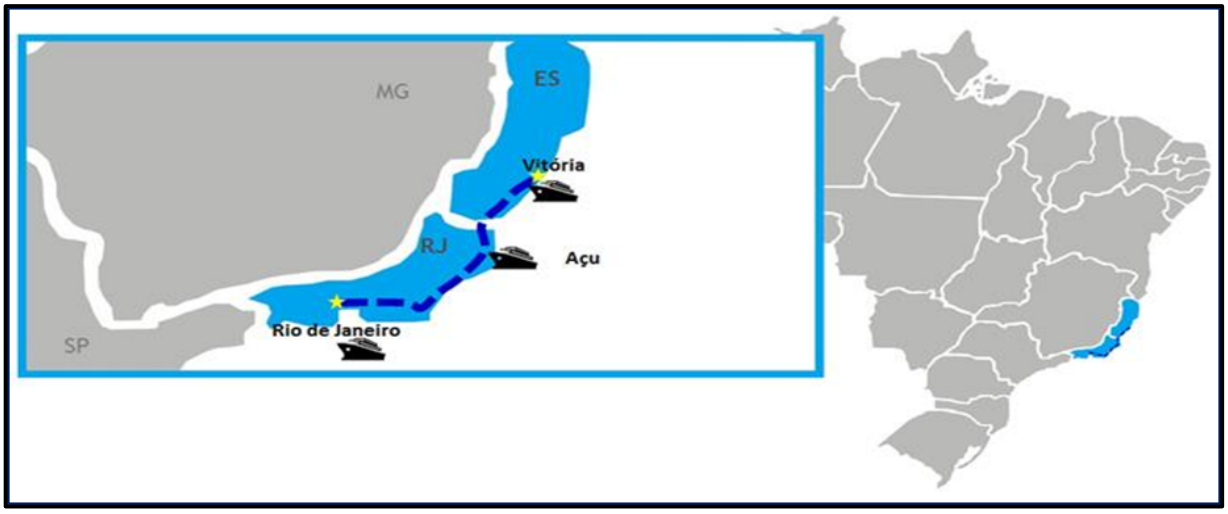


Figure 47 - Rio de Janeiro-Espirito Santo Railway

Project Description

The railway connecting Rio de Janeiro to Espirito Santo will likely be connected to the network granted to MRS Logistica S.A. in the Municipality of Nova Iguacu (RJ). This rail connection will create access to the ports in the States of Rio de Janeiro and Espirito Santo, and will improve logistics of cargo import and export in the Southeast Region of Brazil.

Estimated Investment

$2.5 billion

Project Status

The preliminary studies have been completed for the project.

5.5 Freight Railway Operational Systems Standard

While ANTT received feasibility studies for four of the five rail concessions planned, there is an ongoing discussion on defining the standard for railway operational systems that concessionaires must comply with. Currently, ANTT has not decided on which railway operational model to use, European or U.S. standard. ANTT indicated that before final bid announcements, it will select a model. Once a selection is made, the process will move forward with public bid announcements, which are expected in late 2016.

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5.6 Overview of Freight Railway and Regulatory Framework

Railroads comprise 24% of freight transportation, moving products such as iron ore (over 70% of total rail freight), soybeans, corn, steel and other minerals. There is 28,190 Km of railway stretching across the country, which is under private concession. Rail transport can be up to 30% less expensive than highway transport, and it is also more efficient. Historically, Brazil has not made substantial investments in its rail system, and that only began to change over the past 20 years.

In 2015, the Government announced plans to invest billions of dollars in the rail sector, with additional concessions. These investments could result in expansion as great as 7,500 Km. The Government aims to improve the connection between the North and South regions by linking pre-existing railways and building new ones as well.

The Division of Railways under the National Land Transportation Agency (ANTT) oversees the concession process. In addition to monitoring service quality, ANTT is responsible for establishing rules and standards for railway operations.

The major public stakeholders in the rail sector are the Ministry of Transportation (MOT), ANTT, Ministry of Planning, Logistics and Planning Company (EPL) and the Company of Engineering, Railways, and Construction (VALEC). The Ministry of Planning manages logistics planning and determines potential areas for rail connections to support the national economy. The Ministry of Transportation and ANTT oversee the operation and development of rail activities, facilitating the safe and efficient transport of freight.

EPL administers studies, surveys, infrastructure construction, technology development and activities aimed at technology transfer. EPL works in coordination with the Ministry of Transportation and Ministry of Planning in policy development and strategic planning.

VALEC is a publicly owned company that does economic and administration planning, as well as engineering including construction, operation, exploitation and integration of railways with other modes of transportation.

6. MASS TRANSIT SYSTEMS

6.1 Brazil's Urban Passenger Transportation Overview

As urban populations in Brazil continue to grow, so does the demand for transportation options, posing a tremendous challenge for federal, state and municipal governments. The Ministry of Cities is an autonomous federal agency that works to establish strategies, direction and priorities supporting the development of Brazil's cities. One of the Ministry's largest federal programs involves public transportation initiatives such as metros, Bus Rapid Transit (BRT), mass transit and traffic improvement.

Public transportation agencies such as SPTrans in Sao Paulo and the Public Agency for Transportation and Circulation (EPTC) in Porto Alegre are planning to implement Advanced Public Transportation Systems (APTS) for their bus fleet, and associated control centers for bus management operations. There is strong interest in incorporating ITS and ICT in public transportation systems, as state and municipal transportation agencies seek solutions for improving the safety and efficiency of existing systems.

6.2 Passenger Rail Transportation Projects

ANPTrilhos is the national association of passenger rail operators and industry leaders in Brazil and its objective is to promote the development of passenger rail. The primary members of ANPTrilhos are Metro Bahia, Metro Rio, SuperVia, Metro Sao Paulo, CPTM, Metro DF, CBTU, Trensurb and ViaQuatro.

In 2014, 2.9 billion[7] passengers used rail transportation, and that number will only continue to grow as rail becomes more accessible and widespread. Many of the existing passenger rail systems are being expanded in urban areas. Currently, there are a number of passenger rail systems under construction including metros, light rail systems (VLT) and monorail projects, as presented in the table below.

Table 7
Passenger Rail System Projects Under Construction in Brazil

Brazilian State	Project Description
Bahia	Expansion of Metro Salvador -Line 1
	Implementation of Metro Salvador - Line 2
Ceara	Implementation of Metro Fortaleza - East Line
	Implementation of VLT in Fortaleza
	Implementation of VLT in Sobral
Goias	Implementation of VLT in Goiania
Mato Grosso	Implementation of VLT in Cuiaba
Pernambuco	Expansion of Metro Recife – South Line
	Expansion of Metro Recife – Central Line
Rio de Janeiro	Implementation of Metro Rio de Janeiro- Line 4
	Implementation of VLT in Rio de Janeiro – Line 6
Sao Paulo	Expansion of Metro Sao Paulo – Line 4
Sao Paulo	Expansion of Metro Sao Paulo – Line 5
	Implementation of Metro Sao Paulo – Line 6
	Expansion of Line 9 of CPTM
	Implementation of Line 13 of CPTM
	Implementation of Monorail Sao Paulo – Line 15
	Implementation of Monorail Sao Paulo – Line 17
	Implementation of Monorail Sao Paulo – Line 18
	Implementation of VLT in Baixada Santista

[7] ANPTrilhos

ANPTrilhos reports that many passenger rail systems are currently under evaluation for expansion. Those are presented in the table below.

Table 8
Passenger Rail Systems Under Evaluation

Brazilian State	Project Description
Alagoas	Implementation of VLT in Maceio
Amazonas	Implementation of Monorail – Manaus
Distrito Federal	Implementation of VLT – Brasilia
Distrito Federal	Implementation of Regional Brasilia-Luziania Train Service
Distrito Federal	Implementation of Regional Brasilia-Goiania Train
Minas Gerais	Expansion and operation of Line 1 of Metro de Belo Horizonte
Minas Gerais	Implementation and operation of Line 2 - Metro de Belo Horizonte
Minas Gerais	Implementation and operation of Line 3 of Metro de Belo Horizonte
Minas Gerais	Implementation of Regional Betim-Divinopolis Train
Minas Gerais	Implementation of Regional Belo Horizonte –Sete Lagoas Train
Minas Gerais	Implementation of Regional Belo Horizonte-Contagem Train
Paraiba	Implementation of VLT - Joao Pessoa
Pernambuco	Implementation of VLT - Petrolina
Pernambuco	Implementation of VLT - Recife
Parana	Implementation of Curitiba Metro
Parana	Implementation of Regional Londrina-Maringa Train
Rio de Janeiro	Implementation of Metro Line 3
Rio Grande do Sul	Porto Alegre Metro
Rio Grande do Sul	Implementation of Regional Bento Goncalves-Caxias do Sul Train
Sao Paulo	Implementation of VLT - Sao Jose dos Campos
Sao Paulo	Implementation of VLT - Guarulhos
Sao Paulo	Implementation of Intercity Train

One key priority with expanding and upgrading public rail involves implementing more effective safety measures. Surveillance systems are one example of technology that would help address crime on passenger railways. Public and private rail operators are searching for ways to transition from conventional video surveillance systems to more advanced technology that provides real time data. While video surveillance systems are commonly deployed in stations, platforms and other rail facilities, they have not been implemented on-board yet, as the technology has only been developed over the past ten years.

Currently, on-board video surveillance systems are recording-based, where images are captured on high-capacity hard-disks. These systems are limited to post-analysis only.

In 2015, USTDA awarded a technical assistance grant to ANPTrilhos for developing an implementation plan to integrate real-time video monitoring technologies. After that project is complete, individual operators will likely seek specific design plans for installing technologies recommended by the technical assistance.

Potential U.S. exports for this project are train wireless data transmission technologies that utilize a dedicated frequency for seamless data transfer inside the trains and throughout the track. Operators will look for technology that can transfer data in tunnel environments and can provide modern communication systems between on-board (train) and wayside (track) with reliable service. The implementation of real time wireless video systems requires interactive communications technology to transmit information from the train to control centers. This will require design and engineering services for implementation.

Additionally, a variety of supporting ICT systems associated with the Command and Control Centers and related professional services could pose opportunities for U.S. firms, specifically in the areas of:

- Data center technologies
- Servers and workstations
- Server and computer operating software
- Video Wall and other Information Display technologies
- Fiber Optic communication systems
- Communication interface equipment
- Core switching equipment
- Server Switches
- Application Switches
- Internet Routers
- Radius Servers
- VPN Gateway systems
- Network and Security Management Systems
- Wireless Communications and Mesh Networks
- Wireless Transceiver/Receiver/antennas
- Local Area Networks (LAN)
- Video Distribution Systems
- DC Firewall Systems
- Data Storage Systems
- Ethernet Networking/Synchronization Systems
- Ethernet Switches
- Power systems (emergency power systems)
- CCTV cameras and housing
- Video compressor units
- Planning and Development Services
- Engineering
- Communications Design Services
- Project Management Services

Contacts:

Project Contact	U.S. Trade and Development Agency	U.S. Commercial Service Brazil
Roberta Marchesi Superintendent ANPTrilhos Sector de Autarquias Sul- Quadra 1-Bloco J- Ed. CNT Torre A-5 andar- Sala 510-CEP 70.070-010- Brasilia/DF Brasilia, Brazil Telelphone: (61) 3322-3158 Email: Roberta.marchesi@anptrilhos.org.br	**Gabrielle Mandel** Country Manager for Brazil 1000 Wilson Boulevard Suite 1600 Arlington, VA 22209 Telephone: (703) 875-4357 Email: Gmandel@ustda.gov **Rodrigo Mota** Brazil Country Representative Consulate General of the United States of America Rua Henri Dunant, 700 04709-110 Sao Paulo, SP Brazil Telephone: 55-11-3250-5335 Mobile: 55-11-97575-9844 Email: rmota@ustda.gov	**Andrew Gately** Commercial Officer Embassy of the United States of America SES, Qd. 801, Lote 03 70403-900 – Brasilia, DF Brazil Telephone: 55-61-3312-7403 Email: Andrew.Gately@trade.gov **Ebe Raso** Commercial Specialist Transportation, Telecommunications, E-Commerce U.S. Consulate – Sao Paulo R. Thomas Deloney, 381 Sao Paulo, Brazil Telephone: + 55 11 3250-5339 Email: ebe.raso@trade.gov

6.3 Bus Public Transportation System Projects

In major cities, public transportation is conducted by bus systems made up of networks and routes that are managed by municipal and state transportation agencies. Major cities like Sao Paulo, Rio de Janeiro, Brasilia, Belo Horizonte, Fortaleza, Recife, Curitiba, Porto Alegre and Salvador have extensive bus systems providing service within their respective metropolitan areas.

Due to the population growth across major Brazilian cities, the demand for bus transportation systems continue to increase, which means local and state governments are pursuing expansion to existing systems and incorporation of ITS systems to improve efficiency.

Figure 48 – Curitiba Articulated Bus

6.3.1 Sao Paulo Bus Public Transportation System

The local bus system is managed by the Sao Paulo Transportation Secretariat (SPTrans), a municipal agency that operates under the Secretaria de Transportes of Sao Paulo. SPTrans concessions its bus system, which entails 1,300 bus lines and 15,000 buses. The Sao Paulo Bus Rapid Transit (BRT) System services 127 Km of streets that are used exclusively by buses. Connected to the BRT, the city operates 28 transfer terminals across the metropolitan area. In addition, Sao Paulo has more than 17,000 bus stops distributed over 4.5 million Km of street. The BRT is very popular and highly used: of the city's 11 million citizens, 7 million use the bus system daily, with 55 percent of intercity trips made on mass transit.

The bus concessions that SPTrans issued have expired which means that currently, the 1,300 bus lines are operated on an extended concession agreement until the contract is renewed. With the concessions likely to be renewed soon, SPTrans decided to modernize existing ITS systems on the buses, upgrade their bus monitoring system and expand the use of ITS technologies to better integrate public transportation in the city. This initiative is called the "Sao Paulo ITS Public Transportation System Project."

SPTrans plans to implement an Integrated Bus Command and Operational Control Center (CCO) that will require the utilization of various ICT, ITS systems, specialized bus control software and other bus automation and management systems under one architecture that will allow the CCO to interact with the rest of the bus ITS network.

As part of this project, the private sector will invest in and deploy on-board ITS technologies. This project will likely create export opportunities for U.S. suppliers offering ITS and ICT technologies.

ITS Systems Needed

- Computer Aided Dispatch Systems (CAD)
- Automatic Vehicle Location (AVL) Systems
- Advanced Communication Systems (ACS)
- Safety and Security systems
- Passenger Information Systems
- Automatic Passenger Counter Systems
- Wireless and Radio Communication Systems
- Fleet Management and Maintenance Systems
- Transit Signal Priority (TSP) Systems

ICT Equipment Needed

- Workstations, Switching Systems (core, server, ethernet)
- Gateway Systems
- Routers
- Firewall systems
- Local Area Networks (LAN)
- Web security, emergency power (back-up) systems
- Video Wall Display Systems
- Central Data Storage Systems
- Back-up Data Center Technologies
- Fiber optics cable and associated equipment (modems, transmitter, receivers)
- Professional services in ICT planning, design and implementation

6.4 Porto Alegre's Public Agency for Transportation and Circulation (EPTC)

Porto Alegre is the capital of Rio Grande do Sul with a population of 1.5 million and a fleet of 718,789 registered vehicles. The Public Agency for Transportation and Circulation (EPTC - Empresa Publica de Transporte e Circulacao) is responsible for concessioning bus routes, as well as monitoring and overseeing the economic and financial balance for the city's public transportation services.

The fleet includes 1,659 public transportation buses, 618 school buses and 3,917 taxis. The infrastructure consists of 55 Km of exclusive corridors for buses with 87 stations, and over 5,000 bus stops throughout streets in other cities. The public transportation system in Porto Alegre, not including the metro, transports 1.1 million passengers across over 400 bus routes every day.

EPTC plans to deploy ITS systems on the city's fleet where information will be transmitted to EPTC's traffic management center. The project is similar to the one being launched by SPTrans in Sao Paulo, yet on a much smaller scale. EPTC's project will likely be financed by the private operators as part of the concession renewal agreement. Currently, the project is expected to be announced for public bid in 2016.

ITS Systems Needed

- Computer Aided Dispatch Systems (CAD)
- Automatic Vehicle Location (AVL) Systems
- Advanced Communication Systems (ACS)
- Wireless and Radio Communication Systems
- Fleet Management and Maintenance Systems

ICT Equipment Needed

- Workstations, Switching Systems (core, server, ethernet)
- Firewall systems
- Web security, emergency power (Back-up) systems
- Central Data Storage Systems
- Back-up Data Center Technologies
- Fiber optics cable and associated equipment (modems, transmitter, receivers)
- Professional services in ICT planning, design, and implementation

Contacts:

Project Contact	U.S. Trade and Development Agency	U.S. Commercial Service Brazil
Adauto Farias Prefeitura de Sao Paulo Transportes (SPTrans) Economic and Financial Management Director Rua 3 de dezembro, 34 – 2nd andar – Centro 01014-020 Sao Paulo SP – Brazil Tel: 55-11-3293-2719 Fax: 55-11-3293-2888 Email: adauto.farias@sptrans.com.br www.sptrans.com.br **Selma Strublic** Prefeitura de Sao Paulo Transportes (SPTrans) Diretoria de Gestao Economico-financeira Rua 3 de dezembro, 34 – 2nd andar – Centro 01014-020 Sao Paulo SP – Brazil Tel: 55 11 3293-2720 Fax: 55 11 3293-2888 Email: Selma.strublic@sptrans.com.br www.sptrans.com.br	**Gabrielle Mandel** Country Manager for Brazil 1000 Wilson Boulevard Suite 1600 Arlington, VA 22209 Telephone: (703) 875-4357 Email: Gmandel@ustda.gov **Rodrigo Mota** Brazil Country Representative Consulate General of the United States of America Rua Henri Dunant, 700 04709-110 Sao Paulo, SP Brazil Telephone: 55-11-3250-5335 Mobile: 55-11-97575-9844 Email: rmota@ustda.gov	**Andrew Gately** Commercial Officer Embassy of the United States of America SES, Qd. 801, Lote 03 70403-900 – Brasilia, DF Brazil Telephone: 55-61-3312-7403 Email: Andrew.Gately@trade.gov **Ebe Raso** Commercial Specialist Transportation, Telecommunications, E- Commerce U.S. Consulate – Sao Paulo R. Thomas Deloney, 381 Sao Paulo, Brazil Telephone: + 55 11 3250-5339 Email: ebe.raso@trade.gov
EPTC – Porto Alegre **Vanderlei Luis Cappellari** Diretor-Presidente Empresa Publica de Transporte e Circulacao S.A. (EPTC) Rua Joao Neves da Fontoura, No. 7 Barrio Azenha – CEP 90050-030 Porto Alegre, RS, Brazil Telephone: 55 51 3289-4200 Email:pvidal@eptc.prefpoa.com.br	**Maria C. Molina Ladeira** Diretora de Transporte Empresa Publica de Transporte e Circulacao S.A. (EPTC) Rua Joao Neves da Fontoura, No. 7 Barrio Azenha – CEP 90050-030 Porto Alegre, RS, Brazil Telephone: 55 51 3289-4350 Email: ladeira@eptc.prefpoa.com.br	

7. FINANCING

The main sources of infrastructure funding in Brazil are financing on the capital markets, including infrastructure debentures and credit lines from the Brazilian Development Bank (BNDES). This section of the report provides information released by the Brazilian Government on the various sources and mechanisms for financing transportation infrastructure.

7.1 Capital Market Tools

The Brazilian Government has developed new capital market tools to incentivize foreign investors to fund local transportation infrastructure projects. Infrastructure debentures (Debentures de Infraestrutura) were created in 2010, offering non-resident investors an exemption from corporate income tax and financial transactions tax.

Non-resident investors can also enter the market through infrastructure-linked investment funds (Fundos de Investimento em Direitos Creditorios – FIDCs). With this funding mechanism, non-resident investors are exempt from income tax and financial transaction taxes for investments in funds allocating at least 85% of the fund's assets to Infrastructure Debentures.

7.2 The Brazilian Development Bank (BNDES)

The Brazilian Development Bank (BNDES) is a state-owned bank that serves as a key force for nation-wide economic development. The BNDES' mandate is to foster sustainable, competitive development in the Brazilian economy and to support job creation while contributing to a reduction in social and regional inequality. The BNDES is the main financing agent for development in Brazil. Since its founding in 1952, the bank has played a fundamental role in supporting the expansion of industry and infrastructure across the country.

Over the course of BNDES' history, its operations have evolved according to prevalent socio-economic challenges which currently include support for exports, technological innovation, sustainable socio-environmental development and the enhancement of public administration. The bank offers several financial support mechanisms to private companies of all sizes, headquartered and administered in Brazil,

ultimately enabling investments in all economic sectors. In determining whether to financially support a company or project, BNDES considers three factors: strategic innovation, local development and socio-environmental development.

The bank can provide financial support to companies established in Brazil through three mechanisms: financing, non-reimbursable funds and subscription to securities.

7.2.1 BNDES Financing

BNDES provides financing earmarked for investment projects, new machinery and equipment, exports of machinery, domestic equipment and services, the acquisition of goods and production inputs. Financing modalities are divided into products according to the undertaking's purpose. These products define the general rules of applicable financial conditions and the operating procedures for financing.

Some products are considered financing lines, aimed at certain clients, sectors and undertakings and therefore have more specific rules. Among the bank's products is BNDES Project Finance, earmarked for the financial structuring of investment projects and contractually supported by project cash flow. Assets and receivables (asset-backed) may serve as guarantees for the same undertaking. Additionally, BNDES offers financing programs of a transitional nature, which are focused on a particular economic segment.

7.2.2 BNDES Non-Repayable Funds

BNDES offers investments of a social, cultural (educational and research), environmental, scientific and technological nature, which do not need to be repaid.

7.2.3 BNDES Subscription of Securities

BNDES may participate as a subscriber of securities, i.e., shares, simple debentures, convertible debentures, subscription bonds, options and other derivative products. BNDES may also participate in asset-backed (receivables) investment funds (FIDC) in publicly-listed companies, in public or private issuances, or in companies that may join the capital market for the short or medium term through a private issuance. In some specific cases, the Bank may provide financial support in a mixed manner, or finance part of a project and use the subscription of securities for the rest.

BNDES is currently the largest financing partner for transportation infrastructure projects in the country. The bank provides corporate finance and project finance, which is when BNDES funds a specific project, not the company, by providing loans to a special purpose vehicle-SPV-constituted to execute the project. **Foreign firms are eligible to apply for BNDES financing, as well as companies controlled by Brazilian capital.**

BNDES can provide loans covering up to 70% of the total value of projects for airports, highways and ports, and up to 90% for railways. Part of BNDES financing can be offered at a competitive interest rate called the Long-Term Interest Rate (Taxa de Juros de Longo Prazo, 'TJLP'), while the remaining portion of BNDES finance is provided at market rates.

7.2.4 Summary of Financial Facts (BNDES) to Support the Transportation Sector

BNDES has been the financial force behind the success of many transportation concession projects for over ten years. The new round of airport, highway, port and railway concessions will also depend on BNDES financial support, however at different financing levels than in previous concession programs. For

the next round of transportation concessions, the private sector is required to supply a higher level of capital to finance projects.

7.3 Other Financial Institutions

7.3.1 The Export-Import Bank of the United States

The Export-Import Bank of the United States (Ex-Im Bank) is a Government agency that provides a variety of loan, guarantee and insurance products intended to aid the export of U.S. goods and services. The mission of the Bank is to create and sustain U.S. jobs by financing sales of U.S. exports to international buyers. The Bank is chartered as a government corporation by the U.S. Congress. The Ex-Im Bank does not compete with private sector lenders, but rather provides financing for transactions that would otherwise not take place because commercial lenders are either unable or unwilling to accept the political or commercial risk in a particular business deal.

The Ex-Im Bank's products aim to support export sales for any U.S. export firm regardless of size. The bank's charter provides that Ex-Im Bank makes available not less than 20% of its lending authority to small businesses. For more information on Ex-Im Bank please visit www.exim.gov.

7.3.2 Overseas Private Investment Corporation (OPIC)

The Overseas Private Investment Corporation (OPIC) is the U.S. Government's development finance institution that works with financing insurance and investment funds to support the U.S. private sector. It mobilizes private capital to help solve critical development challenges and in doing so, advances U.S. foreign policy and national security objectives. OPIC supports U.S. private investment in more than 160 developing countries around the world in products that produce important economic, environmental and developmental benefits. OPIC catalyzes revenues, jobs and growth opportunities from Europe to the Middle East, as well as Africa to Asia and Latin America.

Projects range from those in the renewable resources sector to food, health, tourism, infrastructure, microfinance, financial services and technology and communications. To date, OPIC has supported more than $200 billion of investment in more than 4,000 projects. For more information on OPIC please visit www.opic.gov.

7.3.3 International Finance Corporation (IFC)

The International Finance Corporation (IFC) is a member of the World Bank Group, and is the largest global development institution focused exclusively on the private sector in developing countries. The IFC offers investment, advisory and asset management services to encourage private sector development. The IFC and leverages its products and services to provide development solutions customized to meet the clients' needs. The IFC applies financial resources, technical expertise and global experience to assist clients in overcoming financial, operational and political challenges.

Since 2009, the IFC has focused on a set of development goals that its projects are expected to target. Its goals are to increase sustainable agriculture opportunities, improve health and education, increase access to financing for microfinance and business clients, advance infrastructure, help small businesses grow revenues and invest in climate health. The corporation also offers advice to companies on making decisions, evaluating their impact on the environment and society and corporate responsibility. It advises Governments on building infrastructure and partnerships to further support private sector development. For additional information on the IFC please visit www.ifc.org.

7.3.4 Multilateral Development Banks

Multilateral development banks are also present in Brazil supporting the country in many sectors such as the World Bank (WB) and the Inter-American Development Bank (IDB). These institutions lend millions of dollars to the Brazilian Governments (mostly federal and state) on projects that accelerate economic growth and social development by reducing poverty and inequality, improving health and education and advancing infrastructure development. The WB and the IDB are both providing technical and financial assistance to the Brazilian Government in the latest infrastructure development and concession program announced in 2015.

From time to time, these development banks publicly announce a Request for Proposal (RFP) process for technical services such as feasibility studies, engineering, finance, project development, construction oversight and others to support activities being financed by the banks. These opportunities are made public through the WB and IDB websites: www.worldbank.org and www.iadb.org.

7.4 Additional Organizations Promoting U.S. Exports in Brazil

7.4.1 U.S. Trade and Development Agency

The U.S. Trade and Development Agency helps companies create U.S. jobs through the export of U.S. goods and services for priority development projects in emerging economies. USTDA links U.S. businesses to export opportunities by funding project planning activities, pilot projects and reverse trade missions while creating sustainable infrastructure and economic growth in partner countries. USTDA promotes economic growth in emerging economies by facilitating the participation of U.S. businesses in the planning and execution of priority development projects in host countries. The Agency's objectives are to help build the infrastructure for trade, match U.S. technological expertise with overseas development needs, and help create lasting business partnerships between the United States and emerging economies.

7.4.2 The U.S. Commercial Service

The U.S. Commercial Service is the trade promotion arm of the U.S. Department of Commerce's International Trade Administration. The U.S. Commercial Service has its main office at the U.S. Embassy in Brasilia, with other offices located in U.S. Consulates across the country. Their main purpose is to promote U.S. exports and to connect U.S. companies with international buyers by providing market intelligence, trade counseling, business matchmaking and advocacy/commercial diplomacy support.

The U.S. Commercial Service offers customized solutions to help U.S. exporters (small and medium sized businesses) successfully expand their exports to new markets. The Commercial Service's global network of trade specialists work one-on-one with U.S. company representatives by:

- Targeting markets with the Commercial Service's research;
- Promoting U.S. company products and services to qualified buyers;
- Arranging meetings with the appropriate distributors/agents for U.S. products and services;
- Supporting U.S. companies in overcoming potential challenges or trade barriers; and
- Facilitating access to a full range of U.S. Government trade promotion agencies and their services, including export training and potential trade financing sources.

U.S. exporters seeking general export information/assistance or country-specific commercial information can contact the U.S. Commercial Service trade professionals in Brazil.

7.4.3 The Brazil-U.S. Business Council

The Brazil-U.S. Business Council (BUSBC) is a business advocacy organization dedicated to strengthening the economic and commercial relationship between the two countries. The Council's mission is to protect, maintain and advance trade and investment between the United States and Brazil through free trade, free market and free enterprise. The U.S. section of the Council represents the major U.S. companies invested in Brazil and operates under the administrative aegis of the U.S. Chamber of Commerce, maintaining independent policy formulation and membership.

The Brazil Section is managed by the National Confederation of Industry (CNI), composed of the 27 Brazilian state-level federations of industry. The Council has a Program of Work which identifies the key policy areas that the Council addresses throughout the year and highlights the initiatives that the council plans to pursue. For additional information on BUSBC, please visit www.brazilcouncil.org

Appendix A

List of Airport Concessionaires in Brazil Source: www.ABCR.org.br
Brasilia Airport
Inframerica
Aeroporto de Brasília
Area Especial, Lago Sul
CEP: 71608-900 | DF | Telephone: +55 (61) 3214-6181 / 6134 imprensa@inframerica.aero
www.bsb.aero
Belo Horizonte (BH) Airport
BH Airport
Rodovia LMG 800, Km 7,9, s/n
Confins - MG, 33500-900 Telephone: +55 31 3689-6800 / +55 31 9975-7439
E-mail: imprensa@bh-airport.com.br
www.bh-airport.com.br
Guarulhos Airport (Sao Paulo)
Invepar- ACSA
Av. Almirante Barroso, 52 **30th Floor - Centro** **Zip Code 20031-000 - Rio de Janeiro/RJ**
invest@invepar.com.br
Telephone: +55 (21) 2211-1300
www.invepar.com.br
Viracopos International Airport
Aeroportos Brasil
Rodovia Santos Dumont, Km 66
Campinas/SP - 13.052-901 –
Telephone: 55 (19) 3725-5000
www.viracopos.com
RioGaleao (Rio de Janeiro)
Av. Vinte de Janeiro, s/nº
Ilha do Governador - Rio de Janeiro
CEP: 21941-900
Telephone: +55 21 3004-6050/+55 21 99332-4247
E-mail: imprensa.riogaleao@cdn.com.br
www.riogaleao.com

List of Highway Concessionaires in Brazil (Federal and State Concessions)
Concessionaires in Federal Roads
CONCEPA
Website: www.concepa.com.br
Telephone: +55 (51) 3027-7400
email: concepa@concepa.com.br
CONCER
Website: www.concer.com.br
Telephone: +55 (21) 2676-1400
email: concer@concer.com.br
CRO - Concessionaria Rota do Oeste Website: http://www.rotadooeste.com.br/ Telephone: +55 (65) 3056-9199 email: ouvidoria@rotadooeste.com.br
CRT
Website: www.crt.com.br
Telephone: +55 (21) 2777-8300
email: crt@crt.com.br
ECO101
Website: http://www.eco101.com.br/ Telephone: +55 email:
ECOSUL
Website: www.ecosul.com.br
Telephone: +55 (53) 2128.4400
email: ecosul@ecosul.com.br
FERNAO DIAS
Website: www.autopistafernao.com.br
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FLUMINENSE
Website: www.autopistafluminense.com.br

Telephone: +55 (21) 2607-9800
LITORAL SUL
Website: www.autopistalitoralsul.com.br
Telephone: +55 (47) 3177-0700
email: ouvidoria@autopistalitoralsul.com.br
MGO RODOVIAS
Website: http://www.mgorodovias.com.br/
Telephone: +55 (34) 3291-8000
email: ouvidoria@mgorodovias.com.br
MS VIA
Website: http://www.msvia.com.br/
NOVADUTRA
Website: www.grupoccr.com.br/novadutra
Telephone: +55 (11) 2795-2400
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PLANALTO SUL
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PONTE
Website: www.grupoccr.com.br/ponte
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RÉGIS BITTENCOURT
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VIABAHIA
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Concessionaires in the State of Bahia
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email: cbnorte@cbnorte.com.br
CLN
Website: www.clnorte.com.br
Telephone: +55 (71)3623-8000
email: cln@clnorte.com.br
Concessionaires in the State of Espírito Santo
RODOSOL
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Concessionaires in the State of Parana
CAMINHOS DO PARANA
Website: **www.caminhosdoparana.com.br**
Telephone: +55 (42) 3421-2330
email: caminhos@caminhosdoparana.com.br
ECOCATARATAS
Website: **www.ecocataratas.com.br**
Telephone: +55 (45) 3218-2900
email: ecocataratas@ecocataratas.com.br
ECONORTE

Website: www.econorte.com.br
Telephone: +55 (43) 3377-1551
email: econorte@econorte.com.br
ECOVIA
Website: www.ecovia.com.br
Telephone: +55 (41) 3381-6500
email: imprensa@ecovia.com.br
RODONORTE
Website: www.rodonorte.com.br
Telephone: +55 (42) 3220-2900
email: ouvidoria.rodonorte@grupoccr.com.br
VIAPAR
Website:www.viapar.com.br
Telephone: +55 (44) 3033-6000
email: viapar@viapar.com.br
Concessionaires in the State of Rio Grande do Sul
BRITA
Website: www.britarodovias.com.br
Telephone: +55 (54) 3036-2600
email: brita@britarodovias.com.br
CONVIAS
Website: www.univias.com.br
Telephone: +55 (51) 3778-2626
email: ouvidoria.univias@univias.com.br
COVIPLAN
Website: www.coviplan.com.br
Telephone: +55 (54) 3330-2100
email: coviplan@coviplan.com.br
METROVIAS
Website: www.univias.com.br
Telephone: +55 (51) 3778-2626
email: ouvidoria.univias@univias.com.br

RODOSUL
Website: http://www.rodosul.com.br/
Telephone: +55 (54) 3232-2414
email: rodosul@rodosul.com.br
SANTA CRUZ
Website: www.santacruzrodovias.com.br
Telephone: +55 (51) 2106-3000
email: scrsa@santacruzrodovias.com.br
SULVIAS
Website: www.univias.com.br
Telephone: +55 (51) 3778-2626
email:ouvidoria.univias@univias.com.br
Concessionaires in the State of Rio de Janeiro
ROTA 116
Website: www.rota116.combr
Telephone: +55 (22) 2525-1116
email: ouvidoria@rota116.com.br
VIALAGOS
Website: www.grupoccr.com.br/vialagos
Telephone: +55 (21) 3634-9800
email: vialagos@grupoccr.com.br
Concessionaires in the State of Minas Gerais
NASCENTES DAS GERAIS
Website: www.nascentesmg.com.br
Telephone: +55 (37) 3229-0050
email: ouvidoriamg050@nascentesnet.com
Concessionaires in the State of Pernambuco
ROTA DO ATLANTICO
Telephone: +55 (81) 3327-1877
ROTA DOS COQUEIROS
Website: www.rotadoscoqueiros.com.br

Telephone: +55 (81) 3479-8601
email: faleconosco@rotadoscoqueiros.com.br
Concessionaires in the State of Sao Paulo
AUTOBAN
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Appendix B

List of Consortiums that Competed to have Viability Studies Selected by SAC

PMI for Airports					
Interested Companies	**Florianopolis**	**Fortaleza**	**Porto Alegre**	**Salvador**	**Total Studies**
Aero Brasil Consortium: Verax Consultoria e Projetos Ltda, Empresa Brasileira de Engenharia de Infraestrutura Ltda, Fernandes Arquitetos Associados S/A and Geo Brasilis Consultoria.	✈	✈	✈	✈	4
Construcap - CCPS Engenharia e Comercio S.A.	✈	✈	✈	✈	4
Ernst & Young Assessoria Empresarial Ltda.	✈	✈	✈	✈	4
Helport Construcoes do Brasil S.A. and Corporacion America S/A	✈	✈	✈	✈	4
Movses & Pires Sociedade de Advogados, BF Capital, JGP Consultoria, Logit, M&P E Proficenter|	✈	✈	✈	✈	4
P2 Gestao de Recursos Ltda.	✈	✈	✈	✈	4
PROSUL - Projetos, supervisao e planejamentos Ltda.	✈				1
Radar PPP Ltda, Pricewaterhousecoopers Servicos Profissionais Ltda, Pricewaterhousecoopers Corporate Finance & Recovery Ltda e Idom Consultoria Ltda.	✈	✈	✈	✈	4
Setepla Tcnomental S.A, Sener Ingenieria y Sistemans S.A. e Atp Engenharia Ltda.	✈	✈	✈	✈	4
TPI - Triunfo Participacoes e Investimentos S.A.	✈	✈	✈	✈	4
Total	10	10	9	9	-

Web Resources

ABCR	Brazilian Association of Highway Concessionaires – www.abcr.org.br
ABEAR	Brazilian Association of Airlines Companies – www.abear.com.br
ABIFER	Brazilian Association of Railroad Industry - www.abifer.org.br
ABTP	Brazilian Association of Port Terminals - www.abtp.org.br
ANAC	National Agency of Civil Aviation - www.anac.gov.br
ANPTRILHOS	National Association of Passenger Rail Operators – www. anptrilhos.org.br
ANTAQ	National Waterway Transportation Agency – www.antaq.gov.br
ANTP	National Association of Public Transportation - www.antp.org.br
ANTT	National Land Transportation Agency - www.antt.gov.br
BNDES	Brazilian Development Bank – www.bndes.gov.br
EPL	The Logistics and Planning Company – www.epl.gov.br
INFRAERO	Brazilian Airport Operator - www.infraero.gov.br
MOT	Ministry of Transport – www.transportes.gov.br
SAC	Secretariat of Aviation – www.sac.gov.br
SEP	Executive Secretariat of Ports – www.sep.gov.br
U.S. CS	Commercial Service - www.export.gov
USTDA	U.S. Trade and Development Agency – www.ustda.gov
VALEC	Brazil's Federal Rail Company – www.valec.gov.br

Glossary

AL	State of Alagoas
AM	State of Amazonas
ANAC	National Civil Aviation Agency
ANBIMA	Brazilian Association of Financial and Capital Markets Entities
ANEEL	National Electric Energy Agency
ANTAQ	National Waterway Transportation Agency
ANTT	National Land Transportation Agency
AP	State of Amapa
APTS	Advanced Public Transportation Systems
ARFF	Air Rescue and Fire Fighting (equipment)
ARTESP	Sao Paulo's Regulating Agency for Public Transportation Services
ATC	Air Traffic Control
AVL	Automated Vehicle Location System
BA	State of Bahia
BNDES	National Bank for Economic and Social Development
BRICS	Brazil, Russia, India, China, South Africa
BRT	Bus Rapid Transit
CAPA	Center for Aviation of Brazil
CCO	Operational Control Center
CCTV	Closed Circuit Television
CCTV-IVA	Closed Circuit Television- Intelligent Video Analysis
CE	State of Ceara
CVM	Brazilian Securities and Exchange Commission
DAESP	Sao Paulo's Department of Aviation
DECEA	Brazil's Department of Airspace Control

DETRAN	National Department of Transportation
DF	Federal District
EPTC	Porto Alegre's Public Agency for Transportation and Circulation
EPVS	Enhanced Prediction Verification System
ES	State of Espirito Santo
ETC	Electronic Toll Collection
Ex-Im	Export Import Bank of the United States
FAA	Federal Aviation Administration (U.S.)
FBO	Fixed Base Operator
FINAC	National Civil Aviation Fund
GDP	Gross Domestic Product
GE	General Electric
GIF	Global Infrastructure Facility
GKS	Gold Key Service
GO	State of Goias
GPS	Global Positioning System
IADB	Inter-American Development Bank
IBGE	Brazilian Institute of Geography and Statistics
IC	Information and Communications Technology
IFC	International Finance Corporation
IT	Information Technology
ITS	Intelligent Transportation Systems
IRR	Internal Rate of Return
Km	Kilometer
LI	Site License
LP	Advance License
MA	State of Maranhao

MF	Ministry of Finance
MG	State of Minas Gerais
MIGA	Multilateral Investment Guarantee Agency
MOT	Ministry of Transportation (Brazil)
MTS	State of Mato Grosso
MRE	Brazil Ministry of External Relations
MRO	Maintenance, Repairs, and Overhaul
MS	State of Mato Grosso do Sul
NTCIP	National Transportation Communications for ITS Protocol
OCR	Optical Character Recognition
OECD	Organization for Economic Cooperation and Development
OPIC	Overseas Private Investment Corporation
PDAR	Regional Aviation Development Program
PMI	Process for Manifestation of Interest
PPP	Public Private Partnership
PTC	Positive Train Control
RECEI	Collection of Electronic Information System (State of Para)
RESA	Required Safety Area
RFID	Radio Frequency Identification
RJ	State of Rio de Janeiro
RO	State of Rondonia
RTM	Reverse Trade Mission
SAC	Secretariat of Civil Aviation
SC	State of Santa Catarina
SE	State of Sergipe
SEAE	Secretariat for Economic Monitoring
SEIL	Secretariat of Infrastructure and Logistics (State of Parana)

SEINFRA	Secretariat of Infrastructure (State of Bahia)
SIM	Integrated Monitoring System
SME	Small Medium Enterprise
SEP	Secretariat of Ports
SP	State of Sao Paulo
SPTRANS	Sao Paulo Transportation Secretariat
TCU	Brazilian Federal Court of Audit
TO	State of Tocantins
TSA	Transportation Security Administration (U.S.)
TUP	Private Use Terminal
USDOT	U.S. Department of Transportation
VLT	Light Rail Vehicle
VTMS	Vessel Traffic Management System
WACC	Weighted Average Cost of Capital
WB	World Bank
WG	Working Group

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