



MULTIMODAL COMPLEX

BACS

Republic of Argentina

BUENOS AIRES Central Station
Highway under the Dykes in Puerto Madero

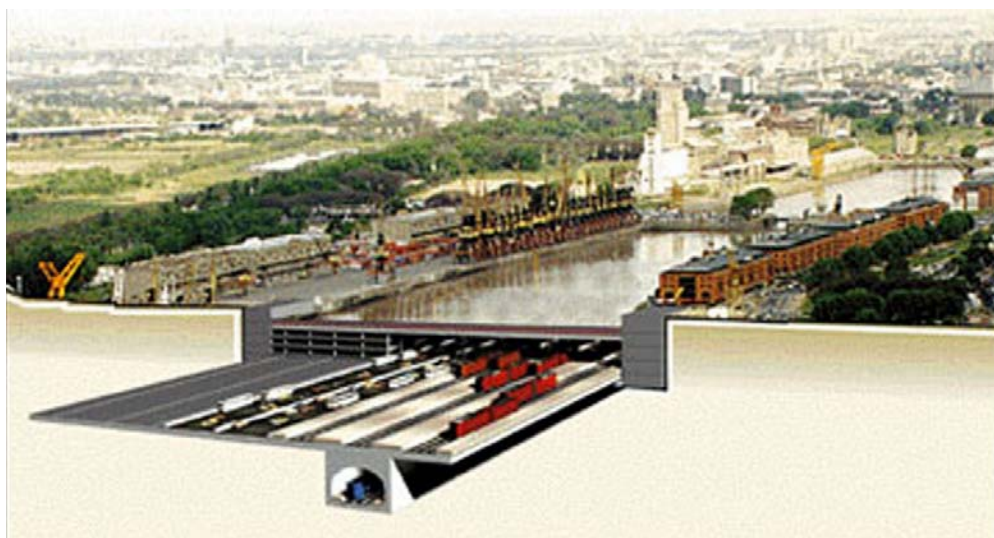
BUENOS AIRES

CENTRAL STATION

LOUIS BERGER INTERNATIONAL INC.

JEFFERIES & Co.

W.P. CAREY & Co. INC.



INSTITUTE OF THE AMERICAS

MULTIMODAL TRANSPORTATION NETWORKS AND OPPORTUNITIES IN THE SOUTHERN CONE

INTER-AMERICAN DEVELOPMENT BANK

GRUPO TORCELLO

DEVELOPERS

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1. BRIEF PROJECT OVERVIEW



The Project **Estación Central Buenos Aires – Complejo Multimodal (ECBA)** seeks to construct the most important intermodal complex in the Republic of Argentina. Located in the heart of Buenos Aires - more specifically in the quays of Puerto Madero, the city's most coveted real state area – **ECBA** will constitute the connection for all the city's highways, the link for the city's railroad stations, the city's largest parking lot and a booming commercial area. Indeed, ECBA will serve as the central passenger transference station in the neuralgic area of the metropolitan area. Initial analyses indicate 700,000 to 1,000,000 people will utilize the ECBA facilities daily during the first year of operations.

Grupo Torcello S.A., organized under Argentine corporate laws, developed the project and drafted a preliminary project finance structure. The project was presented to the pertinent authorities. Upon evaluation of a total of 18 alternative proposals, the Secretary of Public Works selected ECBA, also known as the "Traza Bajo Diques" (Under the Dock Design), and approved its design for the Riverside Highway.

Infrastructure for Growth

The construction of ECBA will help the city of Buenos Aires consolidate its position as one of the principal metropolis in the Americas. Conceptually, the project is similar to the Central Artery project in Boston.

The Estación Central will contain:

1. A six-lane **highway** to connect the highways leading to the city;
2. Four **complementary lanes** which will enable vehicles to access the downtown area, Puerto Madero, and the Estación Central's facilities;
3. **Rail infrastructure** to link the Constitución, Once and Retiro train stations, expand the subway net, and optimize the cargo transportation system of the Buenos Aires Port;
4. An **automated parking lot** for approximately 27.000 vehicles;
5. More than 120.000 m2 dedicated to **commercial spaces**;
6. Latest generation **urban services**.

ECBA will not only enhance the city's infrastructure, it will constitute a key element in avoiding the collapse of the downtown transportation system that is projected to occur in the Puerto Madero area.

Since the Central Station will be constructed within the quays of Puerto Madero, and without creating any visual intrusion to the area's environment, Cesar Pelli, the world renown architect baptized the project as the "invisible highway."

Initial estimates indicate the project will generate an investment of over US\$950 million, creating over 20,000 jobs.

2. HISTORY OF THE RIVERSIDE HIGHWAY

The *Autopista Ribereña*, or *Riverside Highway*, consists in a short route to connect all the highways leading to the City of Buenos Aires. This Riverside Highway was not conceived as an independent project, rather it constitutes the last part of the La Plata Buenos Aires highway which was awarded in a Government Tender in 1981. The original project, established prior to such tender, indicated the highway would be built above ground level in an elevated bridge-like structure over Avenida Dávila. The only objective in the original project was to provide an interconnection between the highways La Plata – Buenos Aires, Illia and 25 de Mayo, the three main accesses to the city, from the South, North and West, respectively.

Although Avenida Dávila at the time practically constituted the eastern limit of the city and the area of Puerto Madero was completely neglected, the original project was highly questioned from its conception. Many sectors, including urban and environmental experts, criticized the project, holding that the elevated highway would damage Buenos Aires' landscape and would destroy the urban expectations of the city's inhabitants.

The controversy reached its height in 1997, after the media disclosed that the riverside highway would be constructed according to the original plan. By 1997, Puerto Madero had been transformed from a vacant and abandoned dock yard into a booming location for restaurants and offices. As a result of the new developments in Puerto Madero, the entire eastern strip of the city, from Avenida Dávila to the river, had been substantially revalued by the inhabitants of Buenos Aires.

Although the area was and remains relatively isolated from the rest of the city and lacks adequate access, white collar workers and corporate executives began working in the renovated docks and people began to dine at the fine restaurants located in the area. Finally, many others took advantage of the wide spaces available for walking around the quays, and performing numerous recreational activities in the parks located east of Puerto Madero, right beside the Río de la Plata. Indeed, the renewal of Puerto Madero enabled Buenos Aires' inhabitants to recover the downtown access to the river, which had been previously closed due to the port's activities, and to rediscover the attractiveness of the Costanera Sur (Southern River Walk).

By this time Puerto Madero had become one of the most expensive real state areas in Buenos Aires. Thus, the possibility of building the project according to its original design encountered new and stronger opposition from the general public. In the end, the public opinion disqualified this idea.

Consequently, a total of 18 alternative projects were presented. Many of them represented mere sketches or initial alternative ideas. Some alternatives proposed a ground level road, others a tunnel, and yet others a trench. Notwithstanding their differences, all of these alternatives had a common element: they merely proposed a road and failed to identify the key transportation issues in the city's downtown area. Thus, after evaluating the different alternatives and perceiving the advantages provided by ECBA, the Secretary of Public Works selected ECBA and approved its design through Secretary of Public Works' Resolution 70/99.



PUERTO MADERO - BUENOS AIRES

3. THE NEW ELEMENTS CONSIDERED IN THE DESIGN OF THE ESTACIÓN CENTRAL

Buenos Aires and its transportation system has substantially changed since the original plans for the Riverside Highway were drafted. Indeed, new circumstances, problems and needs have emerged during the past 18 years. These new elements must invariably be addressed in the design and evaluation of the Riverside Highway.

Unlike the other alternatives presented to the Secretary of Public Works, in developing the ECBA project, rather than merely designing a road, our group first sought out to identify these new key elements and then strove to provide an optimal solution.

These new elements may be summarized in the following points:

- **New Urban Requirements:** The highway must be inserted within a new urban context. Puerto Madero has been changed from an abandoned industrial port to a new area for offices, restaurants and recreation. A similar process is under way in the Retiro area.

The Puerto Madero effect has aided to awaken awareness of the isolation of the river from the city's downtown area. It now seems imperious to recover the relationship between the river and the city in the East-West axis.

The Riverside Highway, providing a link between the North and the South, would perpendicularly cross the East-West axis; the effects of its construction must be carefully analyzed in order to avoid isolating Puerto Madero from the rest of the city. It would be completely unacceptable for the highway to represent a physical or visual barrier between the two areas which we seek to integrate or to adversely affect the urban landscape.

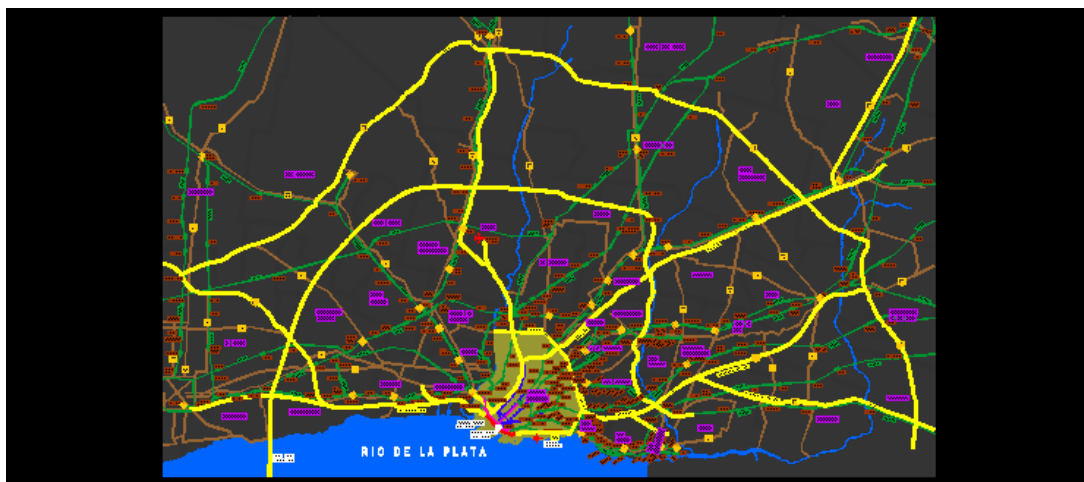
- **New Transportation Needs in the Metropolitan Area:** The new tendencies indicate an upcoming collapse in the central road network and its different access points. The increase in the number of vehicles and the vegetative growth of the demand for trips determine a progressive saturation of the network, all of which inevitably results in increased environmental pollution. Thus, in order to avoid such collapse, it is necessary to encourage public transportation modes, and more specifically those which emit reduced levels of pollution, such as subways and electric underground trains.

Regarding to the railroad and the subway infrastructure, the new works carried out by the different operators and the future plans to improve services tend to increase

the demand. According to data provided by the operators and collected from studies conducted by transportation consultants, the stations of Retiro, Constitución and Once will not be able to endure this short term growth in the number of users.

Additionally, the analysis of the highway must necessarily reconsider its objectives. The key problem is not providing a solution for the passing traffic, rather to address the issue of the daily traffic destined to or originated in the Buenos Aires central area. Approximately 545,000 vehicles enter the city daily. Of this number, approximately 310,000 are destined to the central area and only about 50,000 constitute passing traffic. Thus, it is necessary to improve conditions for entering or exiting traffic, without encouraging traffic within the downtown area.

Consequently, in order to ease the transference between different modes of transportation and to efficiently contribute to reduce vehicle circulation in the downtown area, the highway must not be a mere road, rather, it must be conceived as a intermodal transportation complex encompassing passenger transference stations and ample parking spaces.



TRANSPORTATION SYSTEM OF BUENOS AIRES CITY METROPOLITAN AREA

- **Environmental Effects:** The growing awareness of the need to preserve the environment determines that minimizing the environmental effects of a project be considered a decisive factor in evaluating a project. Cities such as Boston have already made the costly decision of destroying elevated highways and replacing them with underground alternatives. The evaluation of environmental issues must consider the effects produced during project construction and during operation of the facilities.
- **New Projects:** The new urban projects, which are either already under way or in a planning stage, -in the Retiro, Buenos Aires Port, Puerto Madero, and Constitución areas-, require coordination and integration. The highway plays a significant role in these projects: it is a dynamic integration axis which should channel the transportation links between the different areas.
- **Access to Puerto Madero:** The existence of the docks in Puerto Madero creates two sectors of difficult integration for automobiles and pedestrians: the western sector, almost fully developed, and the eastern sector, which is recently being developed. It is worthwhile mentioning that hotels, convention centers, offices and stadiums, either in construction or in planning stages, will be located in the eastern sector. Consequently, it is fundamental to guarantee accessibility to this area.

The connection between both sectors is limited to the five existing bridges. These bridges may be widened for increasing traffic, but doing so will not solve the bottlenecks they create. The situation is further worsened by the fact that some of them are drawbridges that enable traffic of the sail boats stationed in the docks.

Furthermore, the ground level railroad tracks between the Dávila and the Moreau de Justo avenues hinder traffic. Although there is a growing demand to increase the use of these tracks, increasing the circulation of trains results dangerous and unacceptable.

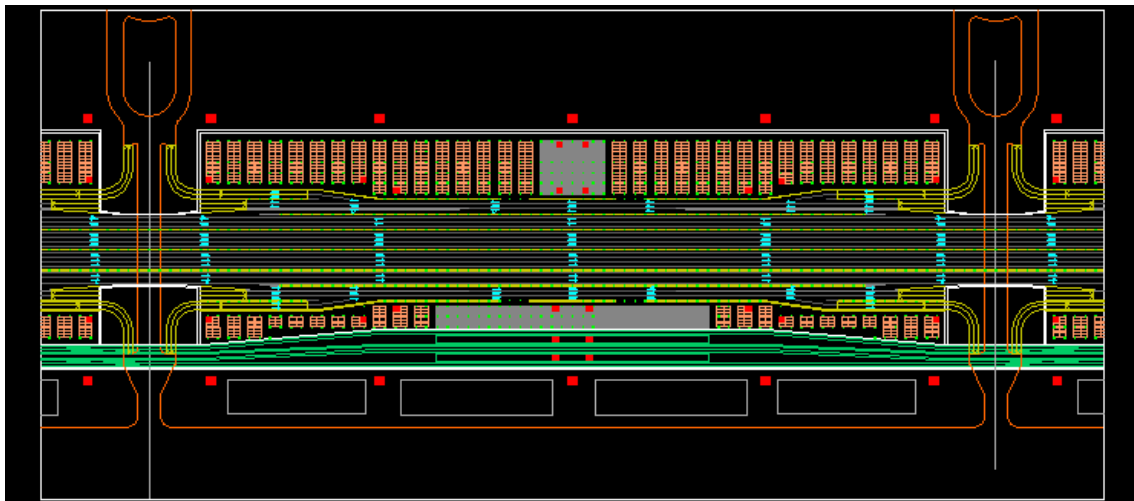
The highway alternatives proposing designs to the west of the docks would not provide access to the eastern sector. Inversely, the alternatives proposing designs to the east of the docks would not provide adequate access to the western sector or to the downtown area. On the other hand, ECBA will be located on the very axis of the docks, thus permitting optimal access to both sectors.

- **North-South Integration:** The Puerto Madero project has impacted not only the integration of the city along the East-West axis, it has also generated a new relationship between the northern and southern sectors. The southern sector, traditionally ignored in terms of urban development, has received investments, buildings, and new infrastructure.

Additionally, it should be highlighted that Retiro, Puerto Madero, and Constitución, all located on the north-south axis, constitute three neuralgic points for future development. The highway must provide adequate response to their respective transportation needs, specially in terms of their interrelation and links to the rest of the areas.

4. THE INVISIBLE HIGHWAY

The ECBA project, thus stems from the need to reformulate the objectives of the Riverside Highway.



The new elements in the city's urban and transportation system, indicated a new approach had to be taken in the design of the highway. Thus, the challenge shifted from an engineering task of designing a road to a complex dilemma of providing an adequate urban and transportation solution. Furthermore, the challenge of the Riverside Highway consisted in a unique opportunity to propose solutions for the future development of the city.

As a result of the different evaluations, Grupo Torcello designed ECBA to be constructed in the form of a tunnel within the quays of Puerto Madero for the following reasons:

- The existing quays present an optimum structure making it possible to minimize unnecessary excavations. With a width of 160 meters and a length of 2.5 kilometers, they represent a large urban trench. By removing the water from the quays, we may perform the civil works under the open air, thus saving time and money.
- The generous space available in the quays permit the construction not only of the highway but also of an intermodal complex including rail infrastructure, parking lots and transference stations.
- Concurrently, the space available permits commercial developments which, utilizing the massive flow of people that will use the facilities, would represent a significant factor for financing the venture and obtaining adequate returns for investors. In all, our project finance structure foresees that the project may be carried out without requiring subsidies or warranties from the government.
- The quays and the project concept enable ECBA to serve as an invisible infrastructure that will not alter the landscape of the city.
- The quays constitute the central axis that enable ECBA to solve the problems of access to the eastern and western sectors of Puerto Madero and the city's downtown area.

5. INTERMODAL INTEGRATION

Aside from the highway, ECBA incorporates an automated parking lot with a capacity for approximately 27,000 cars, a railway corridor, and an extension of the Subway Line B.

The rail corridor will provide:

- An underground link between the Roca Railroad Line and the San Martín Railroad Line, uniting the Constitución and the Retiro train stations. Intermediate train stations will be located in Parque Lezama, and Quays 1,2,3 and 4.
- An underground link between the Sarmiento Railroad Line and the Mitre Railroad Line, uniting the Once and the Retiro train stations. An intermediate station will be located on Quay 4.
- An underground link between Retiro and Casa Amarilla for the Belgrano Norte Railroad Line. (This railroad provides cargo to the Port of Buenos Aires.)

Subway Line B will be extended to include a station in the Catalinas office complex and in each of the quays.

Transference stations have been designed at each of the quays, thus integrating parking lots, railroad and subway. All stations may be accessed by pedestrians from the ground level.

The Central Station will be located on Quay 4 with the convergence of railroad lines Roca, San Martín, Mitre and Sarmiento plus Subway Line B, plus parking lots.

A system of horizontal and vertical circulation for pedestrians, without any vehicle crossings, will ease the flow of passengers. The pedestrian network will also provide access to the eastern and western areas of Puerto Madero.

The railroad line currently located between the Dávila and the Madero avenues will be relocated under the quays. Such measure will enable the strip currently occupied by the railroad tracks and parking lots to be destined for parks and recreational green spaces. Furthermore, the relocation of the railroad tracks will enhance access to Puerto Madero from the rest of the city.

Finally, and fundamentally, all this infrastructure will substantially improve access to the downtown area and to Puerto Madero. It will optimize circulation along the eastern axis and concurrently avoid the collapse of the city's road and rail system.



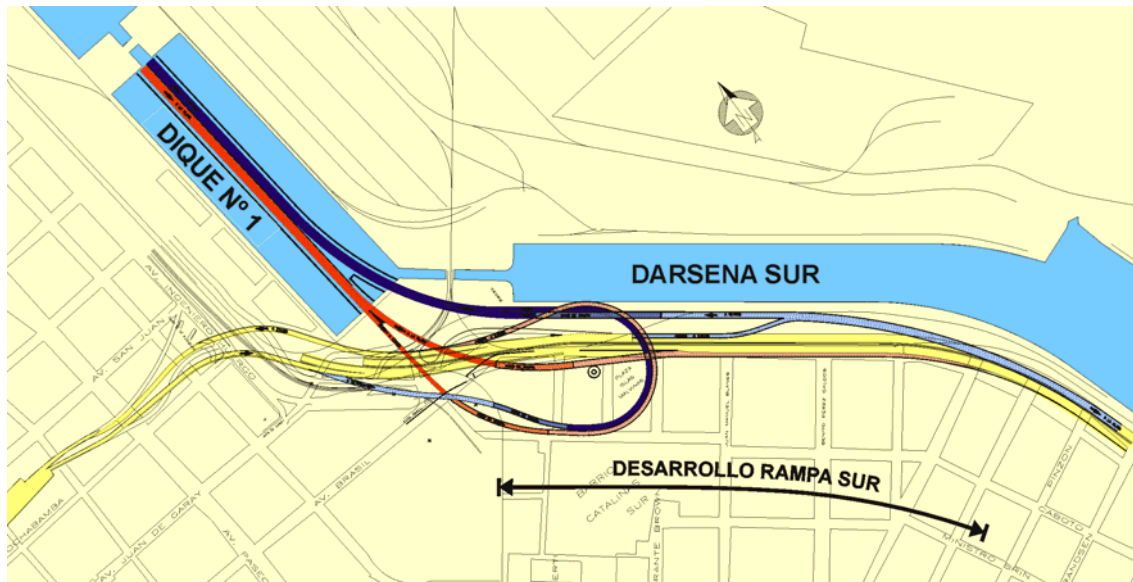
6. THE HIGHWAY

The highway will be located on the central axis of the quays. It will function independently from the parking and the transference stations. It has been designed with a total of six lanes and for a cruise speed of 130 km/hour.

Access to the highway is provided by ramps located between the quays, under the Perón, Belgrano and Estados Unidos streets. Rotondas for changing directions will be provided directly underneath the ramps. Thus, vehicles may be able to enter the city or the eastern sector of Puerto Madero without entering the highway.

The highway will be located at a depth of -14 meters. Since the entire infrastructure will have a height of 7 meters, it will be possible to encapsulate it and to maintain a minimum level of water in the quays to permit sailing activities.

The principal access to the highway is provided through a connection with the Illia Highway at the north and another connection with the La Plata-Buenos Aires highway at the south. The inclination of the principal network does not exceed 3%. The inclination of the secondary network does not exceed 4.5%.



7. THE CONSTRUCTION PROCESS

Although the construction of ECBA will require extensive tasks, it does not constitute a difficult challenge in engineering terms since the construction is performed under open air and is resolved in a simple structure.

Basically, ECBA is formed by a box of reinforced concrete composed of an inferior subpression slab (losa de subpresión). The box has the width of the quays, 160 meters, and an interior height of 7 meters. Within the box, 8 X 8 meter columns will support the structure along with 12 X 12 meter columns in the center of the highway. Once the structure is finalized, it will be anchored to the ground in order to warranty no-flotation in adverse circumstances.

The ground at the foundation level is adequate and favorable for the execution of civil works.

The constructive process may be summarized as follows:

- Extraction of contaminated mud from the quays. Execution of perimetral sheetpiling to avoid filtrations and to warranty watertightness in the area.
- Placement of traction anchors. Reinforcement of existing walls to grant stability once the water is removed from the quays.
- Removal of water from quays by automatic pumps.
- Leveling and preparation of grounds. Placement of piles to absorb the pressure of water in its maximum height.
- Construction of inferior subpression slab in pretensed concrete, including pedestrian walkways and rail and subway tunnels, to assure watertightness.
- Construction of the lateral walls, columns and slabs forming the rest of the structure. Construction of ramps and vertical distributors.
- Refilling the quays with water enabling sailing activities.
- Placement of pavement and rail infrastructure. Construction of remaining complementary works.

8. CONCLUSION

ECBA provides an optimum solution for Buenos Aires:

- It provides a genuine intermodal complex for the benefit of the thousands of people that travel to and through the downtown area daily.
- It provides a urban solution in complete harmony with the development of Puerto Madero, and coherent with the objective of integrating north, south, east and west without generating barriers.
- It reduces environmental effects to a minimum. All noise and emissions will be contained and treated prior to their release. The construction will not generate significant perturbations in the surroundings. Furthermore, the water within the quays will be decontaminated.
- Its construction, operation and maintenance do not require economic or financial warranties or subsidies from the national or the city governments.

AUTOPISTA RIBEREÑA BAJO DIQUES

COSTO ESTIMADO DE LAS OBRAS

Valores en dólares estadounidenses al 30 de Mayo de 2006

1.	ESTUDIOS Y PROYECTOS	23.233.637
1.1	Arquitectura y tareas vinculadas	8.450.820
1.2	Ingeniería	14.782.817
1.2.1	Topografía y relevamientos	562590
1.2.2	Ingeniería geotécnica	148960
1.2.3	Hidrografía e ingeniería portuaria	247366,7
1.2.4	Estudios de simulación de tránsito	325850
1.2.5	Estudios de impacto ambiental	846185,9
1.2.6	Ingeniería estructural	3817366
1.2.7	Ingeniería vial	1980370
1.2.8	Ingeniería ferroviaria	992446
1.2.9	Ingeniería eléctrica	1383572,4
1.2.10	Ingeniería sanitaria y contra incendio	1755600
1.2.11	Ingeniería termomecánica	747460
1.2.12	Señalización y seguridad	422940
1.2.13	Control de gases y ruidos	754110
1.2.14	Otros desarrollos de ingeniería	798000
2.	OBRAS EN EL SECTOR DE LOS DIQUES 1 a 4	658.489.981
2.1	Excavaciones y drenajes	
2.1.1	Tablestacado, excavaciones, refulado y bombeo	50.540.000
2.2	Estructuras de hormigón armado	471.559.008
2.2.1	Losa de fondo incluyendo fundaciones	219.603.283
2.2.2	Paredes laterales incluyendo anclajes de tracción	34.640.083
2.2.3	Losas y columnas interiores	47.012.601
2.2.4	Losa de tapa	170.303.042
2.3	Instalaciones y sistemas	75.785.996
2.3.1	Instalaciones eléctricas y de energía	15.742.306
2.3.2	Instalaciones sanitarias y desagües	11.806.729
2.3.3	Instalaciones termomecánicas	8.826.774
2.3.4	Instalaciones contra incendio	15.742.306
2.3.5	Instalaciones de comunicaciones, transmisión de datos, control y seguridad	8.855.047
2.3.6	Instalaciones de ventilación y tratamiento de gases	10.822.835
2.3.7	Otras instalaciones y sistemas	3.990.000
2.4	Obras varias y complementarias	60.604.977
2.4.1	Obras viales	7.098.465
2.4.2	Mamposterías y cerramientos varios	16.068.305
2.4.3	Aislaciones	4.123.000
2.4.4	Terminaciones	9.494.907
2.4.5	Ascensores y sistemas de movimiento mecánico	5.492.900
2.4.6	Carpinterías y herrerías	4.921.000
2.4.7	Señalización horizontal y vertical	3.125.500
2.4.8	Tratamientos acústicos	2.300.900
2.4.9	Obras varias	7.980.000
3.	CABECERAS VIALES	176.131.900
3.1	Cabecera Norte	76.840.750
3.1.1	Túnel a cielo abierto	63.540.750
3.1.2	Iluminación, señalización y seguridad	13.300.000
3.2	Cabecera Sur	99.291.150
3.2.1	Túnel a cielo abierto	26.952.450
3.2.2	Vano de rampa	12.874.400
3.2.3	Viaducto	46.164.300
3.2.4	Iluminación, señalización y seguridad	13.300.000
4.	SUBTOTAL 1+2+3	857.855.518
5.	IVA 21% sobre el 100% de 1	4.879.064
6.	IVA 21% sobre el 50% de 2+3	87.635.298
7.	COSTO TOTAL DE OBRA TURN-KEY 4+5+6+	950.369.879

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CRONOGRAMA DE TAREAS

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Multimodal complex and highway beneath Dock basin

B.A. Central Station

A multimodal passenger transfer complex with unique features for Latin America is to resolve serious traffic flow problems for the city of Buenos Aires. The linking of the Northern and Southern sectors of Buenos Aires, as well as reduction in vehicle traffic within the city itself, are the aims of an ambitious project that has been approved by the national government.



This project, known as the Autopista Ribereña, consists of a highway linking the three principal access routes to the city center: the Illia, Buenos Aires-La Plata and 25 de Mayo highways, passing beneath the dock basins in the renovated port district of Puerto Madero.

The project has been planned for 17 years, although it was only last April that the National Public Works Secretary defined the final line the highway would take – a proposal submitted by the Torcello Group – including the construction and operation of a multimodal central passenger transfer station, as well as parking for 30,000 vehicles.

"This project intends to provi-



de an integrated city planning solution - indicates group president Julio Torcello- as thousands of cars that currently enter the city will remain in the underground car park, with drivers continuing their journeys by underground, minibus or taxi. This will help relieve traffic problems in the city center".

The length to be built of the Autopista Ribereña will total 4,800 meters and will occupy the central strip below the Puerto Madero docks, with three high-speed lanes, two medium-speed lanes and slip roads for intermediate exits in each direction.

Accesses and exits to and from the city will be provided by means of ramps located in the sectors between the basins. Trains currently using the Retiro and Constitución main line terminals, as well as underground trains, will arrive at a multimodal station forming part of the underground complex.

The investment planned is approximately US\$ 600 million, or US\$ 700 million with taxes, and its great advantage is that it will not require subsidies or state guarantees, being entirely carried out using funds from the private sector. According to the proposal, the Group will be responsible for the project and its operation, using financial leasing tools, with significant equity investors and financial loans. The internal rate of return for the investment meets the requirements of the international investor community, on the basis of the exploitation of mass vehicle parking, railroad and underground tolls and the related commercial development which will arise to serve the one million passengers per day that will pass through the great access hall to the city.

The Torcello Group, in association with Metropolitano, will assume the business risk of the undertaking, assisted by the other international corporations that will take part. Metropolitano,

Who's who in the Torcello Group

The company structure that will carry out the project for the highway under the dock basins is headed by the Torcello Group, in association with railroad operator Metropolitano. Also participating are leading international consultants that have developed the design and ensured its financing, as follows:

- **Louis Berger International Inc.** Considered the world's leading consultant in transport engineering and the sixth most important consultant on environmental matters. With its headquarters in East Orange, New Jersey, USA, it has offices in 80 countries, including Argentina. It employs 2,800 professionals and designs 500 projects annually.
- **Jefferies & Co., Inc.** Ranked as one of the leading investment banks specializing in financial engineering in the United States, with its headquarters in Houston, Texas. In the last ten years it has arranged financial transactions for an amount of over US\$ 350 billion.
- **William P. Carey & Co.** One of the world's most successful organizations in the field of real estate investments, financial leasing and issue of private debt. Its presence in 46 US States has established it as a world leader in financial leasing systems.
- **Aseguradora de Créditos y Garantías (ACG).** This company specializes in performance bonds and has a lengthy experience of the Argentine surety market. Its capital was recently acquired by US investment fund Newbridge Latin American.
- **The local staff of Grupo Torcello** participating in the proposal has been led by architect Julio Torcello as general manager, proposal and project manager in charge of the planning, coordination and control of technical and institutional management of the undertaking.

headed by Juan Carlos Loustau Bidaut, has gained the support of several of the world's most important investment funds, which are willing to contribute over US\$ 1.7 billion over 20 years to improve the railroad service, in addition to the US\$ 600 million needed to finance the B.A. Central Station project.

The Torcello Group will be assisted by investment bankers Jefferies & Co. Inc. who will design the financial structure; W.P. Carey & Co. who will issue the private debt and structure the financial leasing, and Louis Berger Int., who will provide assistance on transportation and environmental matters. Aseguradora de Créditos y Garantías and Metropolitano as the railroad operator will provide assistance to the group in developing the project, the building and the equipping of the

necessary works. The project will require the emptying of the basins between docks 1 and 4 of Puerto Madero, currently closed to port use, to be able to carry out the underground construction. Once work has been completed the water surface will be restored to a depth of four meters, allowing use by yachts and other low-draught vessels.

The underground highway will be built with computerized "intelligent" safety and control systems for fire extinguishing, lighting and sign systems. Contaminating exhaust gases must be purified before being expelled into the atmosphere, and the internal sound level will be controlled by means of acoustic paneling. The availability of a subterranean corridor with a width of 160 meters will enable the addition of a rail corridor parallel to

the highway for use by the trains that today arrive at Retiro and Constitución, with five intermediate stations, as well as other rail passenger and freight links, plus a branch of the B line underground railroad with new intermediate stations. The complex will also include commercial and entertainment areas.

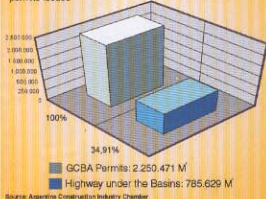
"This solution, far from isolating the Puerto Madero sector – as would have happened in the case of the projects for a raised highway and a tunnel and partial trench solution – will integrate it and turn it into the nerve center of the city, with important city planning and ecological benefits" indicates architect Julio Torcello.

The project received a decisive boost with the issue of a resolution by the Public Works Secretariat, which led to negotiations between the Torcello Group and the original concession-holder for the work, Coviare, which were carried out successfully. The executive design and the detailed legal and financial and economic engineering will require at least 360 days, while the execution of

AREA TO BE CONSTRUCTED (M)

Comparison between city of Buenos Aires permits (1998) and the Highway under the Basins Project

Highway under the Basins Project is equal to 34.91% of the permits issued



the project itself will take 36 months, generating 20,000 direct jobs and 4,000 indirect jobs.

City planning requirements

This project takes into account the great changes that are taking place in the city, and will become one of them. Through the actions of the Corporación Antiguo Puerto Madero the sector has been rapidly recycled, in particular through the recovery of the warehouses located to the west of the docks,

which have been converted into office buildings, residential accommodation and commercial and entertainment developments. An area of old abandoned warehouses has now become one of the most sought-after locations in Buenos Aires, providing a new leisure and attractions center, in spite of still being relatively isolated from the central area of Buenos Aires, with restricted access. The potential for the area is still enormous, as the revamped sector of the docks represents only 22% of the 170 hectares covered by the enterprise.

The recovery of Puerto Madero has brought with it an additional advantage for the inhabitants of Buenos Aires: it has restored access to the river from the center of the city, cut off for many years by the restricted entry port area, and has revitalized the neglected Costanera Sur shoreline.

Nevertheless, the existence of the basins themselves creates two sectors within Puerto Madero that are hard to integrate physically for vehicles and pedestrians: the West sector, where the warehouses have all been recycled, and the East sector which is in the process of being developed. Links are currently restricted to the five crossings that exist at the heads of the basins. Although traffic lanes could be increased, they will always represent a bottleneck.

According to Torcello, the highway beneath the basins will prevent isolating the sector and will in fact contribute to its integration with the rest of the city, becoming the heart of its circulation and movement. "The new urban development projects, such as those for Retiro, the port of Buenos Aires and the former Tandano shipyard, Puerto Madero and the still to be undertaken but very necessary remodeling of the Constitución area, require coor-





minated, integrating actions." As a result, rounds up Torcello, "the highway takes on a relevant role in these projects, becoming a dynamic integration axis, as it will channel the transport links between them."

The design of the project has also considered the future expansion of the Port of Buenos Aires, as it plans for the setting up of a centralized automated control center to coordinate vessel entry and departure, loading and unloading of merchandise and its distribution by truck or train. The aim of this initiative is to have Buenos Aires placed on the list of "secure ports" by international agencies.

Transport needs The project description identifies trends indicating "a potential collapse of the urban road network in the central area of the city and its accesses". The increase in vehicle numbers and growth in the volume of movement mean that the network is becoming gradually more saturated, with the inevitable consequence of increased environmental pollution. The study carried out by the Torcella Group reveals that "some 545,000 cars are entering

the city every day, of which only 10% is through traffic. Some 310,000 cars come into the micro and macro-center of the city."

From these facts it can be seen that the principal objective of the project is not just that the highway should be a mere road link – which would serve just the 10% that is through traffic – but that it should also be conceived as a multimodal transport corridor with transfer centers and ample parking spaces to facilitate crossing over from one means of transport to another, contributing towards a reduction in

vehicle traffic in the center of the city. The project estimates that the central passenger transfer station will handle 700,000 passengers daily.

The proposal also represents a modern approach to protection of the environment. The project does not alter the urban scenery and will treat all pollutants within the tunnel before they are released into the atmosphere.

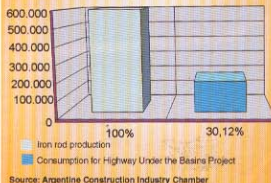
Famed Argentine architect Cesar Pelli, now a US resident and the creator of the 80-floor twin towers in Malaysia which are the world's tallest buildings, has given his opinion on the Torcello project: "The idea of placing the highway under the basins is very interesting – he states – and it would seem to be the most benign solution."

To conclude, architect Julio Torcello affirms that "the national government has taken a historical decision, not only because of the significance of the project selected, but also because of the importance of this turning point in the history of Argentine public works. In short, we can state that the B.A. Central Station project is the only self-financing alternative for the riverside highway which identifies the potential collapse of the city's road and rail systems and resolves the problem in an integrated manner."

Furthermore, the B.A. Central Station "is the undertaking that will epitomize the transformation of Buenos Aires into the "Latin American metropolis", say Torcello. Its central location and the degree of connectivity obtained from the combination of road, rail and underground railway links will enable the development of all the potential of the city center, at the same time as improving the quality of the urban environment; in other words, it will act as the gateway for a new role for Buenos Aires in a globalized world," concludes Torcello. ■

CONSUMPTION OF IRON

Comparison between Production of Iron Rods (1997) and consumption by Highway Under the Basins Project
The Highway Under the Basins Project accounts for 30.12% of iron rod output





COMPANY PROFILE

TORCELLO GROUP was established in 1998 and formed taking the expertise and know how from **TORCELLO & ASSOCIATES**, knowledge acquired developing real states projects. The principal objective of **TORCELLO GROUP** is primarily the development of public project investment in base on private investors, the project stages encompasses the construction, equipment, operation and financing.



The companies and professional groups with which **TORCELLO GROUP** subscribed strategic alliances for several projects are: **Sociedad Bracht S.A.** (Argentina), **Deloitte & Touche**, (Argentina), **The Louis Berger Group** (United States), **Jefferies & Co.** United States), **William P. Carey & Co.** (United States), **Techint** (Argentina), **Impregilo** (Italy), **Autorità Portuale di Genova** (Italy), **Skanska** (Sweden), **Hillwood Development Corporation** (United States), **Promometró** (France), **Siemens** (Germany), **Jan de Nul** (Belgium), **Acindar** (Argentina), y **Loma Negra** (Argentina), among other companies and professionals.



COMPANY PROFILE

TORCELLO GROUP'S strategy is supported by its capacity for gathering skills and expert companies to develop projects investment identified by the Group, working in a collaborative atmosphere in helping our clients bring conceptual ideas to give company management the confidence that a design project involving new technology can be designed, constructed, and operated successfully. The GROUP is integrated by a qualified, experienced professional staff specialized in diverse disciplines, and participated in public works and private projects, in Argentina and abroad. The structure of the group permits responding the requirements of Governments and private sector, utilizing his architectural practice in the following areas:

- . • Strategic Planning.
- . • Urban planning.
- . • Project Investment.
- . • Engineering and Risk Assessment.

TORCELLO GROUP focuses on architectural projects in addition to engineering projects and complementary facilities within the following framework:

- . • Urban development plans.
- . • Architecture and Engineering Design.
- . • Construction administration service, construction monitoring and quality assurance.
- . • Housing strategies; novel use of planning regulation, and urban and architectural codes.
- . • Construction Documents.
- . • Regulatory Compliance.
- . • Technical Due Diligence.

Our **VISION** is to achieve the integration of public source and private funds to finance infrastructure construction, generating the arrangements and guarantees from the participants to facilitate a channel for private investment.



SUMMARY BIOGRAPHY

JULIO TORCELLO was born on 23 February 1948 in Buenos Aires, Argentina. He is graduated as Architect in Buenos Aires University in 1975 and has developed his professional activity for 30 years. As President and Chairman of the Board of TORCELLO GROUP led projects by 15 billion United States dollars, located principally in South America. The details of the projects are the following:

BUENOS AIRES FORUM
PALACE OF JUSTICE - BUENOS AIRES CITY (ARGENTINA)
BUENOS AIRES CENTRAL STATION (ARGENTINA)
BUENOS AIRES AIRPORT (ARGENTINA)
MATANZA · RIACHUELO BASIN DEVELOPMENT (ARGENTINA)
WORLDWIDE NETWORK OF CRUISES (ITALY)
ROUTE AND HIGHWAY SYSTEM (ECUADOR)
BUENOS AIRES PORT CONTAINER TERMINAL (ARGENTINA)
RIVER PLATE FORUM (ARGENTINA)
RIO GRANDE SEAPORT (ARGENTINA)
TIERRA DEL FUEGO PETROCHEMICAL POLE (ARGENTINA)
TIERRA DEL FUEGO CRUISE PORT ((ARGENTINA)
MAR DEL PLATA CRUISE PORT (ARGENTINA)
ESCOBAR INTERNATIONAL AIRPORT (ARGENTINA)
IGUAZU PORT URBAN DEVELOPMENT (ARGENTINA)
NORTHWEST FEDERAL CHANNEL (ARGENTINA)
CROSS BORDER ROUTE - PORTO ALEGRE (BRAZIL) - AGUAS NEGRAS (ARGENTINA) - COQUIMBO (CHILE).
CROSS BORDER ROUTE SAN SEBASTIÁN (CHILE)/TIERRA DEL FUEGO (ARGENTINA)
BULLET TRAIN BETWEEN MAR DEL PLATA AND BUENOS AIRES (ARGENTINA)
RAILWAY BETWEEN BUENOS AIRES AND EZEIZA AIRPORT (ARGENTINA)
SAN JUAN CIVIC CENTER (ARGENTINA)
DEMARCHI ISLAND DEVELOPMENT (ARGENTINA)
YACYRETA HYDROELECTRIC COMPANY (ARGENTINA)
CORPUS HYDROELECTRIC COMPANY (ARGENTINA)



PRINCIPAL PROJECTS

BUENOS AIRES FORUM

TORCELLO GROUP proposes developing an infrastructure and service complex that will be built on 6 platforms of 55 hectares each one and, in a stage later on, a tower of 1000 metres tall and 850.000 square meters.

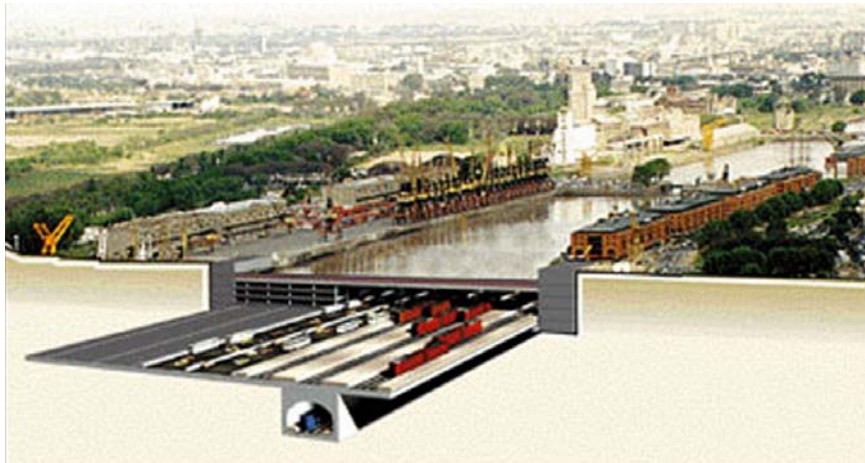


TOWER THROUGH THE SKY



BUENOS AIRES CENTRAL STATION

BUENOS AIRES CENTRAL STATION is a crucial connection for the three major access highways to Buenos Aires City, utilizing the space under the **PUERTO MADERO'S** dykes; furthermore, the project will communicate four urban railway lines, including the extension of a subway line, a park lot for 27.000 cars, and commercial and service areas, it is a multimodal system of transport with a steady stream of one million commuters every day.



BUENOS AIRES AIRPORT

Buenos Aires has an airport within its area called "**AEROPARQUE**", which channels the local and regional flies. The airport is near to the city centre and unfolds a problematic operative level, not fulfilling OACI-complaint. **TORCELLO GROUP** proposes a new airport on an artificial island in the river ("**RIO DE LA PLATA**"), the proposal is based upon the reduced level of depth of the river. The project meets OACI-complaint and enables future extensions in the size of its structure.



WORLDWIDE NETWORK OF CRUISES

The sustained growth in the marine cruises and the need for new destinations and ports led to TORCELLO GROUP to plan a worldwide network of cruises in association with The Port Authority of Genoa (Genova) and the advice of Deloitte and Touche. The central project attractive is the real state business related straight to the terminals. The project includes 20 cruise terminals in several countries within the term of 5 years. The first stage considers the construction of 9 passenger terminals in South America

ROUTE AND HIGHWAY SYSTEM · ECUADOR

The route and highway system was designed for the Republic of Ecuador as result of an invitation to develop an investment project for the Highway Quito-Guayaquil. Torcello Group determined the project as impracticable based upon tolls exclusively, proposing a mix of toll and tax on oil used by means of transport to finance the project. An alternative blueprint was drawn, taking into account a new pattern proposed by Torcello Group, San Francisco de Quito University and Louis Berger Group

RIVER PLATE FORUM

The River Plate Club, is one of the top football clubs in Argentina, is located in a particular, strategic spot in Buenos Aires City that has a high value of real state. Torcello Group proposed developing a private project investment in infrastructure in the area that is not occupied by the football stadium. The project principally consists of a covered stadium with a capacity for 13.000 spectators, a convention center, a university, commercial areas, recreation facilities and a parking lot for 2.000 vehicles; among other things



MATANZA RIACHUELO BASIN DEVELOPMENT

The system Matanza-Riachuelo River is a characteristic water and soil pollution zone and holds a negative environmental assessment, an urban population of 3.5 million is lodged in this area. Torcello Group proposed a master action plan for the recovery of this area of 2.252 square kilometres, which consists in sanitizing the rivers and developing the urban and rural zone.

PALACE OF JUSTICE - BUENOS AIRES

The Palace of Justice project comprises the remodeling and the increase in its actual surface to centralize all judicial activities. The Palace building has classicist architecture. It will be developed a tower over the Palace, which is composed of 42 floors, adding a surface of 150.000 square meters.

PROJECTS DESIGN PERFORMED by TORCELLO GROUP

- **INDUSTRIAL PROJECTS DESIGN**
 - **PETROCHEMICAL COMPLEX: INDUCLOR COMPANY PLANT**
 - PROJECT DESIGN.
 - LOCATION: BAHIA BLANCA – PROVINCE OF BUENOS AIRES - ARGENTINA.
 - EXECUTION PERIOD: 1982-1984
 - SURFACE: 400.000 square meters.
 - **MILK INDUSTRY: "LA SERENISIMA"**
 - PROJECT DESIGN.
 - LOCATION: GENERAL RODRIGUEZ - PROVINCE OF BUENOS AIRES – ARGENTINA.
 - EXECUTION PERIOD: 1983
 - SURFACE: 4.500 square meters.
 - **PHARMACEUTICAL INDUSTRY: SQUIBB LABORATORIES**
 - PROJECT DESIGN.
 - LOCATION: PILAR INDUSTRIAL PARK - PILAR - PROVINCE OF



- BUENOS AIRES, ARGENTINA.
- EXECUTION PERIOD: 1983
- SURFACE: 5.100 square meters.
- **PASA PETROCHEMICAL INDUSTRY: PASA PETROCHEMICAL ARGENTINA**
 - **HEADQUARTERS**
 - REMODELING AND EQUIPMENT.
 - LOCATION: BUENOS AIRES CITY.
 - EXECUTION PERIOD: 1989 – 1990
 - SURFACE: 1.140 square meters.
 - **BRANCH OFFICE SAN MARTIN –**
 - REMODELING AND EQUIPMENT.
 - LOCATION: SAN MARTIN- PROVINCE OF BUENOS AIRES ARGENTINA.
 - EXECUTION PERIOD: 1987 - 1992
 - SURFACE: 1.100 square meters.
 - **LAVALLE BRANCH OFFICE**
 - PROJECT DESIGN.
 - LOCATION: BUENOS AIRES CITY.
 - EXECUTION PERIOD: 1996 1997
 - BUILDING OF 8 LEVELS.
 - SURFACE: 3.300 square meters.
- **URBAN PROJECTS**
 - **UNDERGROUND PARKING GARAGE – “COLON THEATRE” -**
 - PROJECT DESIGN.
 - LOCATION: BUENOS AIRES CITY – ARGENTINA.
 - EXECUTION PERIOD: 1980-1982
 - SURFACE: 23.000 square meters.
 - **BUS TERMINAL - BUENOS AIRES CITY**
 - PROJECT DESIGN
 - EXECUTION PERIOD: 1980 - 1982
 - LOCATION: BUENOS AIRES CITY – ARGENTINA.
 - Surface: 39.000 square meters.



- **"QUILMES HILL"**
 - PROJECT DESIGN.
 - LOCATION: QUILMES - PROVINCE OF BUENOS AIRES ARGENTINA
 - EXECUTION PERIOD: 1997-2001
 - 13 Tower of 12 levels and 448 apartments
 - SURFACE: 35.000 square meters.
- **"GOLF HILL"**
 - PROJECT DESIGN.
 - LOCATION: SAN ANTONIO DE PADUA - PROVINCE OF BUENOS AIRES – ARGENTINA
 - EXECUTION PERIOD: 2000–2002
 - 7 tower of 10 levels and 320 apartments.
 - SURFACE : 25.000 square meters
- **HEALTH CARE DESIGN PROJECTS**
 - **CENTRAL HOSPITAL OF ABIDJÁN, COTE D'IVOIRE, AFRICA**
 - PROJECT DESIGN.
 - LOCATION: ABIDJÁN, COTE D'IVOIRE, AFRICA
 - EXECUTION PERIOD: 1980-1984
 - SURFACE: 53.000 square meters.
 - **HUMBOLT SANATORIUM - BUENOS AIRES**
 - SANATORIUM EXTENSION DESIGN.
 - LOCATION: BUENOS AIRES CITY – ARGENTINA.
 - EXECUTION PERIOD: 1976-77
 - SURFACE: 4.270 square meters.
- **TOURISM SERVICES**
 - **PLAZA HOTEL - BUENOS AIRES**
 - REMODELING.
 - LOCATION: BUENOS AIRES CITY – ARGENTINA.
 - EXECUTION PERIOD: 1987 - 88
 - SURFACE: 660 square meters.
 - **CONTINENTAL HOTEL**
 - REMODELING.
 - EXECUTION PERIOD: 1992
 - LOCATION: BUENOS AIRES CITY – ARGENTINA.
 - SURFACE: 11.950 square meters
 - **AMERICAN EXPRESS TRAVEL RELATED SERVICES**
 - BRANCH OFFICE DESIGN AND EQUIPMENT.
 - EXECUTION PERIOD: 1988
 - LOCATION: BUENOS AIRES CITY – ARGENTINA



- FINANCIAL SERVICES

- **QUILMES BANK**

- PROJECT DESIGN, REMODELING AND EQUIPMENT

- **HEADQUARTERS –**

- REMODELING.
 - LOCATION: BUENOS AIRES CITY – ARGENTINA.
 - EXECUTION PERIOD: 1984

- **BRANCH OFFICES**

- PROJECT DESIGN

- **BARRIO NORTE BRANCH OFFICE**

- LOCATION: BUENOS AIRES CITY – ARGENTINA.
 - EXECUTION PERIOD: 1979 / 1980
 - SURFACE: 960 square meters.

- **TEMPERLEY BRANCH OFFICE**

- LOCATION: TEMPERLEY - PROVINCE OF BUENOS AIRES – ARGENTINA
 - EXECUTION PERIOD: 1982 - 1883
 - SURFACE: 900 square meters.

- **RESISTENCIA BRANCH OFFICE**

- LOCATION: RESISTENCIA CITY - PROVINCE OF CHACO – ARGENTINA.
 - EXECUTION PERIOD: 1986
 - SURFACE: 300 square meters.

- BRANCH OFFICES

- REMODELING

- **QUILMES MAIN BRANCH OFFICE**

- LOCATION: QUILMES - PROVINCE OF BUENOS AIRES – ARGENTINA.
 - EXECUTION PERIOD: 1984 – 1985

- **35 BRANCH OFFICES THROUGHOUT ARGENTINA.**

- EXECUTION PERIOD: 1978 – 1989

- **17 BRANCH OFFICES**

- REMODELING THAT GOES LIVE ATMS PROJECT.
 - EXECUTION PERIOD: 1984