



Processes, urban impact and evaluation of the high-speed rail in the city of Zaragoza, Spain

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Abstract

The city of Zaragoza experienced during the last decade the major urban transformation of its history. Two events made it possible, acting like “leverage effect” through strategic urban projects: the arrival of the high-speed rail in the year 2003 and the celebration of the International Exhibition in 2008. These two events, closely linked, allowed finishing a lot of former urban needs in strategical locations.

The rail infrastructure was a widely debated topic during the development of the General Master Plan, since 1997 to the definitive approval in 2001. This process proved an unexpected public participation, changing the location of the rail station and covering the rail lines.

For the development of the new rail infrastructures and the urban projects relate, in March 2002 was signed an Agreement by the Ministry of Public Works, the Regional Government and the City Council of Zaragoza to create a public company that became the responsible for the management of the urban transformation, that is still working.

The election of Zaragoza as the host city for the Expo 2008 in December 2004 boosted the execution of many infrastructural works and urban projects. But after the event, the real estate and economic crisis impeded the implementation of the post-Expo projects creating a great paralysis that has not been unblocked until today.

The paper analyzes the processes, the management and design of the strategic urban project since the beginning of the twenty-first century, the role of different stakeholders in the process, the urban impact of the built works and the decisions after the real estate crisis in 2008. In the end, it evaluates the limited resilience of the city facing this new scenario and the lack of leadership and capacity to find a way to continue the unfinished projects.

Keywords: *Strategic urban projects, Zaragoza, digital mile, high-speed rail*

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1. Introduction

The city of Zaragoza, in Spain, experienced during the first decade of the 21st century the greatest urban transformation of its history. Two events made it possible, acting as “leverage effect” through strategic urban projects: the arrival of the high-speed rail in the year 2003 and the celebration of the International Exhibition about Water and Sustainable Development, in the year 2008.



Fig 2. Delicias Intermodal Station and the Expo 2008 site by night. Source: ZAV

Zaragoza is the fifth biggest city of Spain with an estimated population of 661.108 inhabitants in the year 2016 (1), behind Madrid, Barcelona, Valencia and Seville. It is located in the northwest part of the country, in the river Ebro valley, with a similar distance from Madrid, Barcelona, Valencia and Bilbao. It is at the halfway point between Madrid and Barcelona - 312 km to Madrid and 306 km to Barcelona-, thus becoming the main stop between the two cities.



Fig 2. Location of Zaragoza and time distances on High-speed train. Source: ZAV

2. The arrival of HSR seen as an opportunity for the city

In the mid-nineties the city looked enviously how other Spanish cities celebrated great events involving major urban transformations. Barcelona hosted the Olympic Games in 1992 achieving a renowned urban renewal and Seville hosted the World Exhibition in the same year. The Expo in Seville did not imply as ambitious urban renewal as the one in Barcelona, but served to improve the infrastructural level of the city. In October 1993 construction works also had started in Bilbao on Guggenheim Museum, finishing in October 1997 (2).

In this context, the arrival of the high-speed train generated in Zaragoza a new level of expectation for a depressed city. It was seen as the opportunity to pursuing a qualitative urban, social and economic growth and to finish some desired infrastructures. It also generated a new public concern about the urban issues much broader than previously.

The first HSR line in Spain was inaugurated in the year 1992 from Madrid to Seville on the occasion of the World Exhibition. In the year 1994, the National Plan of Infrastructures gave priority to the HSR line Madrid-Barcelona until the French frontier and, in the route, Zaragoza stood as the main stop between the two cities. Due to the economic recession since 1993, the pace of construction slowed, which allowed to Zaragoza rethinking about the urban integration of the rail infrastructure across the city.

3. The railway infrastructure in the city

The first train in history arrived to Zaragoza in September 1861 from Barcelona, according to Lezáun (2011). The first station was located in the northern shore of the river Ebro. This station was called Arrabal, because of the name of the neighborhood. Two years later, in 1863, the city was also connected to Madrid. The two lines were operated by two different companies, so the company of the Madrid line, MZA, built another station in the southwestern outskirts of the city, finished in 1864. This station was located in El Portillo area, what means “little door” and it was referred to one of the city entrances. These two lines were connected by a bridge across the Ebro River in the Almozara area. The following years more stations were built, such as the Delicias station, in the west and Utrillas, in the eastern part.



Fig 3. Plan of Zaragoza in the year 1869. The train arriving in the southwest periphery of the city, in El Portillo area. Source: Official College of Architects of Aragón

Most of the rail infrastructures were built in the western area, such as a goods station, railway tracks and a garage for repairing and parking locomotives. The city grew through the years and the railways were surrounded by housing, from west to east. A concern about the rails crossing the city kept growing. During the 1960s those tracks were buried. In 1973 a new modern station was built in Portillo and, at the end of the decade, a new highway was built next to the rail line, setting a significant separation between two neighborhoods, Delicias to the north and Almozara to the south. This scar already existed in the end of the 20th century.

4. The Master Plan of Zaragoza or *Plan General* in 1986

The Master Plan of Zaragoza, called *Plan General*, had been approved in the year 1986. This plan was similar to contemporary others such as the Master Plan of Madrid, released in 1985 or the Master Plan of Seville in 1987. These plans were more focused in the urban regeneration of the historic quarters and in the morphological aspects of the city.



Fig 4. Map of Zaragoza in the year 1965. Source: Official College of Architects of Aragón



Fig 5. The process of tunneling the railway across the city, 1970s. Source: Flickr.com



Fig 6. Aerial view of El Portillo area in 1998. Source: Heraldos.es

They reflected the influence of theories which considered the “urban project” as the ideal way to solve the problems of the city planning, as told by Sainz Gutiérrez (2006). These theories emerged in Italy since the 1950s and 1960s (Rogers 1953, Aymonino, Rossi 1966) and were developed in France since the 1970s and 1980s (Huet, 1974, Panerai and Mangin, 1999).

The plans of the 1980s were the first ones in the era of democracy and they were very ambitious. According to Leira (1993), the City Councils turned their efforts and illusion in the General Town Planning thinking that the document was going to solve all the city problems. These plans posed the general strategy of the city evolution and the vision of the future, growth developing a high grade of detail in any intervention, including the urban design of the inner-city areas.

The Zaragoza planning was not as ambitious as others in the aspects of urban and architectural definition, but coincided with the concerns about the degradation of old town, the needing of social housing and a balanced disposal of public facilities. As Manuel Ramos, author of the plan, noted in 1993, the plan had not in account the relationship of the city in the territory, it was more restrictive than proactive, and it was more focused in the restoration and conservation than in the city future. But, in contrast of this concern about the architectural aspects of urban form, the plan opted for just matching different areas to different regulations, in a clear zoning strategy, less flexible and defined than expected.



Fig 7. Zaragoza Master Plan of 1986. Urban planning qualification of the city center and the rail infrastructures.
Source: Own elaboration from the data provided by Zaragoza City Planning Department.

5. The review of the General Plan from 1992 to 1996

In October 1992, different politic parties thought that the socioeconomic, cultural and strategic conditions of the city and society were changing and the current Master Plan was not able to solve this situation. So, they agreed to start the review of the General Plan. Although the official reason for a new plan was to define and generate the development of the city future, the reality was that the city was suffering an urban expansion and it was necessary to classify more land for urbanizing. Also, it was necessary to find ways to achieve a greater and better economic growth.

In November 1992 the City Council held an urban seminar to talk about the possibilities and needs of the new plan. Leira (1993), author of the Master Plan of Madrid in 1985, told that the new plan should be more strategic and more selective. It should prioritize the aims for the future and this capacity should be transformed into a few objectives, but very clear



and selected, because of the scarcity of resources, not only economic but of mobilization capacity and organization. He thought it was necessary to organize physically the future of great cities in a constrained group of integrated actions that allow us to concentrate the efforts in some concrete points that are the strategic lines for the city evolution. The small actions or isolated buildings are also necessary for the city transformation, considering the induced effects that strategic actions could generate in the intermediate and mediate environment.

Ramos told, also in 1993, that cities play a key role in the attraction of development and that it is impossible to attend all the aspects of the city at the same time. So, the strategy of city transformation should be selective and concentrate in actions and pieces capable of generating that transformation. He remarked the need of an “urbanism of action” against the “urbanism of paper”, and the need of more flexibility in planning to give responses to a changing environment.

In March 1996, the municipal plenary meeting agreed to create the Revision Office for the City Master Plan. In November, a first document was drafted and sent to media, professional bodies and business entities, holding public meetings with different neighborhood associations during January and February 1997.

6. Public participation as a key factor to the strategical integration of the rail land in 1997

The first draft of the revision was criticized by some public collectives, such as political parties, neighborhood associations, professional Colleges of Engineers and Architects, etc., which questioned some for the proposals developed by the City Planning Department. The draft was ambiguous about the HSR, the rail infrastructure and its urban integration. In the meantime, the construction works of the HSR line from Madrid had started.

In the city, a deep and broad public debate started about how to take profit of the arrival of the HSR, about the urban integration of the rail land and the best way of implementation. One of the main requests was burying the railway across the city center. At that time the rails ran on the surface creating an urban scar between the two neighborhoods of Almozara, south from the rails, and Delicias, north from the rails. The College of Architects was particularly critical with the extremely regulatory approach and the lack of urban projects without strategic vision and priorities. The highest point of the debate was in July 1997, led by Neighborhood Associations and the College of Architects (Monclús, 2006).

The planning draft provided to put the new HSR station in the same location of the former station, in El Portillo area. After the first comments about the area the City planners agreed the need of burying the rail tracks but they considered crucial to maintain the station in a central location. With these suggestions, and many others, the first Advance of the Master Plan was launched on October 1997.

7. The first Advance of the Zaragoza Master Plan

The Advance of the Master Plan was submitted for public consultation in October 1997. Many allegations were made about the railway infrastructure and the arrival of the HSR. According to the Annex 1 of the Master Plan memory, some political parties, such as Chunta Aragonesista, proposed to locate the new station next to the airport. Others, like Nueva Izquierda, suggested putting the station in the Avenue of Navarre, western part of the city, where there was space and the railway goods infrastructure. The College of Engineers and the Business Association claimed to maintain the station of El Portillo.

Although there were many different opinions referred to the station location, a consensus rose about burying the rail line across the city, improving the pedestrian connection of the two neighborhoods. The College of Architects proposed to remove the railway infrastructure in Delicias and relocate all of them in the new logistic platform called PLAZA, located in the periphery and next to the highway and the airport.

The Office for the Master Plan Revision reported in April 1998 that the station should stay in El Portillo area to provide direct access to the city center for the HSR travelers, reinforcing the role of Zaragoza as a nodal point of the line. The location in Avenida de Navarra allowed to create a new public and central space in El Portillo, but moved the station one kilometer away the center. For the City planners, the central location of the new HSR was a priority.

The Advance proposed to formalize an Agreement with the National Administration for the removal in different phases of the railway infrastructure and the urban planning of the land released of the rail uses to create a new area of centrality in El Portillo area and surroundings, emphasized by the burying of the rail line and new station tracks. About to lower the tracks the plan suggested asking for a consulting to decide the best way to solve the question.

8. The Advance of the Master Plan of Zaragoza in 1998. A strategic change

In September 1998, the Advance was approved. In this document the City decided to fix the location of the Intermodal Station in the western part of the railway land, in Avenue of Navarre. The new building was going to be a totally new station next to the small existing one and, at the same time, the rail line would be buried across El Portillo area. This decision was made, apparently, after realizing the technical difficulties of lowering the tracks level.

Luisa Fernanda Rudi, the mayor of Zaragoza at that time, was reluctant to bury the tracks because of the cost. Due to public pressure, she dealt with the Ministry of Public Works agreeing to make a false tunnel covering the rails and changing the location of the HSR station. This decision allowed killing two birds with one stone. On one side, the city could close the urban scar tunneling the rail and please citizens. This option also allowed building the station while maintaining the rail services. On the other side, it was possible to reclassify land to make the operation more profitable, supporting the speculative operation with technical reasons.

The main goal of the operation was now to leverage the relocation to develop a vast new area of centrality since El Portillo, like a hinge between the Centre and Delicias. The new station was conceived as an intermodal centre that included the HSR, the commuter train, and intercity buses, also well connected to public transport lines. The pedestrian accessibility between the two neighborhoods of Almozara and Delicias should be a must. The document also cited that "the new intermodal centre should have a high grade of representation due to its catalyst function of the urban transformation."

El Portillo area was now liberated of any rail infrastructure and had the possibility to create a large public space with different uses. The urban transformation should also transform the existing highway in a new urban avenue allowing the pedestrian level crossing and creating multiple transversal connections between the two neighborhoods. The urban design should be defined in further detailed urban projects.



Fig 8. Aerial view from Zaragoza in 2001. Strategic decision.
Source: Own elaboration from the data provided by Google Earth.

The Advance included the new strategic approaches establishing two main strategic operations in the city, operations capable to transform the current structure of the city. Opportunities based in realizations in a short and medium term, with implementation projects involving the territory. These two operations were the rail area in Delicias and Portillo, including the new Intermodal Station and the railway land in Avenue of Navarra, based on the arrival of the HSR to Zaragoza, and the urban transformation appeared in El Portillo with the disappearance of the former rail station. The other main strategic area was the River Ebro waterfronts. These two areas are in the limits of the old town, so both complemented the Integral Plan of the Historic Casco.

9. The Master Plan of 2001

The Plan was definitively approved in June 2001. Regarding to the rail soil, the plan maintained the decisions made in the Advance of 1998, defining the parameters of development of the area, separating the railway land in two main areas of urban renovation, whereby urban planning should be defined by a previous Agreement between the three Administrations. These areas were named Areas of Agreement: AC-19 in Portillo and AC-44, including the new station, in a huge area between the neighborhoods of Almozara and Delicias.



Fig 9. The two areas of Agreement in the definitive Master Plan of 2001: AC-19 in El Portillo and AC-44- in Delicias area.
Source: Own elaboration from the data provided by Zaragoza City Planning Department.



Fig 10. Zoning from the 2001 Master Plan, with the relative position of the renewal area. two areas of Agreement in the definitive Master Plan of 2001: AC-19 in El Portillo and AC-44- in Delicias area.
Source: Zaragoza City Planning Department.



10. Strategic plan of Zaragoza in 1998

In May 1994 it is created Ebropolis, a new Association for the Strategic Development of Zaragoza and its metropolitan area. It was funded by the main agents of the city: Administrations, University, the Chamber of Commerce, the Federation of Neighborhoods Association, Local banks and labor unions, among others.

In its foundation Ebropolis (4) emphasizes in articulating public and private interests, and the convenience of a joint action to drive in an adequate way economic and financial resources for the projects that the citizens of Zaragoza demand to achieve an attractive city to live and appropriate city to invest.

The main objective of the Association was to elaborate the first Strategic Plan of the City. The first Strategic Plan was delivered in July 1998. Summarizing, the main goals for the city were:

- Improvement and integration of the infrastructures in the territory
- Implementation of an intermodal center in the new railway station, including bus and commuter train
- Creation of a logistics center of transportation
- Boosting Zaragoza knowledge economy

So, the important questions for the city were similar to the described in the Master Plan, referring to a more economic than spatial approach. Just like other strategic plans, this one was ambitious and covered a broad spectrum or the main issues for the city, but the conclusions were general, needing more concretion and spatial definition through urban projects.

11. Intermodal Station of Delicias

In the meantime, the works of the HSR line had started and also the steps to build the new Station. In July 1999 GIF, state company manager of the railway infrastructure, put out to public tender a restricted competition for the design of the new station, in two phases. GIF proposed a new concept of railway station, inspired in the airport operations, with two different areas, separating arrivals from departures. Another condition was that HSR trains should be completely inside the building. The station should include some different uses, such as a business center, hotels, and retail and leisure areas. The design should provide space also for a Railway Museum.

The competition had several entries but only seven passed to the second phase. Two of the final proposals clearly highlighted. Ricardo Bofill designed a big curved glass roof, oval shaped, that involved the whole building. The proposal also planned the surroundings of the area and drew a main pedestrian connection to the Palace of La Aljaferia, current Regional Parliament. This project gave to the city most of that it was looking for: a symbolic and representative building, an icon. Soon it took the favor of politics, mayor Rudi included, but most people also warned about the problems that a glassed roof and façade could produce in the extreme weather of Zaragoza, especially in summer. There was also a concern in the National Rail Manager about the cost of construction and maintenance of the building.

There was another project that was not so spectacular but that fulfilled the conditions of the competition. It was also some kind of iconic but more functional and it was clearly cheaper. The team led by the architect Carlos Ferrater (the team included the architects José María

Valero and Félix Arranz, the Engineering Proyectos Civiles y tecnológicos S.A. and Rhein Consult GmbH-Spieker GmbH & Co). Also there was an architect of the city in the team, Valero, which was another value for the local representatives.

There was an institutional hurry about arriving in time to the opening of the line. In January 2000 the project was awarded to the team headed by Ferrater and started a quick process.

The project was redacted in a few months. In July, the project was approved. In August was launched the bidding process for the construction and in December started the first phase works. In June 2001 was launched the tender for the second phase, including the building of the station starting that phase in September 2001. So, while the city was dealing with the process and approval of the Master Plan, the station was being built.



Fig 11 and 12. Model and urban project in the Bofill´s proposal for the Intermodal Station competition.

Source: ricardobofill. es.

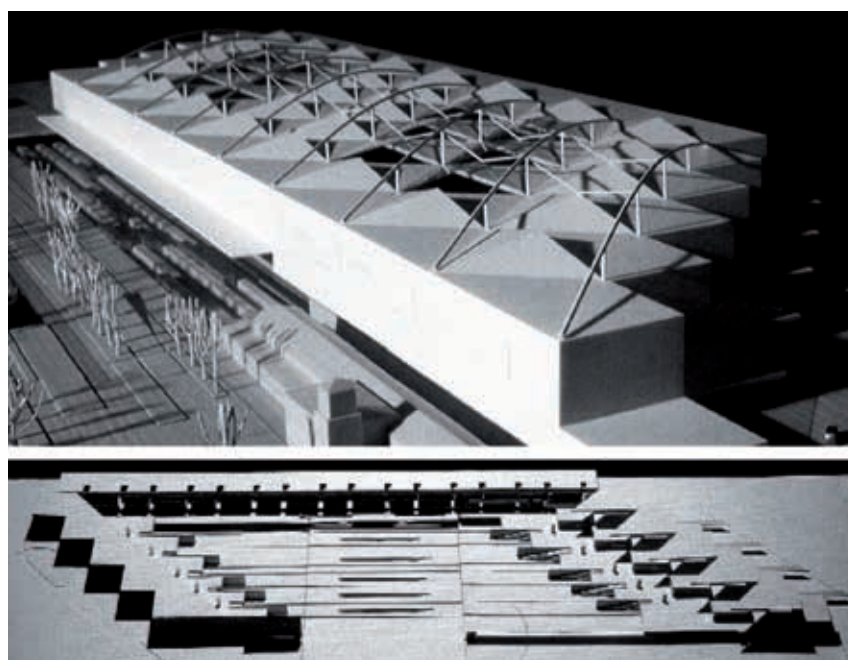


Fig 13 and 14. Model and inner space in the Ferrater´s proposal for the Intermodal Station competition.

Source: GIF and ZAV.



The construction was in a hurry because of the institutional commitment to have the line working before the elections in March 2004. The HSR line Madrid-Lleida was inaugurated in October 2003, with a main stop in Zaragoza.

The station was a huge building covering a surface of 130.000 square meters, with an inner space of 600 meters long and 180 meters wide and an inner height of 21 meters. The total cost of the station was of 110 million euros. In the rush to have the HSR trains operating some parts of the building were not finished. The building had operating only one of the two entrance lobbies, the one intended for departures. Neither were finished the hotels, offices, the Rail Museum and the Bus Central Station.

The building received some prizes, as the FAD Prize of Architecture in 2004 and the Brunel Prize in 2005. But soon have several critics from the public. The position of the tunnel matched with the dominant wind direction making the interior very cold. The cost of putting the climate system in the huge inner space discouraged ADIF, the new name of the state managing company, of implementing the installation.

But the part that suffered more by the stresses for finishing were the urban surroundings of the station. Also one access to the building was provided, from the Avenue of Navarre. In the parking, of two floors and 1.200 parking spaces, in a huge space between the station and the Avenue of Navarra, the roof was finished with the waterproofing layer, giving an unpleasant landscape in the area. The rest of the existing rail and road infrastructures were neither removed.



Fig 15. Delicias Intermodal Station environment in the year 2006. Source: ZAV.



Fig 16. Aerial view of the rail land area and the Expo site in progress, 2006. Source: ZAV.

12. The Expo project

During the election campaign of May 1999, the Socialist Party brought to light the celebration in the city of an International Exhibition in the north bank of the river Ebro for the year 2008. The idea came from the architect Carlos Miret who joined in the campaign. The location was in the northwestern bank, locating the pavilions nest to river. The main reference was the exhibition in Lisbon 1998, leveraging the riverfront location to regenerate the whole area.

The Socialist Party lost the elections but, according to Miret (2007) to expand the desire of the Expo, he created the Cultural Association Zaragoza Expo 2008. The project had a remarkable acceptance in the city and soon began to gain political supports. The mayor of the City, Rudi, was named President of the National Parliament in March 2000. The new conservative Mayor, José Atarés, was not very convinced about the Expo project but neither opposed.

The continuous development of the project and the increasing public support achieved a political consensus to gain the bid. The project was sent to Madrid to gain support of the National Government. The candidacy was hardly developed and in December 2004, Zaragoza won the celebration of the International Expo against Trieste and Thessaloniki. Then started an accelerated process to convert the Ranillas meander and to use this event for a broader scope.



Fig 17. The Expo site, Water Park and Ebro riverfronts in 2008. Source: ZAV.

13. Agreement between Administrations: Zaragoza Alta Velocidad 2002, S.A

Since 1998 there had been several contacts between the different administrations about the urban integration of the rail land in the city. The main issues have been agreed in previous years but there was needed the agent to implement the operation. In February 2002 was signed an Agreement between three institutions: The Ministry of Public Works, the Regional Government and the City Council. The administrations signed in the Agreement (5) that they were conscious about the centrality of the areas concerned which allowed obtaining capital gains once the land was reclassified with buildable uses. They pretend reinvest those economic benefits in the implementation of urban and infrastructural works. These actions could be listed in:

- Reposition of the existing railway infrastructures
- Integration of the new rail network in the local environment and landscape.
- Urban transformation of the soil land that abandon their railway system.
- Implementation of the road system that complement the former actions giving service the new railway network.

The total investment projected in 2002 was 414 million Euros. In 2006, the projection raised to 1 billion Euros. In the year 2016, the total investment realized were almost 600 million Euros, and the pending works for urbanization and rail works transfer. To reach these goals, the three Administrations agreed creating a society to facilitate the coordination of the railway works and to promote the urban transformation derived from the changes in the rail system. The society was created in June 2002 with the name of Zaragoza Alta Velocidad 2002, S.A. (ZAV from now on), that could be translated as Zaragoza High Speed. The main tasks of the society were:

- Developing urban proposals for the land transformation.
- Hiring, execution and payment of the different works
- Selling the new parcels and buildable surfaces derived from the planning implementation.

The first duties for the society were to define the urban planning for the requalification of the area and to hire the contracts for the relocation of the railway framework to the logistic platform PLAZA, nearby the airport. This new area included a new goods station, facilities for repairing trains and train depots.



Fig 18. The relocation of the rail platform infrastructure next logistic platform PLAZA and the airport. Source: ZAV.

14. Urban planning in Portillo area, AC-19.

The process of urban planning was not easy for the society from the beginning. The City planning department had their own ideas for the area and wanted to remain its criteria. The department raised a verbal agreement with the Society; the society would define the planning for the Delicias area and the City Council would define the Portillo area. Both entities would accept the other's design.

Among the whole area, the most strategically area was Portillo. Located in the centre of the city was relevant to define correctly the urban design elements. The uses provided in this place were mainly public facilities and a big park, called to be the central park of the city.

To define the area there had been a public competition in the year 1999. This competition was won by a local team of various architects: Franco-Pemán and Cerouno Architects. The main idea of the project was to dispose the buildings linearly next to city center, liberating the central part for a generous green space. There was an elliptical tower in the southern area, as an iconic element. The tower was ninety meters high for tertiary or hotel uses. Residential uses, around 700 housing, were displayed in different peripheral parts. City planning department liked the project but there was disagreement with the winner team, mainly economic, and the design was not developed.

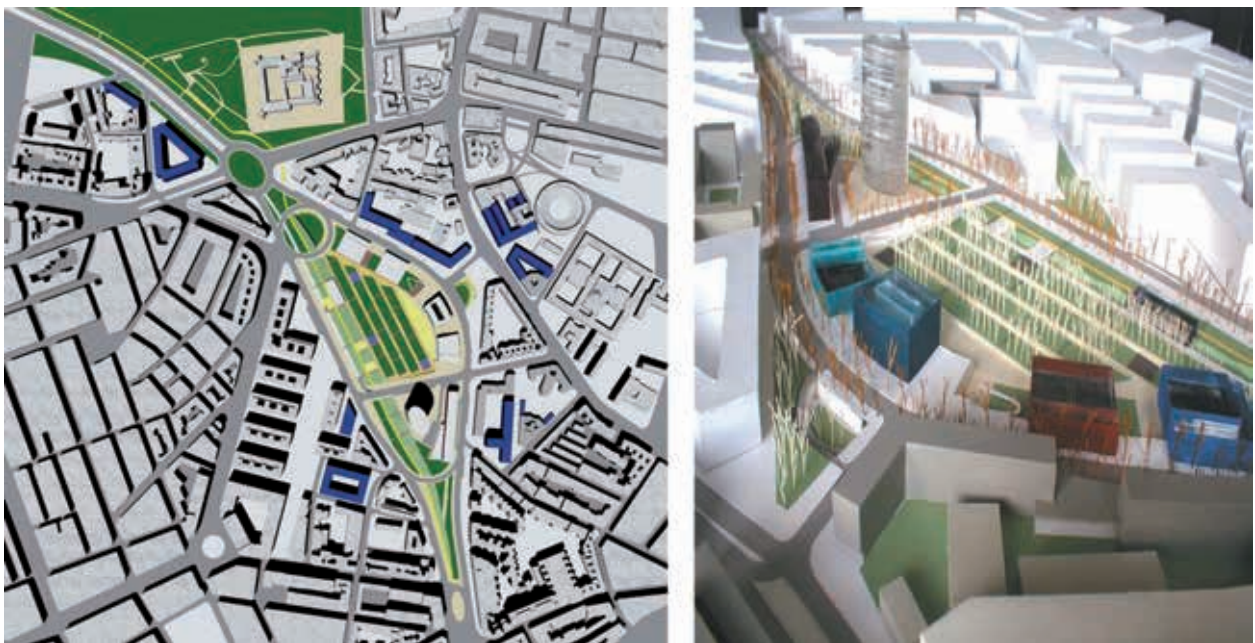


Fig 19. Winning proposal in 1999 by Franco-Pemán and Cerouno. Source: Pablo de la Cal.

City planning department developed the Master plan for the area in 2003, taking the winner proposal as a base, but changing some questions. The tower was moved to the northern part, because there was more space for a high-rise building and could act more as an iconic image from the entrance of the city. The height of the tower was also reduced, from 90 meters high to only 20 floors and an estimated height of 70 meters for not doing too significant in the skyline. The uses were also changed. The residential uses were erased and the tower for tertiary uses was the only building with lucrative uses. Three parcels for public facilities were disposed in the border of the area with Anselmo Clavé Street, in the Eastern part, providing a big green area in the central part of the area.

The plan was finished in December 2003, but the Delicias area was just beginning to define urban planning and the City Planning Department preferred to wait to the other area's design.

The plan had to wait more than a year to be published. In that period of time there was a major change, including a residential building in the southern part for 220 dwellings, as a result of political agreements to include some more works inside the ZAV Agreement.



Fig 20. Aerial view of El Portillo area in 2002.

Source: ZAV.



Fig 21. Master Plan of El Portillo, G-19-1 area, in 2005 by Zaragoza City Planning Department.

Source: City Planning Department.

15. Urban planning in Delicias area, AC-44.

ZAV launched in April 2003 the competition of the Master Plan in Delicias area, AC-44. The main objectives of the design were removing the infrastructural barriers between the two neighborhoods of Almozara and Delicias, solving the existing differences in ground level, giving priority to pedestrian and public transports, creating a relationship between the urban and natural environment, developing a mixed-uses area, displaying public facilities to the needs of citizens in different levels, quality architecture, materials with energetic efficiency and new urban infrastructures, such as subterranean technical galleries and automated waste collection.

Several teams presented offers and in September 2003 the competition was won by a Spanish multidisciplinary team with local representation called Entorno 3. The team was composed by IDOM Engineering and several local architects, such as Julio Clúa and Manuel Castillo, with the collaboration of Javier Monclús, among others.

The team tried a new method of public participation and the exposure of first drafts had more than one hundred proposals. In the meantime, this area and the Agreement as a whole was used as a political tool and the way for funding some other works and infrastructures in the city as, for example, a new subway line. Then it started a political discussion between the representatives of different ZAV partners, which delayed the progress of the project. At last, near November 2004 the partners reached an agreement about the external and financial issues of the development. One of the terms was to increase the density of the area through residential uses.



Fig 22. Aerial view of Delicias area in 2001-2002.
Source: ZAV.

The team could finish the design, including the new conditions and the more than hundred suggestions that had been received during the design process. But in April 2005, when ZAV showed the design to local technicians and to the press, there was a quite surprise. The city planning department did not like the design and neither the Neighborhood Associations of Delicias and Almozara. Both, municipals and neighbors considered that there was too much residential density near their neighborhoods and there was a lack of public spaces between the new areas. For the city planning department there was not bioclimatic solutions in urban design. The worst feeling was the major infrastructural role in the design without a pedestrian point of view. The plan was considered too expensive, with no real needs. It provided a new exit road tunnel from Portillo. Also, the western area had a very complicated grid which made difficult urbanizing and building the different blocks. The locals were also against the street of only one direction, putting all the entrance to the city in the old Avenue of Navarra, needed of an urgent renovation, and putting all the exit way on a new road, onto the buried rail tracks.

City planning managers started in a secret way to prepare their own proposal, drawn in a few days. The City plan had a more traditional grid in the western part, avoiding huge infrastructures and high-rise buildings near inhabited areas. The proposal provided a huge park in the area between the two neighborhoods and erased some towers in front of the intermodal station, next to Avenue of Navarre. ZAV did not accept the local plan and it was enraged with the Planning Department. The winning team had been working for more than a year and a half and the municipals pretended to do radical changes in few days. So, it started a fight that moved up to the local press and political level.

Timing for the Expo 2008 forced a political and technical agreement. The final design took elements from both plans. The buildings in front of the Almozara neighborhood were removed and in this place, was created an equipped park. The plan incorporated several environmental considerations in the final draft. The road tunnel and the elevated road at the entrance of the city stayed. After some argues with the team, some of whom resigned, the master plan was approved definitively in February 2006. The urbanization project had started and there was almost no time to finish the works needed for the Expo.



Fig 23. Master Plan of Delicias, G-44-2. area, in 2005 by Entorno 3. Source: ZAV.



Fig 24. Changes in planning after the agreement. Master Plan by ZAV. Source: ZAV.

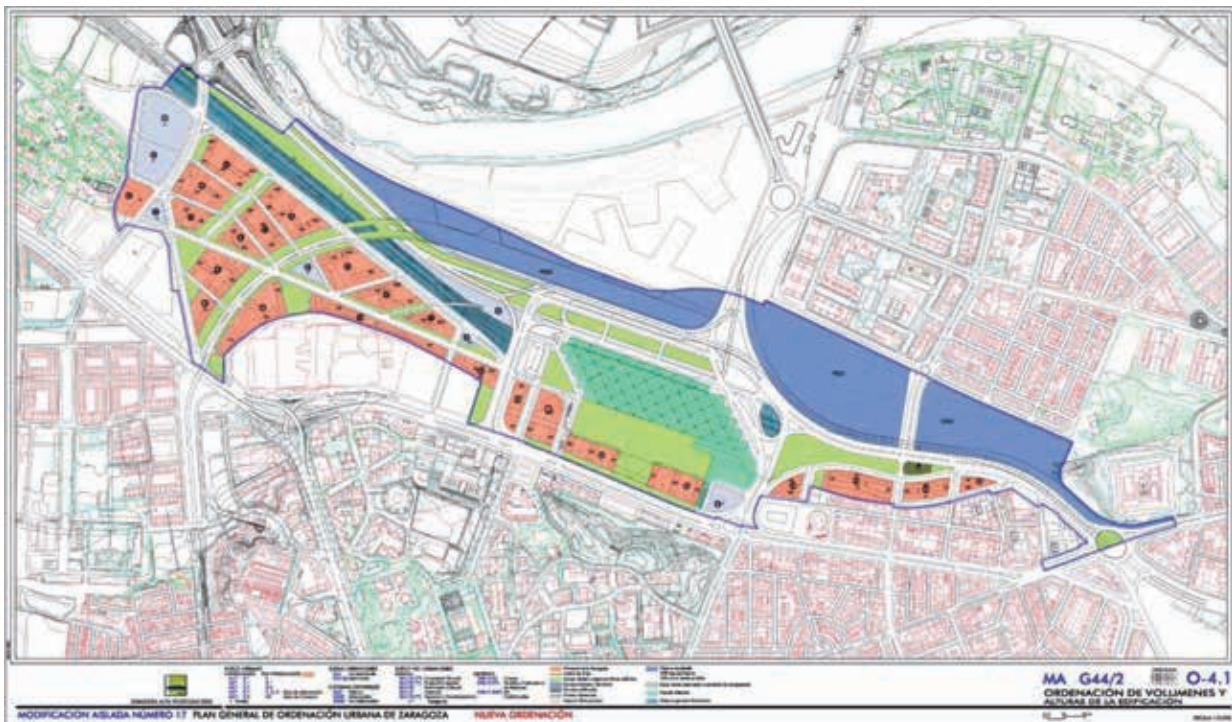


Fig 25. Zoning in the definitive Master Plan in G-44-2 area. Source: ZAV.

16. Digital Mile

The Mayor Juan Alberto Belloch and this Office were trying to improve the knowledge society in the city. This was also one of the mandates of the first strategic plan. During the year 2004, the City hired McKinsey consulting to this search. After meetings with different agents, the company concluded that the best location to develop a new district of urban innovation was the former railway land of the city, the Portillo and Delicias areas. Then they prepared a Director Plan of Digital Mile to implement an urban district innovation.

The City Council hired MIT School of Architecture and Planning for the development of the urban project. One of the main ideas was the creation of a Digital Campus with two nodes: The Center for Art and Technology in Delicias and the Media Library in Portillo. The idea was to dispose one public facility in each side of the Digital Mile to create synergies.



Fig 26. Concept of Digital Campus and publication by Frenchman and Mitchell from MIT School of Architecture and Planning. Source: City Council.

Digital Mile was conceived as a digital district, a district of innovation, an urban area focused in the development of the digital infrastructure knowledge society. According to Fernández-Ges (2017), a digital district is an area focused in activities related to ICTs and knowledge economy but it is not a technological park. It is designed as a city: a place to live, to work and to learn 24 hours a day, seven days a week. The main aim of a digital district is making an innovative and sustainable city. Some examples of urban projects conceived as digital districts are Arabianranta in Helsinki; 22@ in Barcelona, or Orestad, in Copenhagen.

Neither ZAV and the City Planning Department embraced the idea of a Digital Mile. ZAV was more interested in urbanizing and selling plots, and these concepts signified more conditions to urban design and more difficulties to sell parcels. For the City Planning Department this concept was more about urban marketing and it was far from their urbanistic ideas. The weak relationship between the two Offices did not help to include easily these concepts in urban planning.

The Mayor's Office finally forced to include these concepts in the G-44-2 regulations, related to digital infrastructure, home automation and the two digital public facilities. The City Council built years later the Center for Art and Technology, but with the change of local government in

2015 and the economic crisis, the rest of the Digital Mile project has not been yet developed and it does not seem that this project will happen.



Fig 27. Display of uses and public facilities in Digital Mile. Source: City Council.

17. Selling the first real estate plot

To sell the first parcel was necessary to change the planning of the area, extracting one parcel and classifying as a urban soil. Once separated from the area AC-44, the parcel could be sold. Selling this first parcel was crucial to make possible the operation to start. A bid was launched in January 2006. In this first competition, the real estate developers were asked to make an economic offer and an architectural design, being more valuable the economic offer, although the design proposed should have a minimum quality.

The parcel had 285 dwellings and a flexible design that could reach thirty floors. It was sold by 82 million Euros, the highest price paid ever in the city. to NOZAR, a national real estate company. There was another offer with a higher rated architectural design, but the price difference with the second bid was unbeatable. Nevertheless, the winning tower was very elegant with good quality design.

The neighborhood became worried with the danger of gentrification accusing the administrations and ZAV to be speculative with the public land. Nevertheless, this situation encouraged to the administrative entities to develop more works and infrastructures.

To build the design was necessary to do a special plan regulating the architectural volumes and urbanization of the area. The administrative procedures took a long time to be approved and when the company was able to get the license the economic crisis had arrived and the company could not start building.

18. Urban development works

The first urbanization works in the two areas started in January 2007. The delays in the process of urban planning collided with the real difficulty of finishing in time for the Expo 2008. In the hurry to complete the works needed for the inauguration, in June 2008, the huge site was divided in several phases. For the City Council, the critical works were the entrance to the city, the new elevated highway and the completion of the third ring road of the city, just in front of the departures side next to the intermodal station, because this road were the connection to Expo site.



Fig 28. Winning proposal from Nozar with B. Tobías in Avenue of Navarre area. Source: ZAV.

During that year and a half, the society dealt with 25 different actions at the same time and finished works for a total amount of more than 500 million Euros. The impossibility of developing the total surface of the area led to leave after the Expo the parts not needed during the exhibition. So, like the mentioned case of the Intermodal Station building, the urbanization of the areas was not totally finished, giving a precarious image in some parts.

The expenditures of ZAV during this period were substantially higher than the money provided by the first parcel. The society could not sell more parcels, in the administrative process of rezoning. So, it had to ask for a loan of 400 million Euros that was going to pay when they could sell the remaining plots.



Fig 29. Works at Portillo and Delicias areas in 2008, during the Exhibition. Source: ZAV.

19. Expo site after the 2008 exhibition

The International Exhibition was held from 14th June to 14th September 2008. The event had less national and international impact that foreseen with only 5,6 million visitors when it was foreseen to have more than 7 million visitors.

But the event had a deep impact in the proud and illusion of the citizens. Many people thought that the city was not going be able to handle such an event, but it could, for the first time in its history. The Expo showed to the people of Zaragoza that it could be possible. This feeling could be checked in the comments and press of those days.

Expo and the Accompanying Plan, that coordinated many of the collateral actions brought a lot of works and infrastructures that the city was waiting for years, such as the river banks of the Ebro, the Green Ring, the third and fourth road rings, a new airport and and the first commuter train line, among others.

The city had a plan for the day after, but just one day after the Expo finished, Lehman Brothers announced their bankruptcy and started the economic crisis. All the projects and works planned after the Expo were paralyzed. The city had a great credit debt for their percentage in the Expo works and it was not capable to execute new actions.

Expo site were planned to be a business park, being a part of the new CBD of the city, together with the Digital Mile. But the park sold very few offices and had to change the scheduled uses. The National Government left the consortium and a new company was created for the management of the park, Expo Zaragoza Empresarial, with a 98 percent of the Regional Government and a 2 percent of the City Council.

The conversion of the pavilions to business offices finished at December 2010. Almost no one office was sold or rented. The spaces were mainly occupied by Regional Government departments and the City of Justice. There were around 1.500 workers in the area by 2015, but many of the Expo landmarks are not in use, as the Bridge Pavilion, Spanish Pavilion, Aragon Pavilion and the Water Tower, mainly due to a tax problem between the City and the Regional Government. The Bridge Pavilion is only opened for pedestrian use some times during the year. The most used spaces of the area are the Water Park or Parque del Agua and the riverfronts, for leisure activities.



Fig 30. Scheme of uses in Expo Empresarial, post-Expo business park. Source: Pablo de la Cal

20. Digital Mile and Barrio del AVE, since 2009. Work in progress.

The ZAV credit debt of 400 million Euros blocked the possibility to finish the pending works: the urbanization of El Portillo, the parks next to La Almozara, the road tunnel and the urbanization of the Delicias western part. In the public competition launched in September 2007 to sell four parcels only two of the four were sold, with no bid in the other two. Another public tender was held in the year 2010 for those two parcels, again without bidders. ZAV decided then to wait until a better economic situation. In the meantime, they presented some planning modifications to improve the volume distribution and uses towards some more sustainable and marketable plots.

In El Portillo, G-19-1 area, a Master Plan modification was drafted by the City Planning Department to include a new cultural landmark, Caixa Forum. The building was promoted by the Catalanian bank after a competition won by the architect Carme Pinós. The modification was approved the same year, the construction began in 2013 and the building was inaugurated in June 2014. In 2013 ZAV proposed another Master Plan modification to interchange the uses of the residential and tertiary parcels and to divide the area in two phases to selling the residential uses. The modification was approved in 2015 by the City Council but ADIF, the new National Manager of Rail Infrastructure sued the resolution because of the regime of the buried land and transfer rail dependences cost. Recently it was an agreement between the two administrations, but the area is still not developing.

In Delicias area, G-44-2, ZAV proposed in March 2014 another modification of the Master Plan to change the uses and the volumes of the parcels in urbanized areas to improve the bioclimatic conditions and to make them more attractive to real estate investors. After this there were two different tenders in 2015 and 2016 of the two plots in front of the intermodal station, considered the best parcels in the area, but both bids were unsuccessful. Now there is planned a new bid reducing prices and improving the payment terms.

The former tower in Avenida de Navarra has still not been built today, but a local real estate developer has bought it recently quite cheaper, is now selling the dwellings and they expect starting the building in a few months. Maybe this operation could open up the real estate market for the area creating a beacon effect.



Fig 31. The HSR and Expo areas in 2017. Source: Google Earth.



Fig 32 and 33. Aerial views of the Urban Project in the HSR land, after the different planning modifications, in 2017.

Source: ZAV

21. Strategic urban projects

The urban actions developed in these areas of Zaragoza had similar characteristics to other Strategic Urban Projects. These developments, named by Portas (2003) urban projects of the “third generation” appear since the 1990s. Due to the lesser capacity of the Administration these projects operate only in strategic areas to rely on their synergic capacity for the rest of the city. They are also strategic because take concepts and procedures from strategic plans. They are called strategic urban projects by Monclús (2003) and Carmona (2001, 2005) called them “Great Urban Projects” because of his big scale. For her, they are the result of globalization, that modifies the relationship between State and markets y gives cities more importance the economic development.

These projects are mainly developed by public initiative. Because of the scale, the implementation is longer than previous urban projects. They have an ambivalent relationship with urban planning. On one hand derive from the General Master as a starting point, but in the majority of cases operate apart from planning. Examples of this kind of projects are the urban renewal of the Batimore port area, the urban transformation of Barcelona by the Olympic Games or Euralille, in France. And more recently, cases such as La Confluence, in Lyon, Kop van Zuid in Rotterdam or Hafén City in Hamburg.

22. Conclusions

Strategic urban projects in Zaragoza had a great influence from the iconic architecture since previous years, from the “miraculous architecture” according to Moix (2010). It was also influenced by the politics of great events and from an excessive infrastructural view of the city. This is evident in the intermodal station building. In its design prevailed the big scale and monumentality over the permeability and the relationship with the surroundings. The station is already now seen as a huge independent object in the territory. As Pie (2000) states, the interest of the local and railway authorities matched in converting the new station in a real estate and urban renewal operation. And the railway company was interested in the profits generated by real estate generation to finance part of the investments.

According to Pie (2000), in the era when the rail transport goes underground and the metro entrances are simple access in the urban skin, it is a contradiction the emergence of great roofs in monumental shapes, that it might seem more to symbolic and propagandistic needs more than to the demand of this new technology. The ceremony of travel in the contemporary era needs more of efficient interchanges than solemn nodes.

These projects were the result of an optimistic and wealthy era, where almost everything was possible. The strategic decision of changing the new station to Delicias area assumed a strong and immediate growth of the city, a growth that has not happened and it not foreseen for years. 200.000 square meters of tertiary uses in Delicias area and more than 150.000 square meters in the Expo site were clearly excessive for the Zaragoza size. Surely, if the city had today to undertake this process, the results had been totally different, developing a smaller and more functional station, with an urban design of more but smaller buildings varying typologies and without all the elevated and tunneled roads infrastructure.

The urban projects were also the result of the excessive political influence but a lack of leadership and consensus, prevailing particular political interests extending planning over time and losing a precious time, decisive to finish the urbanization and create a new neighborhood.

Some interventions created uses do not really needed. They created these needs, that later was difficult for the city to deal with. Many of the buildings emerged for the Expo still are not being used and it will be difficult to renovate them: Spanish Pavilion, Aragon Pavilion, the Bridge Building and the Water Tower. The urban projects that have been more successful are those needed before the Expo: the new airport, the ring roads, the Convention Center, and above all, the Water Park and riverfronts.

Results show as well the need to incorporate all the stakeholders in the process; not only the Administration or professionals, but also citizens and real estate developers. Maybe if real estate agents were incorporated from the beginning of process, the subsequent failed bids would not have taken place.

Great scale projects have been questioned for different questions: being too costly for the city, an excuse for a real estate speculation and an instrument for the personal political promotion, with absence of social cohesion, territorial impact, lack of sustainability. Besides, these projects hinder other investments in the city and the territory.

The economic and real estate crisis delayed or stopped the majority of these projects, and in the last years another paradigm has raised, as the environmental sustainability, the social cohesion, public participation, knowledge economy and an integral approach in urban regeneration.



Nevertheless, strategic urban projects have changed cities in many cases, in a way broader than the areas of action. Several public spaces have been created in many cities through strategic urban projects, as in Barcelona, Lisbon, Bilbao, Zaragoza, Hamburg or Zurich, and the relationship between the city and its natural environment has improved. Most successful have been those where public space had a major role in the design and definition of the project. So, the challenge is to obtain enough flexibility of adaptation and resilience to adapt to new urban paradigms.

These projects need realistic objectives, solving existing needs in the city, usually identified in the general or strategic planning of the city. The project will be successful if contribute with public spaces and facilities demanded by citizens, instead of those that try to create the needs. A correct and fluid relationship and communications between the different parts is needed in the management.

Projects that show certain flexibility in the design are more resilient than the rigid ones. The more adaptable is, the more successful over the implementation period. Projects that stresses in the conception and design of public space, understanding the city as a space for social relationship achieve a greater identity with the citizens than those considering the city as a space for business.



Fig 34. Expo riverfronts before and after the International Exhibition. Source: Pablo de la Cal

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