1

The authenticity and integrity of the Historic Monuments Zone of Querétaro

Cultural Heritage and Sustainability: Querétaro as case study

Book 1 of 5

by
Mahsa Bagheri
Thomas Henry
Tijmen Stuurman

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Research as part of the graduation studio 'Cultural Heritage and Sustainability: World Heritage cities as case study', as part of a research on sustainable development, carried out by the AUDE Unit (Architectural Urban Design and Engineering) of the Eindhoven University of Technology (TU/e).

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Cultural Heritage and Sustainability: World Heritage cities as case study

Case study
Historic Monuments Zone of Querétaro, Santiago de Querétaro, Mexico

Authors:
Mahsa Bagheri
Eindhoven, the Netherlands
m.bagheri@student.tue.nl
www.mahsabagheri.com

Thomas Henry
Eindhoven, the Netherlands
info@thomashenry.nl
www.thomashenry.nl

Tijmen Stuurman
Eindhoven, the Netherlands
t.m.stuurman@student.tue.nl
www.tijmenstuurman.nl

Educational institution
Eindhoven University of Technology, Unit AUDE
Eindhoven, the Netherlands

Preface

The process and results of a research on Querétaro as a World Heritage case study, are presented in a series of five books. This research was carried out as part of the graduation studio 'Cultural Heritage and Sustainability: World Heritage cities as case study', as part of a research on sustainable development, carried out by the AUDE Unit (Architectural Urban Design and Engineering) of the Eindhoven University of Technology (TU/e). The studio focuses on the topic of Cultural Heritage and Sustainability, by taking World Heritage cities as case studies and is supervised by Prof. dr. B.J.F. (Bernard) Colenbrander, Dr. A.R. (Ana) Pereira Roders, L. (Loes) Veldpaus and P.C. (Paloma) Guzmán Molina.

This booklet is the first part of a series of five. This series explores the urban development of the Historic Monuments Zone of Querétaro and its cultural heritage in depth in order to provide adequate insights on sustainable development in a World Heritage city. The Historic Monuments Zone of Querétaro, inscribed as World Heritage property in 1996, is taken as case study within this project in which 'the relation between the change in land use and the change in façade attributes in historic houses' was studied by Mahsa Bagheri, Thomas Henry and Tijmen Stuurman. The main aim of this report is that results and conclusions can be used by local authorities in Querétaro, as a source to help them in decision making processes on the Historic Monuments Zone of Querétaro and also by students for further studies on this property.

We would like to thank the supervisors of the studio of the TU/e and the staff in the Secretary of Urban Development and Public Spaces (SDUOP), IMPLAN and INAH for their help in accelerating this project by providing required data, during our three month internship in Querétaro. Thanks also go to the University of Querétaro (UAQ) for providing accommodation. Special thanks go in particular to Ir. Manuel Vilarruel Vázquez (SDUOP), Luis Alejandro Morales Rodriguez and Leonor Monroy (IMPLAN) and Yanet Lezama-López (INAH) for contributing to our research and a pleasant time in the beautiful city of Querétaro.

Mahsa Bagheri
Thomas Henry
Tijmen Stuurman

Abstract

The Historic Monuments Zone of Querétaro is listed as a World Heritage site by UNESCO since 1996. It was considered to be of Outstanding Universal Value for being an exceptional example of a colonial town whose layout is reflecting its multi-ethnic population. In addition there are numerous buildings constructed in 17th and 18th century (UNESCO, 1995).

Existing urban historic areas have lost their traditional functions and are under pressure of transforming agents. Rapid urban development can negatively affect cultural heritage. The city of Querétaro is one of these emerging areas. The growth of the population and economy turned the city into a metropolitan area. The recently implemented Management Plan recognizes changes that could threaten the property such as population shrinkage in the historic city center and rapid change of uses due to the raise of economic interests.

This research aims to contribute to the documentation on current heritage conservation practices within a representative sector of the Historic Monuments Zone of Querétaro. In total 374 originally residential buildings were analyzed in terms of their façade attributes, changes in land use, state of conservation and the correlation between these topics. The results contribute to the understanding of current trends within the property which affect the authenticity and integrity. This research is expected to contribute to the identification of opportunities to enhance current practices and guidelines for the protection of the Historic Monuments Zone of Querétaro.

From the results it is found that residential buildings with mixed uses have a negative impact on the state of conservation and façade attributes of the monuments, while planning policies have approved mixed uses. Also, maintaining the original residential uses does not safeguard the authenticity and integrity of the façade attributes or state of conservation. The lack of investments is a threat to originally residential buildings that maintained their original use. It negatively affects façade attributes and state of conservation. On the other hand, investments do have a positive impact on the state of conservation when uses change.

Keywords: *World Heritage, Historic Monuments Zone of Querétaro, Outstanding Universal Value, sustainable development, cultural heritage*

Table of contents

1 Background

1.1 Introducing World Heritage, OUV and the World Heritage Committee

To be able to understand the content of this research on the case study in Querétaro, first the background of its conservation is explained.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) seeks to encourage the identification, protection and preservation of cultural and natural heritage around the world considered to be of outstanding value to humanity (UNESCO, 2008).

The term World Heritage (WH) is defined in the Convention Concerning the Protection of the World Cultural and Natural Heritage of 1972. WH is being found of such value for mankind it should be preserved for present and future generations (UNESCO, 1972).

The 1972 Convention Concerning the Protection of the World Cultural and Natural Heritage is widely acknowledged as the most universal international legal instrument in heritage conservation (Rössler, M., 2006). Together with the latest (2012) Operational Guidelines for the Implementation of the World Heritage Convention (OG), they are the main working tools on World Heritage (UNESCO, 2008).

A site is considered to be World Heritage by UNESCO when it is on the World Heritage List (WHL) for its Outstanding Universal Value (OUV). UNESCO (2012a, p. 14) describes OUV in the following way: "Outstanding universal value means cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity". The term OUV has been used since the Convention Concerning the Protection of the World Cultural and Natural Heritage (UNESCO, 1972).

In the OG the current vision on OUV of the World Heritage Committee (WHC) can be found. These OG's are often revised (UNESCO, 2012a).

During the decision process two Advisory Bodies (AB) mandated by the 1972 Convention assist the WHC in evaluating the potential new WH site. The first, the International Council on Monuments and Sites (ICOMOS) evaluates potential cultural sites whereas the second, the International Union for Conservation of Nature (IUCN), evaluates potential natural properties. The International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM), an intergovernmental organization, acts as the third AB of the WHC (UNESCO, 2012b).

Nominated properties are evaluated by the independent Advisory Bodies based on one or more of ten criteria, listed in the OG. There are six cultural and four natural criteria (UNESCO, 2012a, p.p. 20-21).

To be deemed of OUV, a property must also meet the conditions of integrity and authenticity and must have an adequate protection and management system to ensure its safeguarding. "Integrity is a measure of the wholeness and intactness of the natural and/or cultural heritage and its attributes. (…) Authenticity relates to the ability of the attributes of a property to express adequately its OUV, truthfully and credibly" (UNESCO, 2012a, p.p. 21-23).

The inscription of a property on the WHL includes

that “protection and management of WH properties should ensure that their Outstanding Universal Value, including the conditions of integrity and/or authenticity at the time of inscription, are sustained or enhanced over time” (UNESCO, 2012a, p. 25). In other words, there are trends or conditions which might threaten the OUV not only by the traditional causes of decay, but also by changing social and economic conditions which aggravate the situation with even more formidable phenomena of damage or destruction (UNESCO, 1972).

Historic Urbal Landscape (HUL) is an urban area understood as the result of a historic layering of cultural and natural values and attributes, extending beyond the notion of “historic center” or “ensemble” to include the broader urban context and its geographical setting (UNESCO, 2011).

figure 01. Traditional housing in the World Heritage city of Querétaro, Mexico

1.2 Introducing Querétaro as World Heritage city

1.2.1 Geographical Location

Santiago de Querétaro is the capital and largest city of the state of Querétaro, located in central Mexico, 213 km northwest of Mexico City (fig. 02).

1.2.2 History [1]

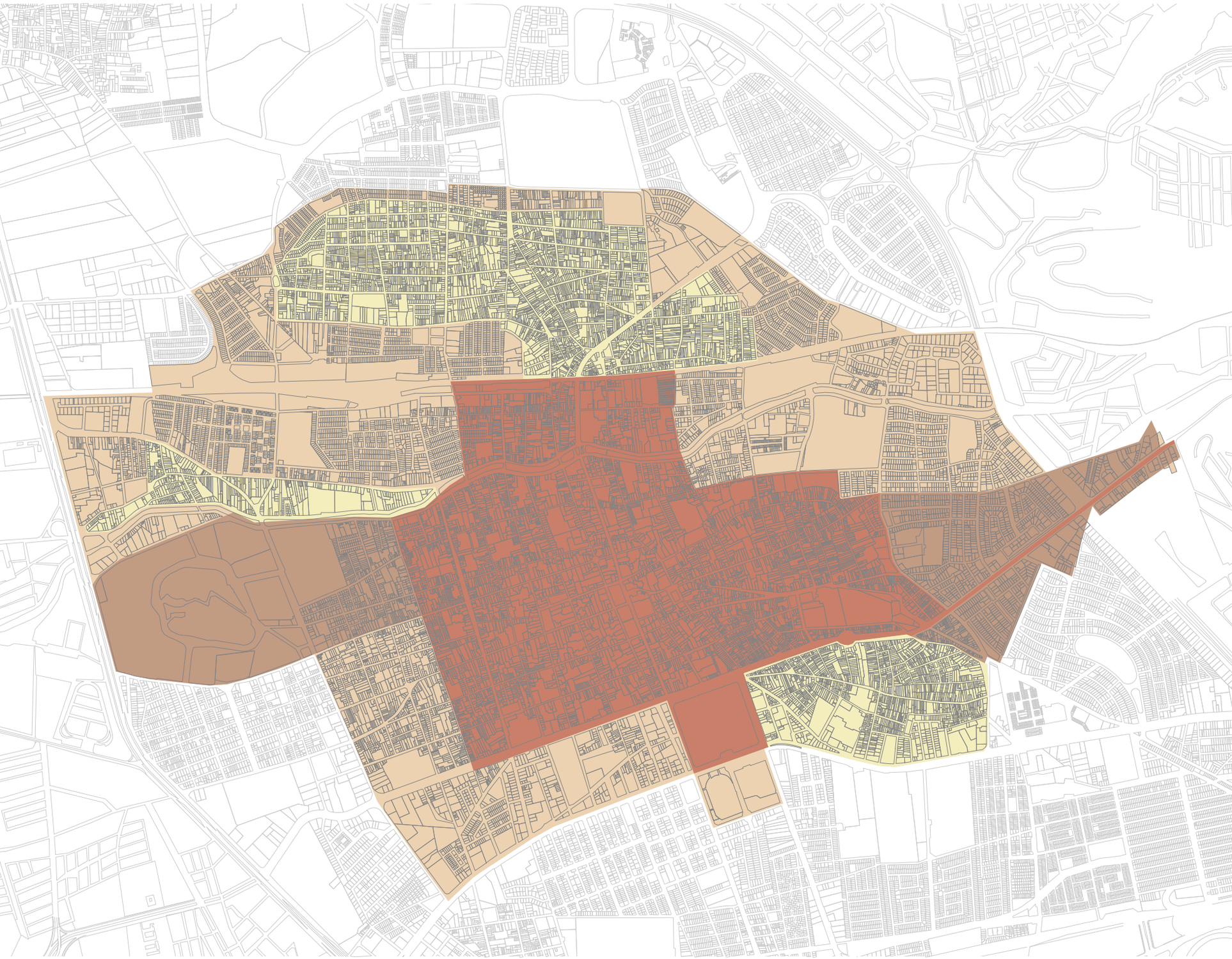
Two important documents found on the history of Querétaro are the "Relación Geográfica de Querétaro" ["Georaphical Relationship of Querétaro"] from 1582 and the book "Glorias de Querétaro", published in 1680. In the latter Carlos de Sigüenza y Góngora stated that the new city of Querétaro was re-founded during the mid-16th century in the place of an ancient pre-hispanic town with the same name.

The urban layout of the town was formed before 1578 by the settling of social, religious, political and economic functions, and was complete when the Spaniards came to the town. In the 17th century the establishment of different settlements such as agricultural and cattle settlements and underground mines resulted in the expansion of the city of Querétaro. In addition the construction roads and different kinds of industry was a consequence of the geographic location of the city. In 1790, the city of Querétaro was listed as the third largest city in Mexico, after the cities of Mexico City and Puebla. In 1804, recording 18 Indian workshops, 280 looms and 327 mills, the city of Querétaro turned into the center of wool textile industry in Mexico.

The population had a growth rate of 5.4% during the sixties and seventies of the 20th century, and the role of immigrants in this growth increased by 17% during those 20 years.

figure 02. Geographic location Querétaro

1. Source: Plan Parcial de Desarollo Urbano (2007)



1.2.3 Inscription as World Heritage

The center of the city of Querétaro comprises four main areas: Perimeter "A" (Historic Monuments Zone), perimeter "B" (buffer zone), the traditional neighborhood zones and transition zones (map 01).

Perimeter "A": Its origin goes back to the 16th century, and it is the zone with the most significance and cultural identity for the city and state of Querétaro. It is the reason for the evolution of this city from an Indian village in the 16th century to the rank of town in the 17th century, to city and now Urban Center of a significant Metropolitan Zone (IMPLAN, 2012, p. II-159).

The traditional neighborhoods: These zones surround and partially overlap perimeter A. The neighborhoods are connected to the evolution of the city and were generated due to the settlement of various neighborhoods of indigenous origin. They form culturally homogenous zones in themselves, differentiated by their own landmarks from religious buildings to nodes of commercial activities (IMPLAN, 2012, p. II-160).

Perimeter "B" and transition zones: These zones developed themselves in the last 50 years, starting with the occupation of land originally used for agriculture. These lands belonged to the smaller ranches that existed in these zones. The transition zones are defined as the transition area between historic zones and the contemporary urban fabric around (IMPLAN, 2012, p. p II-161-162).

The area known as the Historic Monuments Zone of Querétaro (hereinafter HMZQ) was established by presidential decree in March 1981 and comprises 203 building blocks including about 1400 historic buildings that cover an area of 4 km^2. These buildings of historical value were constructed between the 16th and 19th century and were originally used for religious and educational purposes, care services, public administration and - mostly - private uses (IMPLAN, 2012).

The HMZQ was inscribed by UNESCO as a World Heritage site on December 7, 1996 on basis of cultural criteria (ii) and (iv). It was considered to be of Outstanding Universal Value and an exceptional example of a colonial town whose layout is reflecting its multi-ethnic population. In addition there are numerous buildings constructed in 17th and 18th century (UNESCO, 1995).

"(...) considering that the site is of Outstanding Universal Value and an exceptional example of a colonial town whose layout symbolizes its multi-ethnic population. It is also endowed with a wealth of outstanding buildings, notably from the 17th and 18th century" (UNESCO, 2006b, p. 71).

1.3 State of the art

Jokilehto (2010) states that development can be understood as the progress improving the quality of the place and aiming at a better quality of life: "It does not necessarily mean speculation aiming to change or to replace with new. We can integrate development with cultural and environmental sustainability". Experts agree with the recommendation of UNESCO to preserve World Heritage cities with a new management tool, to regulate development with a different attitude: The recommendation on the Historic Urban Landscape (HUL) was adopted in November 2011.

Veldpaus (2012) states that experts believe that the nominating process needs to get a more landscape-based approach instead of an object-

map 01. Zoning of the city of Querétaro
adapted from IMPLAN, 2012
1:20000

perimeter A, HMZQ
perimeter B, buffer zone
traditional neighborhoods (outside perimeter A)
transistion zone

based approach. This is why the HUL approach is of such importance. This makes not only the tangible important but also the intangible. It helps to not only conserve but also contribute to the possibility of development.

According to the OG the OUV is conveyed by both tangible and intangible attributes (UNESCO 2012a, p.p. 106-107). These attributes convey one or more values, subdivided in the following categories: social, economic, political, historic, aesthetical, scientific, age and/ or ecological (Pereira Roders, 2007).

Bandarin et al (2010) notes that "many of the most important urban historic areas existing in Europe, Asia and Latin America have lost their traditional functions and are under pressure from transforming agents". Rapid urban development can negatively affect Cultural Heritage of this kind, unless measures are taken to prevent this.

Latin America (LA) has growing and globalized economies, and escalating urban growth has been predicted for emerging cities in developing countries and LA in particular (Ernst & Young, 2011). This considerable growth, together with industrialization, developing infrastructure and closeness to larger cities has made emerging cities more attractive for investments (Sassen, 1999 and Tacoli in Bolay & Rabinovich, 2004).

The term integrated conservation – a concept devised in 1975 in Europe (Council of Europe, 1975) – in Latin America is an emerging concept in the management of urban development in historical areas and "is an approach that embraces a multitude of traditional and emerging disciplines, from anthropology to architecture, from economics to ecology, from sociology to statistics" (CEACI, 2004).

The city of Querétaro was kept within the historic boundaries until the mid-20th century, but its industrial and population growth accelerated after 1970. Nowadays with a growth rate of 3.6% per year, the city is one of the fastest growing cities in the country (Lezama-López, 2006) and this has turned Querétaro into a destination for immigrants from other parts of Mexico.

Studies also have been carried out by students under supervision of the municipality of Querétaro - Secretary of Urban Development and Public Spaces (SDUOP) - on the state of conservation of housing within the HMZQ.

1.4 Problem statement

An existing problem in Querétaro is the replacement of houses by commercial uses. (Lezama-López, 2005b; PMQ, 2000). Replacing residential uses by commercial ones can negatively affect the quality of life in the area and consequently result in the loss of population. The rise in the real estate market is a reason for inhabitants to sell or rent their properties to be changed into commercial uses (Lezama-López, 2006). Also the habitability of historic areas is an essential condition for preservation. The phenomena of changing the land uses into "mixed use", results in a replacement of uses by commercial and residential services, with consequent loss of dwellers (Lezama-López, 2006).

In a study from Lezama-López (2008) on the poverty in the HMZQ, it is stated that most of the inhabitants in La Cruz suffer from a high rate of poverty and this leads to a bad condition of the buildings in this area. Also, "today it is well known that habitability of historic areas is an essential condition for preservation, however, policies responsible for the distributing of the land uses within the HMZQ

primarily attend to the criteria of the so called zonification" (Lezama-López, 2006). This allows 'mixed use' in the entire historic area and leads to indiscriminative issuance of licenses for commercial activities and services.

As for the state of conservation, public spaces in the HMZQ are in acceptable condition, while buildings with private owners are suffering from underutilization which results in their insufficient state of conservation (IMPLAN, 2012, p. II-136).

1.5 Objectives

The preceding problem description led to the subject of this research. Objectives have been set and a research method has been developed.

The main objective of this research is to come to a better understanding of the relation between the changes in land use in the studied area within HMZQ and the consequent effects that they have on the façade attributes of historical houses. The results of this research aim to be of help for local authorities in conservation activities and in making future development plans for the city in a way that best suits the needs of society and the HMZQ.

1.6 Methodology

1.6.1 Research question and sub questions

Being part of a broader research, the main aim of this research is to find the answer to the following main question:

"What is the relation between the state of authenticity and integrity and the factors affecting the property?"

This main question is supported by three sub questions:

SQ1) *"What is the state of authenticity and integrity of the HMZQ?"*

SQ2) *"What are the factors affecting the HMZQ?"*

SQ3) *"What is the state of conservation of the HMZQ?"*

1.6.2 Methods and tools

In order to reveal ongoing practices in heritage management, the research is dedicated to four main topics: housing typologies, façade attributes, land use and state of conservation. A comparative analysis was carried out between available data from 1990, 2000 and 2011, complemented and updated by the field research of 2013. This comparison is presented to identify changes and to discuss their development, mostly by using maps and brief explanations on each topic.

1.6.2.1 Data sources

Research was carried out using three types of data collection: available documents on the HMZQ (desk research), interviews with local and national authorities and field work (field research).

1) Advisory Body Evaluation (ABE): Advisory Body Evaluation by UNESCO, 1995.

2) Management Plan: this document has been made by "El Instituto de Planeación del Municipio de Querétaro"[2] (IMPLAN) in 2012, including six chapters: introduction, diagnosis, instrumentation, formation of the management unit, mechanisms for citizen participation and control mechanisms. In the desk research phase of present study, the chapters introduction and diagnosis were analyzed which

2. IMPLAN (English translation): Institute for Urban Planning of the Municipality of Querétaro
3. INAH (English translation): National Institute of Anthropology and History

together cover 331 pages.

3) Catalogues: first and second version of catalogues, made by "Instituto Nacional de Antropología e Historia"[3] (INAH) in 1990 and 2000 respectively. In each edition, the buildings considered as historic monuments in the respective year, are listed. Data that could be found for each building is as follows: location, date of construction, state of conservation, pictures from inside and outside. The catalogue from 1990 comes in four books, the one from 2000 is in the format of three CDs.

4) Studies, analyses and databases on the HMZQ by students (under supervision of SDUOP), including an inventory of the state of conservation of housing within the HMZQ.

The GIS database provided by IMPLAN was the base for the data analysis in this study. The database contains the data of 2011 and some parts of the available data in catalogues made by INAH in 1990 and 2000. Therefore, first the database was updated with data from the catalogues and the data produced during the fieldwork. The data for generating the maps on the land use and the state of conservation was available (2011), but when talking about the changes in the land use, results came forward from the analysis of this available data. As for the façade attributes, the maps are generated using the outcome of the fieldwork. Not all buildings in the HMZQ are considered to be historic monuments. Therefore, only the catalogued buildings were studied: the buildings that were considered monuments in the years 1990 and 2000.

1.6.2.2 Desk research

A content analysis on available documents on the HMZQ was carried out in order to reveal the attributes that convey the OUV of the HMZQ and the factors affecting the property. The revealed attributes were valued within eight classes: social, economic, political, historic, aesthetical, scientific, age and ecological (Pereira Roders, 2007). The data collected from analyzed documents in this phase was sorted out and analyzed using Microsoft Excel.

1.6.2.3 Defining the research area

A specific part of the HMZQ needed to be defined as the research area for the field research due to time restrictions. To define a specific area, the Management Plan was used in order to have an overview of all the neighborhoods in the HMZQ and to know their characteristics. The availability of the data was an important factor in choosing the eventual research area, being a specific sector of the HMZQ.

1.6.2.4 Field research

The field research was carried out within the defined research area in order to update the available data for 2013 and to consequently study the current condition of attributes. Before going to the field, three different data sources were used; first by means of the available database from IMPLAN, the map of each building block was generated showing all catalogued buildings in that block together with the code and street number allocated to that plot. Additionally for each building a photo form was made using the available images and plans from 1990 and 2000. During the field work this form was a guide for taking pictures from the same perspective as the old images to be able to compare the old and new photos in a more convenient way. Third, a questionnaire was made based on the desired attributes that were decided to be studied and was filled in for each catalogued building. Data

introduced during the field work was inserted into a database and was mapped using GIS. These maps were generated either by the collected data from the desk research phase or the produced data from the field research phase.

In addition to the field work, interests of stakeholders were studied by interviewing local authorities. The language of the interviews was Spanish, except for the occasions that the interviewee was able to speak English.

1.6.3 Research program

SQ1) *"What is the state of authenticity and integrity of the HMZQ?"*

This sub question is divided into two parts:

Part 1. *"In what condition were the attributes at the time of inscription (1996)?"*

To reveal the condition of the attributes at the time of inscription, the ABE and the Management Plan were analyzed applying the methodology described in the desk research part and an inventory was made for each document. These attributes have been identified and analyzed on their integrity and authenticity through time.

Part 2. *"In what condition are the attributes anno 2013?"*

The current condition of the attributes was partly revealed by studying the Management Plan and partly by field research.

Produced data on attributes in field research was inserted into a database and was mapped using GIS.

SQ2) *"What are the factors affecting the HMZQ?"*

This sub question covers the third and fourth part of the research structure:

Part 3. *"What are the threats regarding the HMZQ?"*

Part 4. *"What are the respective causes of threats regarding the HMZQ?"*

By studying the Management Plan an inventory of the factors negatively affecting the monuments was revealed and the factors were analyzed and categorized in threats and relative causes. Another set of the threats was made by comparing the current recognized attributes with the recognized attributes in the time of inscription.

SQ3) *"What is the state of conservation of the HMZQ?"*

In order to study the state of integrity of the HMZQ, the state of conservation of the monuments was studied in relation to the changes in land use with the help of available data provided by IMPLAN.

The subsequent chapters explain the process in finding the effects of the changes in land use on façade attributes and the state of conservation of the studied catalogued buildings. After explaining the results of the study on attributes and threats (chapter 2.1), the results of the field research are shown in chapter 2.3 ('field research') covering 'façade attributes', 'land use' and 'state of conservation'. This chapter is followed by a relation chapter (chapter 3) in which the land use changes are related to the façade attributes and the state of conservation. Conclusions and discussions on this research together with recommended topics for further studies are elaborated on in the last chapter of the report; chapter 4.

2 Results

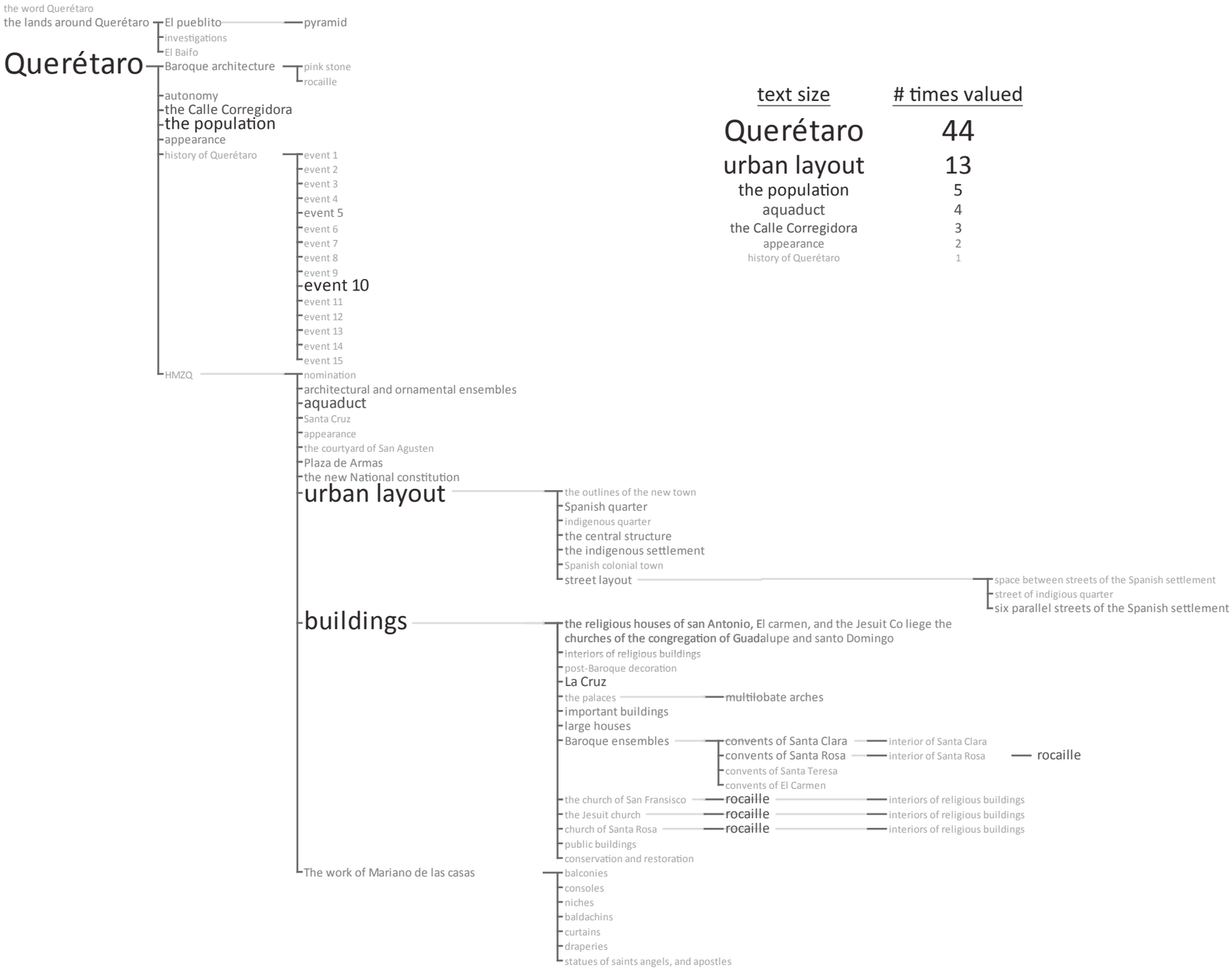
2.1 Desk research

2.1.1 Introduction

The content analysis of the official UNESCO nomination documents for Querétaro and the Management Plan for the HMZQ is divided into two parts. Part 1 is the analysis of attributes and values, part 2 is the analysis of threats and causes. The documents that were studied in this phase were the Management Plan (IMPLAN, 2012), the Advisory Body Evaluation (ABE) (UNESCO, 1995) and the decision documents (UNESCO 1996a, UNESCO 1996b). All content of the decision documents is also included in the ABE. Therefore the decision files were not explored further. The content analysis has been done on the ABE and the MP. Attributes conveying OUV that were recognized in the time of inscription (1996) were analyzed and compared with current regocnized attributes. For the second part, the threats and respective causes regarding the HMZQ were studied.

Attributes and sub attributes;

Advisory Body Evaluation, The Historic Monuments zone of Querétaro



text size	# times valued
Querétaro	44
urban layout	13
the population	5
aquaduct	4
the Calle Corregidora	3
appearance	2
history of Querétaro	1

2.1.2 Attributes and values

A content analysis on the ABE together with the Management Plan was carried out in order to explore the attributes and their assigned values.

In total, 235 attributes were found within the texts that are valued 394 times. Some specified attributes that are mentioned less can be a part of these valued attributes. For example, within the important attribute 'urban layout' these attributes exist: hierarchy of the streets and roads, Calle Corregidora, natural environment, activities of inhabitants, historical strength, system - layout with places that are the center of community life, appearance, morphology of the blocks, buildings etc. For this matter a schematic classification has been made and main attributes and their respective sub attributes are recognized. The schemes for both documents are shown in figure 02 and figure 03. The schemes present which attributes are most valued.

In the ABE, which contains 7 pages, 78 attributes that were valued at least once were found. Those attributes are presented within their classification of hierarchy in figure 02. The biggest category in the highest hierarchy is "Querétaro". This is the city itself. It is noticeable that this category is mentioned a lot while parts of Querétaro are not within the protected zone. A similar situation occurs for "the lands around Querétaro". These lands get valuated, but are not described as being part of the protected zone, described as the "HMZQ".

The HMZQ exists within the second level of hierarchy classification. Although the attribute itself is valued less than other attributes within the classification (shown small in figure 02), there are a lot of sub classifications within this category.

figure 02. Attribute and sub attribute scheme, ABE

Within the third level of hierarchy classification there are two attribute categories that are valued more than other attributes and have more sub-attributes as well. These are "urban layout" and "buildings".

In the MP, which contains 331 pages in 6 chapters, 157 attributes that were valued at least once were found. Those attributes are show within their classification of hierarchy in figure 03. Again the category "Querétaro" in the highest level of hierarchy is valued more than average (shown bigger in figure 03), but now it is the only attribute within this category.

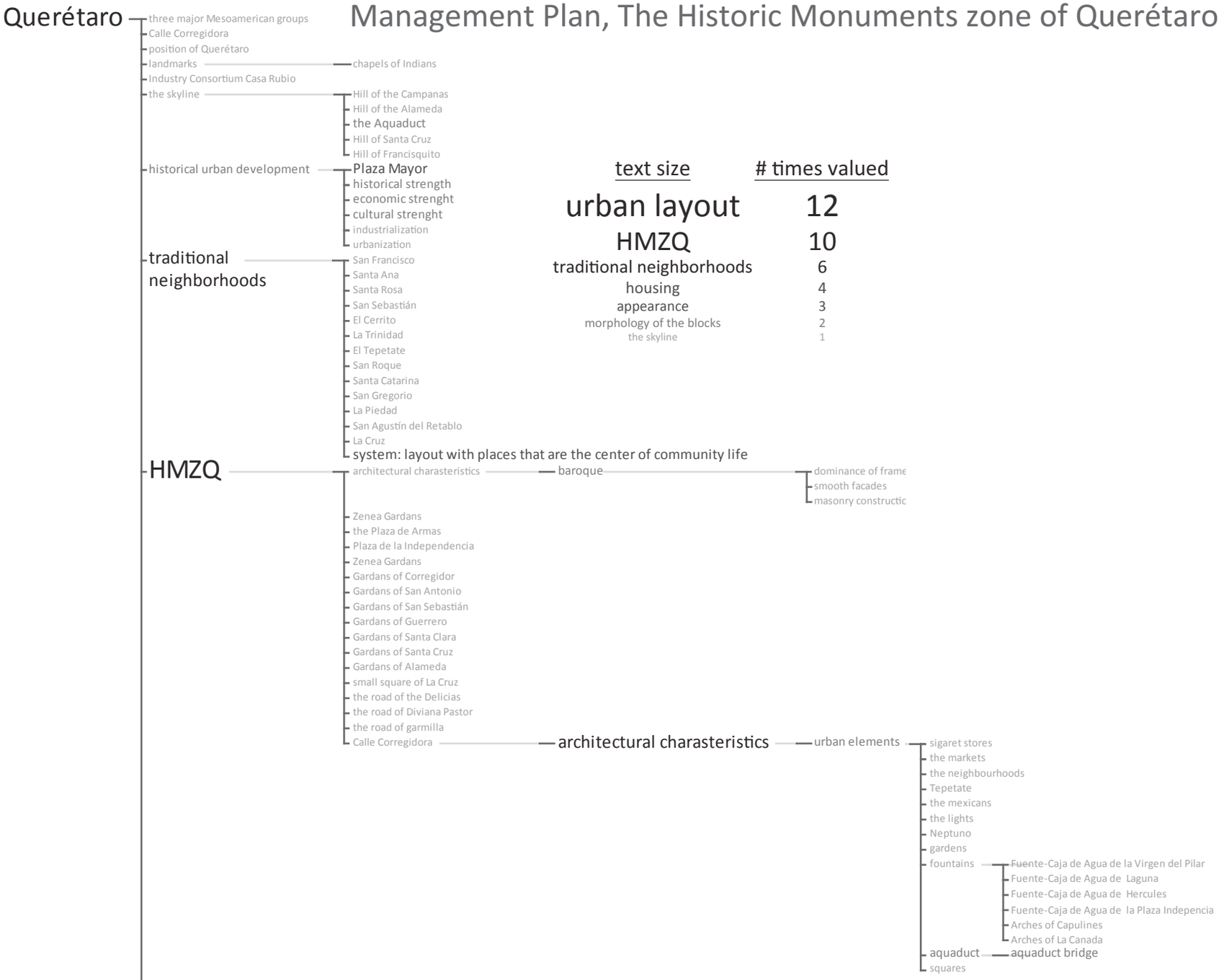
The HMZQ exists within the secondlevel of hierarchy classification. Now, this attribute is valued relatively more than other attributes (shown big in figure 03) and there are a lot of sub classifications within this category.

Another attribute within the second level of hierarchy that is valued relatively more is "urban layout". Where this category in the ABE was of the 3rd level of hierarchy it defined in the MP that it extents the "HMZQ", so it got to the second level of hierarchy.

A strong line of attribute categorizations within "urban layout" exists within the attribute "buildings". There are 26 valuations within this category and they mainly lead to houses within specified types. This could be seen as a specification of the category "buildings" within the ABE.

Attributes and sub attributes;

Management Plan, The Historic Monuments zone of Querétaro



text size	# times valued
urban layout	12
HMZQ	10
traditional neighborhoods	6
housing	4
appearance	3
morphology of the blocks	2
the skyline	1

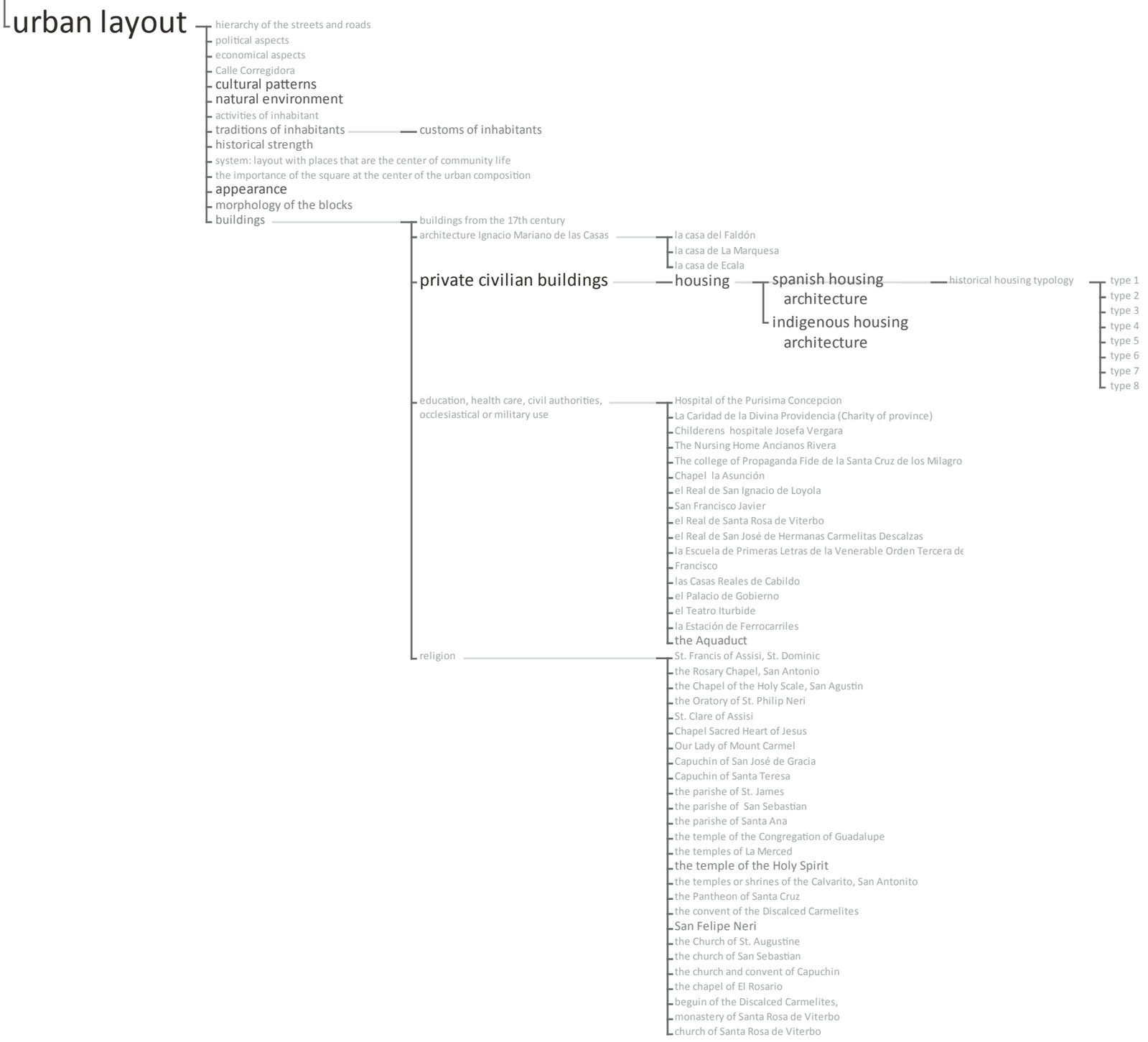


figure 03. Attribute and sub attribute scheme, Management Plan

Attributes	T/I	times mentioned ABE	times mentioned MP	times mentioned	total values
Querétaro	T	38	11	49	49
urban layout	I	11	12	23	23
buildings	T	12	2	14	14
HMZQ	T	2	10	12	12
traditional neighborhoods	T	0	6	6	6
architectural charasteristics	T	0	6	6	6
aquaduct	T	4	2	4	6
private civilian buildings	T	0	5	5	5
appearance	I	1	3	4	4
housing	T	0	4	4	4
Spanish housing architecture	T	0	4	4	4
indigenous housing architecture	T	0	4	4	4
rocaille	T	3	0	3	3
the population	I	3	0	3	3
La Cruz	T	2	1	3	3
natural environment	T	0	3	3	3
cultural patterns	T	0	3	3	3
Plaza Mayor	T	0	3	3	3
system: layout with places that are the center of community life	T	0	3	3	3
urban elements	T	0	3	3	3
the Calle Corregidora	T	2	1	3	3
church of Santa Rosa	T	2	1	2	3
the work of Mariano de las Casas	T	2	1	2	3
Spanish quarter	T	2	0	2	2
the central structure	T	2	0	2	2
ensembles	T	2	0	2	2
El Pueblito	T	2	0	2	2
pyramid	T	2	0	2	2
the indigenous settlement	T	2	0	2	2
large houses	T	2	0	2	2
Convents of Santa Clara	T	2	0	2	2
Convents of Santa Rosa	T	2	0	2	2
street layout	I	2	0	2	2
historical urban development	I	0	2	2	2
San Felipe Neri	T	0	2	2	2
baroque	I	0	2	2	2
traditions of inhabitants	I	0	2	2	2
customs of inhabitants	I	0	2	2	2
historical strength	I	0	2	2	2
cultural strenght	I	0	2	2	2
economic strenght	I	0	2	2	2
morphology of the blocks	T	0	2	2	2
the temple of the Holy Spirit	T	0	2	2	2
aquaduct bridge	T	0	2	2	2
San Sebastián	T	0	2	2	2

table 01. Tangible (T) and intangible (I) attributes and amount of values

		#	%
ABE	Tangible	92	74,19%
	Intangible	32	25,81%
	Total	124	100,00%
MP	Tangible	203	83,54%
	Intangible	40	16,46%
	Total	243	100,00%

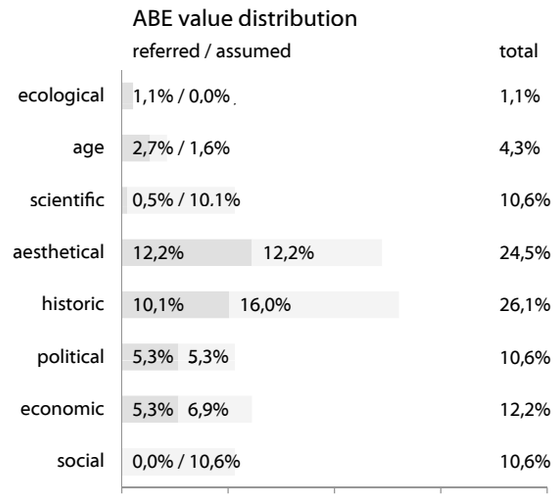
table 02. Tangible and intangible attribute distribution

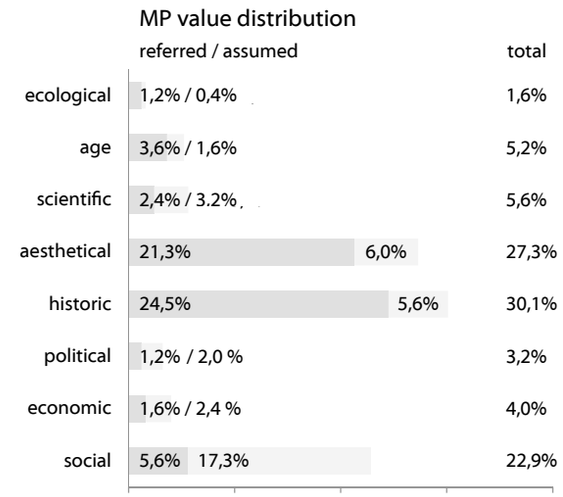
Table 01 shows the attributes that have been valued two or more times. The attribute "Querétaro" is valued more - and the attribute "HMZQ" less in the ABE than in the MP. This indicates the parts of Querétaro outside the protected zone are conserved less within the conservation and planning policies of the MP.

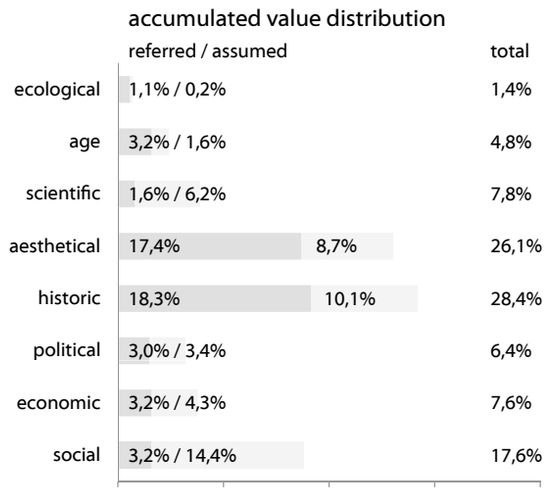
The parts that are valued outside of the protected zone in the ABE are not valued in the MP since the MP is on the World Heritage site only; the HMZQ. The attributes "the land around Querétaro", "El Pueblito" and the "pyramid" are not valued in the MP. Another difference between the ABE and the MP is that there are some attributes that are mentioned as 'general attributes' within the ABE but are specified in the MP. Like "the convents of Santa Clara" and "the convents of Santa Rosa", which are all specified under religious buildings in the MP. This specification of general attributes is also the reason why there are attributes valued in the MP that are not valued in the ABE.

In table 02 the distribution of tangible and intangible attributes is shown. In the ABE 75% are tangible attributes and in the Management Plan 85% are tangible attributes. This means the ABE is more on the intangible attributes than the MP. This can be explained by the fact that the MP is specifying more extensively on the physical elements of the property whereas the ABE goes more into the history of Querétaro.

Besides finding the attributes and their values it has been checked if the site still is valued the same in the MP (IMPLAN, 2012) as it was at the time of inscription in the UNESCO nomination documents ABE (UNESCO, 1995).







file	social		economic		political		historic		aesthetical		scientific		age		ecological		total		
	referred	assumed	referred	assumed	referred	assumed	referred	assumed	referred	assumed	referred	assumed	referred	assumed	referred	assumed	referred	assumed	all
abe	0	20	10	13	10	10	19	30	23	23	1	19	5	3	2	0	70	118	188
%	0,00%	10,64%	5,32%	6,91%	5,32%	5,32%	10,11%	15,96%	12,23%	12,23%	0,53%	10,11%	2,66%	1,60%	1,06%	0,00%	37,23%	62,77%	100,00%
mp	14	43	4	6	3	5	61	14	53	15	6	8	9	4	3	1	153	96	249
%	5,62%	17,27%	1,61%	2,41%	1,20%	2,01%	24,50%	5,62%	21,29%	6,02%	2,41%	3,21%	3,61%	1,61%	1,20%	0,40%	61,45%	38,55%	100,00%
accumulated	14	63	14	19	13	15	80	44	76	38	7	27	14	7	5	1	223	214	437
%	3,20%	14,42%	3,20%	4,35%	2,97%	3,43%	18,31%	10,07%	17,39%	8,70%	1,60%	6,18%	3,20%	1,60%	1,14%	0,23%	51,03%	48,97%	100,00%

table 03. Value distribution

threat	times mentioned
devaluation of property/urban decay	11
deterioration: negative physical change	4
inadequate appearance	4
marginality	4
people coming from other municipalities in the state of Queretaro,	3
alcoholism and drug addiction	3
decline of population	2
inadequate conservation	2
humidity of the walls	2
noise and air pollution	2
devaluation of property	1
degradation: social decomposition	1
recentralization process of commercial and tourist activities	1
social depriation of existing urban spaces	1
devaluation	1
Organized crime, drugaddiction	1
losing inscription on WHL	1
losing identity	1
corruption	1
instability of politics	1
rapid growth of the city	1
environmental pollution	1
new conditions in the speculative process of the peripheral urban area to the urban sprawl of the city	1
permanent loss of properties	1
loss of homogeneity	1
loss of cultural identity	1
loss of social importance	1
deteriation	1
especially due to the modification of some roads and the creation of new connections	1
finding income	1
pressure Monuments use change ground to tertiary activities	1
pressure on HMZQ	1
change of functions in HMZQ	1
inappropriate adjustments to morphology	1
loss of residential uses	1
crime	1
urban growth	1
deterioration of roads	1
depopulation	1

table 04. List of threats on the HMZQ derived from the Management Plan (2012)

The attributes were collected and their values were divided within eight classes: social, economic, political, historic, aesthetical, scientific, age and ecological defined by Pereira Roders, (2007). A part of the attributes are specifically recognized as valued in the text. When a valuation is interpreted but not specifically mentioned in the text, its valuation has been assumed. Table 03 shows the distribution of values for both the ABE and the MP. The same figure shows a chart that has been made for all values mentioned in both documents. As it is illustrated in the charts, both documents almost have the same pattern in relation to the proportion of abovementioned cultural values. In both documents, most and least valued are respectively historical and ecological. According to this pattern it could be concluded that in general, values in the year 2012 differ only slightly from the ones in 1996 (time of inscription).

2.1.3 Threats and causes

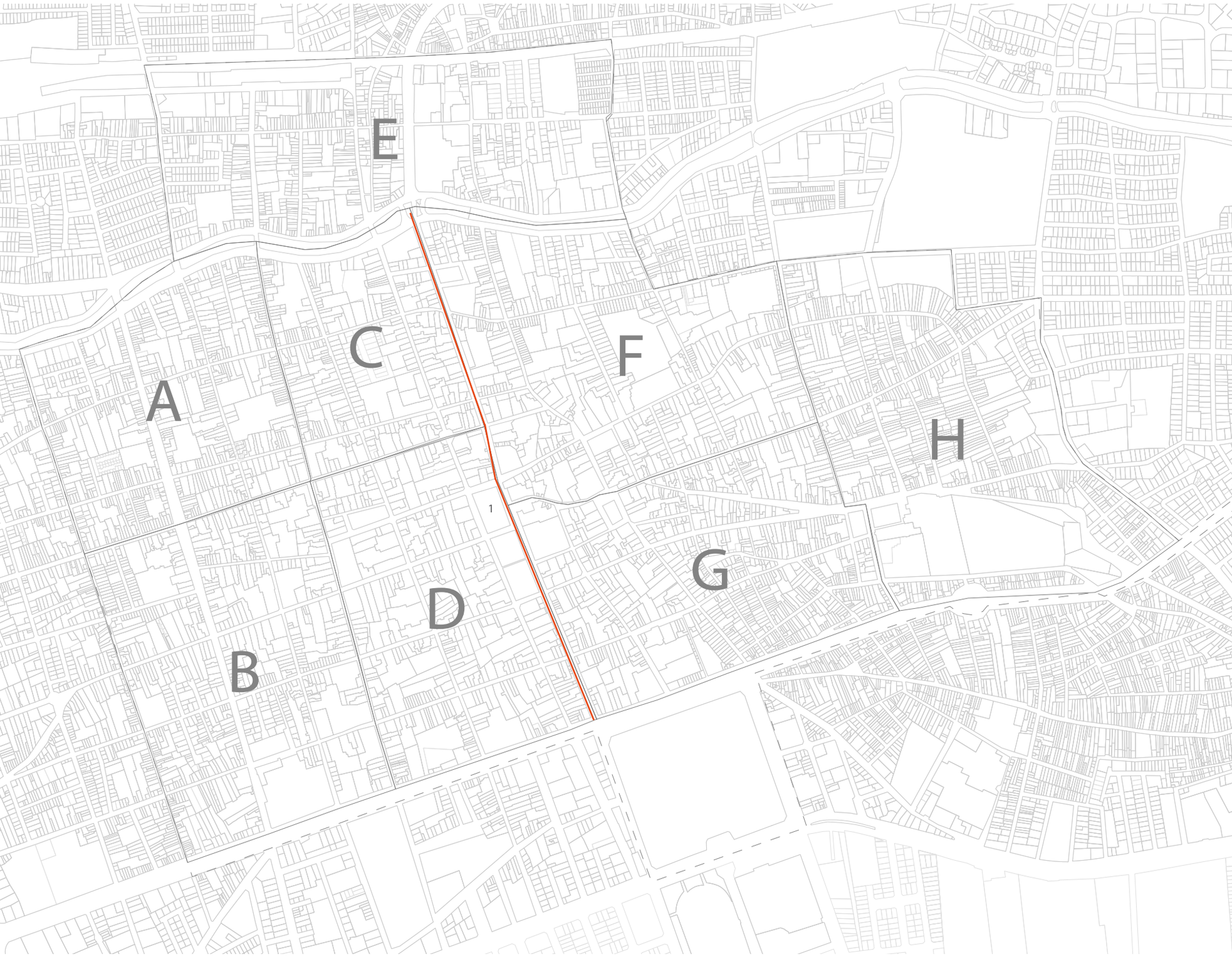
The Management Plan written on Querétaro by IMPLAN was studied to find out what was threatening the HMZQ. Also the comparison between the recognized attributes in the ABE and MP was carried out in order to see whether or not some attributes valued in the ABE (1996, time of inscription), were possibly not valued in the MP (2012). This situation could form a threat for the fact that these "lacking" attributes are then not included in the conservation and planning policies of the MP and could fall under neglect.

The outcome of this study was an inventory of 39 threats (table 04). Together with these threats, the related causes were studied as well. The causes are to be found in table 05, for the three most mentioned threats. These three threats most mentioned, respectively, are: devaluation of property/urban decay (11), deterioration: negative physical change (4) and inadequate appearance (4). Table 05 also indicates which attribute(s) has/have been affected by the particular threat.

The urban layout of the city of Querétaro is considered to be of Outstanding Universal Value, and "housing typology", "urban layout" and "buildings" are being mentioned as a fundamental element in forming the urban morphology. This urban environment is suffering from loss of population in the historic center due to the replacement of traditional land use of the buildings - mostly residential uses - by other uses, especially tertiary uses: commercial and service. While the existing shift in the land uses can lead to the deterioration of the HMZQ, the public buildings have been well preserved and are in good condition. By exploring the housing typologies, the attributes derived from the typology descriptions could be identified and located after which they could be analyzed on their authenticity and integrity through time.

threats	cause(s)	secondary cause(s)	affected attributes
devaluation of property/urban decay	image problems and connectivity between its river banks		HMZQ
devaluation of property/urban decay	accessibility issues: lack of connectivity, lack of traffic continuity		HMZQ
devaluation of property/urban decay	lack of investment, both public and private		HMZQ
devaluation of property/urban decay	lack of policies and projects of redevelopment of the river banks		HMZQ
devaluation of property/urban decay	lack of social appropriation of the river banks		HMZQ
devaluation of property/urban decay	the social depreciation of housing models and services in the historic center	recentralization process of commercial and tourist activities, product promotion processes, incorporation of rural land to urban development	HMZQ
devaluation of property/urban decay	time		buildings
devaluation of property/urban decay	time		buildings
devaluation of property/urban decay	time		buildings
devaluation of property/urban decay	physical, functional and social depreciation	time	buildings
devaluation of property/urban decay	further progress in depreciation processes	uncertainty regarding the reinvestment in real estate, no clarity on the new expectations of a neighborhood	HMZQ
deterioration: negative physical change			HMZQ
deterioration: negative physical change			urban elements
deterioration: negative physical change	radical change of activities		HMZQ
deterioration: negative physical change	by the deterioration of buildings in parts of the HMZQ with differentiated property and the underutilization in its further components, reaching into the hearts of the blocks		buildings
inadequate appearance	it breaks up the heterogeneity between the nodes, pathways and edges with the presence of much visual pollution	generated by micro-industrial uses, automotive services and warehouses that are under-utilized or abandoned and are not being maintained, especially along Universidad Avenue, in the zone next to the railway line in the Industrial Parks zone, part of the San Agustín del Retablo zone and the Mill of El Fénix	appearance
inadequate appearance	since it breaks up its modern characteristics with much heterogeneity between its nodes, pathways and edges with the presence of much visual pollution	generated by micro-industrial uses, automotive services and warehouses that are under-utilized or abandoned and are not being maintained, especially along Universidad Avenue, in the zone next to the railway line in the Industrial Parks zone, part of the San Agustín del Retablo zone and the Mill of El Fénix	appearance
inadequate appearance	expressive competition for notoriety and presence in the visual space of the passer-by, becoming more aggressive the closer one gets to the main urban roads		appearance
inadequate appearance	various factors of visual pollution exist, some of which are pre-existing, such as overhead cabling and traffic lights, and others that are linked to recent socioeconomic processes, as is the case of “graffiti”, billboards, advertising on walls and awnings.		appearance

table 05. Three most mentioned threats and their respective causes and affected attributes


E
C
F
A
H
1
G
D
B

2.2 Defining the research area

The area of the HMZQ is divided into eight sectors by the municipality bordered by physical barriers in order to conduct studies on each sector (map 02).

Data on the number of protected World Heritage monuments in each sector is presented in table 06. As can be derived from the table, out of 2028 catalogued buildings within perimeter "A", sector G with 434 buildings (21.4%) includes the highest amount of monuments from these eight sectors.

A north-south axis - Calle Corregidora - divides the HMZQ into two quarters: the Spanish quarter to the west and the indigenous quarter to the east (map 02). Sector G is located within the indigenous quarter which presents an irregular pattern whereas in the Spanish quarter the streets are straight and the blocks are rectangular (ABE, 1996). The historic 'city center', defined by IMPLAN (2011) as 'multi-purpose zone', is located around the north-west part of sector G, around one of the main squares; Jardin Zenea.

The actual rate of poverty in the area could be a possible factor affecting the attributes related to the housing in sector G (Lezama-López, 2008). La Cruz, one of the traditional neighborhoods is described in "Plan Parcial de Desarrollo Urbano" (2007)[4], hereafter Plan Parcial, as one of the most representative assemblies and fundamental for the city of Querétaro. It is located in the indigenous quarter and includes almost entire sector G (excluding the blocks bordering Calle Corregidora). In an interview with Lezama-López (2013), she mentioned about the high rate of poverty in the area of La Cruz, as a finding of one of her studies.

It is mentioned in particular about La Cruz that the houses are suffering from a systematic deterioration. The buildings are repaired and extended applying modern materials and construction systems which leads to the destructing of the integrity and homogeneity of the historical monuments (IMPLAN 2012).

Preceding statements with the geographical location of sector G within the HMZQ, having the characteristics required for present study and available data from previous studies, were the main arguments to select this sector as the research area for this research.

4. English translation: Urban Development Plan

map 02. Overview of the research area - sectors of the HMZQ
1:10000

1 Jardin Zenea
Calle Corregidora
G sector definition

HMZQ
Perimeter A
surroundings

Sector	# of monuments	% of monuments
Sector A	182	9.0 %
Sector B	301	14.8 %
Sector C	197	9.7 %
Sector D	283	14.0 %
Sector E	164	8.1 %
Sector F	229	11.3 %
Sector G	434	21.4 %
Sector H	238	11.7 %
Total	**2028**	**100 %**

table 06. Distribution of the monuments in sectors

There are 31 building blocks in sector G from which two (blocks 41 and 48) have no catalogued buildings. There are 854 buildings in this sector, but data from 1990 and/or 2000 is not available for all of them. All the buildings catalogued in 1990 and/or 2000 that were originally residential, in sector G, are shown in map 04. These buildings have been researched in the field.

map 03. Overview of the research area, sector G
1:5000

3 block definition

catalogued buildings
perimeter A
HMZQ
sector G

map 04. Overview of the catalogued buildings, sector G

1:5000

catalogued buildings (1990 and/or 2000), originally residential

catalogued buildings

perimeter A

HMZQ

sector G

2.3 Field Research

2.3.1 Introduction

Querétaro has been used as a case study to reveal ongoing practices in the historic center of Querétaro, especially in the residential area 'La Cruz'. This research analyzes the relation between the replacement of residential uses by commercial activities and services, and the consequent deterioration of the monuments and the affecting of the characteristics of the housing typologies.

From the desk research phase it was recognized that there are important values to be conserved in the research area, mostly historical and aesthetical values. In this aspect, housing was considered to be the main element that through time has determined the characteristics, permanence, homogeneity and morphological evolution of the urban layout of the HMZQ.

2.3.2 Housing typologies

In general, the blocks in the HMZQ have a trapezoidal and triangular morphology of mid-sized plots between 500m^2 and 2000m^2. The building typology corresponds to buildings with one or two stories with predominantly solid walls with some openings, smooth façades finished with stone elements, all corresponding with the Baroque and Neo-classical style (IMPLAN, 2012).

The following typologies have been described in the Management Plan by IMPLAN (2012) for residential buildings in the HMZQ, whose characteristics are related to the social levels of their residents.

Type 1 concerns two-story houses in the center of the city with portals on the ground floor, appropriate for commercial activities in front of the building. The living room is located on the top floor with the balconies to the main façade. The dining room is located in the back and the bedrooms are on the sides. This type of housing belonged to the wealthy class in the city.

Type 2 involves one-story houses with side access and the layout basically consists of two bays. The access precedes a hallway that leads to the side patio, with the bedrooms located around it. The façade includes door and window framework made out of stone, although it can be plain in some cases. The door framework is finished with a cornice. This type of housing belonged to people of the social middle class.

Type 3 presents one-story houses whose layout consists of three bays, with the access in the center of the façade. The access precedes a hallway that leads to a central patio in most cases, around which the bedrooms are located. The façade generally presents the building's access in the center, flanked by two window openings, provided with window railings. The façade frameworks are made out of stone, although it can be plain in some cases. This type of housing also belonged to people of the social middle class.

Type 4 concerns all houses with one bay only. These houses are mostly located next to one another, in a row. The floor plan comprises two rooms behind one another, preceded by either the kitchen and bathroom with a patio at the back, or a patio with the kitchen and bathroom at the back. Regarding their size, the façade tends to be modest, presenting two openings; the access with a stone framework finished off with a cornice, and the window

presenting a stone or plain framework provided with window railings.

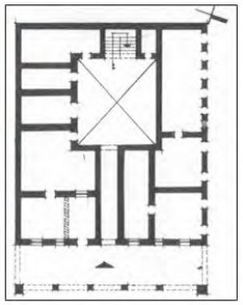
Type 5 comprises houses with only one bay but two floors. The floor plan consists of two or more rooms behind one another, which are mostly the living room, dining room, kitchen and bathroom. A staircase is located next to the access, and the bedrooms are generally on the top floor. Regarding the size of the house the façades tend to be modest. There are two kinds: the first one presents two openings on the ground floor; the access with a stone framework finished off with a cornice, and the window presenting a stone or plain framework provided with window railings. The top floor presents a window with a small balcony. The second kind has only the access opening on the ground floor and a window with a small balcony on the top floor.

Type 6 concerns two-story houses, consisting of two bays and with the access on the side. The side patio, a staircase, the living room, the dining room and the servants' bedrooms are located on the ground floor. Generally there are also commercial premises at the front of the building. On the top floor the bedrooms are located, with windows that have balconies to the main façade. Some houses of this kind have more than one patio.

Type 7 concerns two-story houses, consisting of three bays with the access in the center. The central patio, sometimes with an archway, a staircase, the living room, the dining room and the servants' bedrooms are located on the ground floor. Like in type 6, generally there are commercial premises at the front of the building on the ground floor in this type. On the top floor the bedrooms are located, with windows that have balconies to the main façade. Mostly the houses of this kind also present one or two patios at the back of the house.

Type 8 comprises all houses in which the architectonical plans present special or different characteristics, and therefore cannot be included in any of the abovementioned typologies.

1



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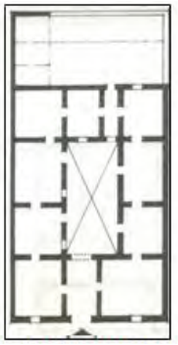

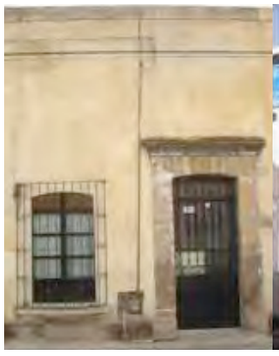

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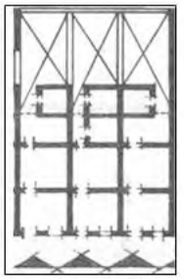

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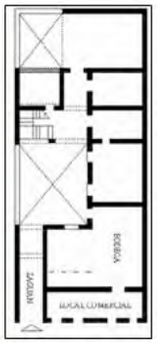
6



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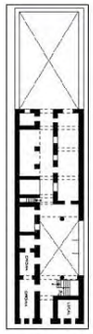
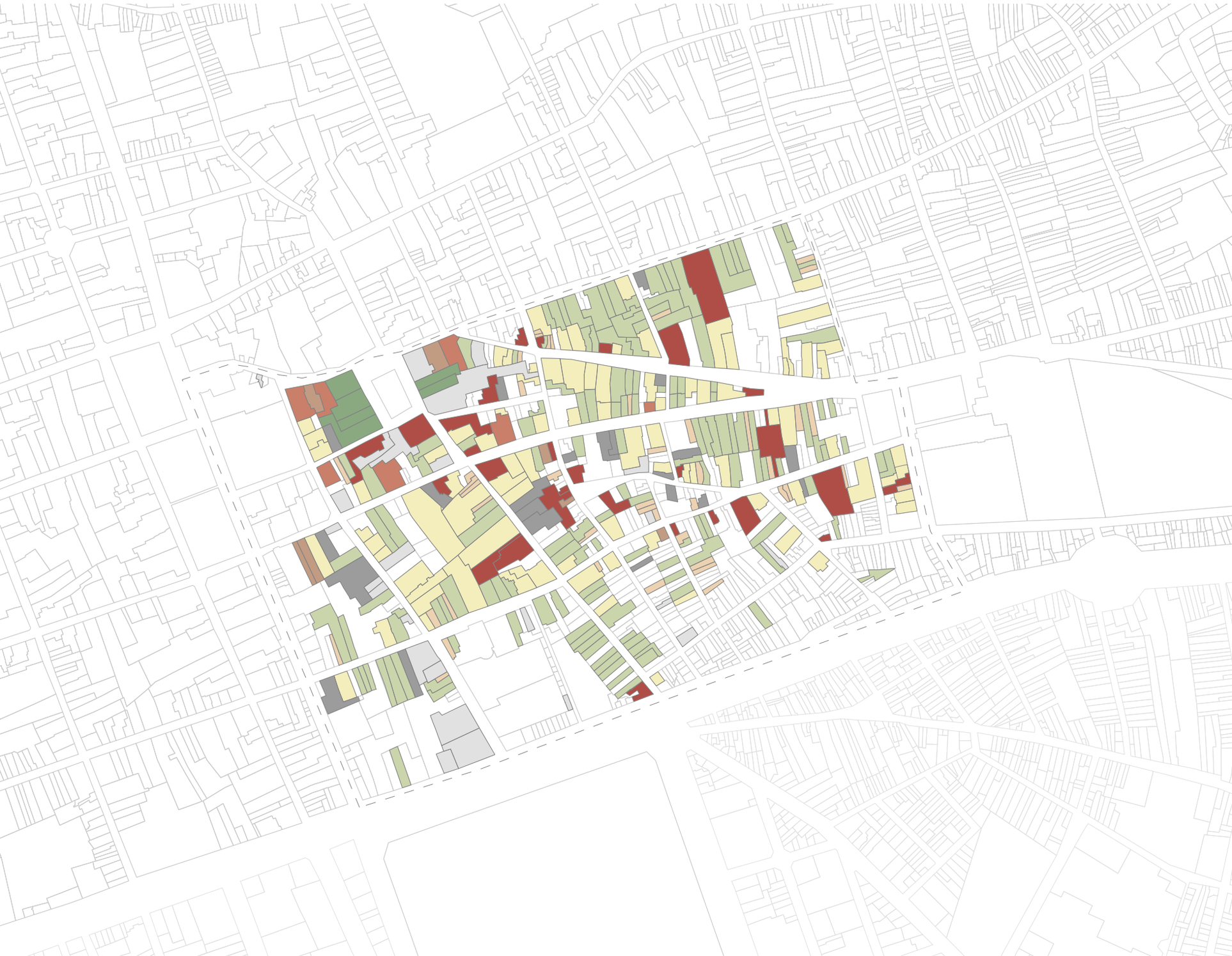


8

figure 03. Housing types - photos and floor plan (source: IMPLAN, 2012)



Map 05 is generated to show the typology of the studied houses in sector G. It is noticeable that in sector G the majority consists of houses with types 2 representing 40.1% of the houses, followed by types 3 and 4 representing 24.3% and 11.4 % respectively. Therefore almost three fourth (75.8 %) of the residential buildings is of types 2, 3 and 4. Type 8 (typology with aberrant features) covers 8.4% of the houses, and for 10.3% it was not possible to assign a typology to the building (no access or no data available) (table 06).

This observation reveals that the majority of the building stock in sector G consists of modest housing that belonged to the social middle class of Querétaro, represented by types 2, 3 and 4, all concerning one-story houses with a relatively modest floor plan. There are only 15 houses of type 5 in the entire HMZQ, located next to each other in the Spanish quarter of the HMZQ. Types 1, 6 and 7 correspond to the buildings of a bigger scale, mostly two stories, with balconies and/or portals. These houses belonged to the wealthier class of Querétaro and are concentrated around the main squares in the city center, especially in blocks 3, 5 and 15.

map 05. Housing typologies of sector G
1:5000

type 1
type 2
type 3
type 4
type 6
type 7
type 8
no valid type
no access / no data

catalogued buildings
HMZQ
sector G
surroundings

2.3.3 Façade attributes

With the help of an analysis on the attributes of the housing typologies, derived from the typology description and related texts (IMPLAN, 2012), eight main attributes presented on the façade were selected to focus on during the study: (number of) stories, (position of) main access, (number of) windows, door and window frameworks, door cornices, window railings, portals and balconies.

Each attribute is studied in a set of maps. Each set includes the ideal state of the attribute - showing which of the buildings are required to have that attribute according to the typology description, the state of the attribute in the years 1990, 2000 and 2013, the changes in the attribute - showing whether the state of the attribute has changed between the years 1990 and 2013 or not - and the type of the change. The last map for each attribute presents whether or not the state of the attribute in 2013 corresponds to the ideal state. There are buildings in which the state of the attribute does not fit the ideal state, but have not changed between 1990 and 2013, and therefore will not be shown in the map of changes.

Since the actual maps on the attributes are generated on the amount of those attributes, the maps on change only present the cases in which there is a change in the quantity of those attributes over time, not in the representation. For example: if the shape of a window has changed, it will not be considered a change, because the amount of windows will not differ over time. Therefore another method was applied in order to reveal these kind of changes. For this, the photos from different years (1990, 2000 and 2013) have been compared and changes in the attributes have been mapped. For each attribute different types of change that have occurred will be exemplified by photos of the different years.

Types	% of houses
Type 1	1.7 %
Type 2	40.1 %
Type 3	24.3 %
Type 4	11.4 %
Type 5	0.0 %
Type 6	1.9 %
Type 7	1.9 %
Type 8	8.4 %
No access, no valid type	10.3 %
Total	**100 %**

table 07. Distribution of differents housing types in sector G

1990

2000

2013

2.3.3.1 Stories

Ideal state:

The number of stories, as an attribute, is specified for types 1-7. Map 06 shows the ideal state in regard to the number of stories according to the typology description. Out of 298 buildings with a specified number of stories, 20 are two story buildings and the rest are one story buildings. Almost all (90%), of the houses with two stories are located in the west half of sector G.

1990, 2000 and 2013:

The actual number of stories in each building is shown in maps 07, 08 and 09. Roof terraces and possible basements are not included in the counting, as they do not affect the typologies in the sense of urban layout or appearance. In 1990, there are two houses with three stories (less than 1% of the studied buildings), 28 with two stories (9.4%) and the rest (89.9%) with one story. Among the 28 two- story houses, 21 are located in the west half of the area. In 2000 and 2013, the amount of three story houses remains the same unlike the amount of two story houses that increases to 9.7 % and 10.7 % respectively.

map 06. ideal state of attribute; stories
1:10000

1 story
2 stories
not specified

catalogued buildings
HMZQ
sector G
surroundings

maps 07, 08 and 09. state of attribute; stories
1990, 2000 and 2013
1:10000

1 story
2 stories
3 stories

catalogued buildings
HMZQ
sector G
surroundings

figure 04. Example of a catalogued building with one story, sector G

map 10. change of attribute; stories
1:5000

changed between 1990 - 2000
changed between 2000 - 2013
changed both periods
no change found

catalogued buildings
HMZQ
sector G
surroundings

Changes in attribute: stories

Map 10 reveals the changes in the number of stories through time showing that there are no significant changes regarding the building height in the research area. Of all 13 changes that have occurred (one between 1990 and 2000, ten between 2000 and 2013 and two in both periods, covering 4.4% of all buildings with specified number of stories), 11 are located in the middle or east half of the research area. In seven cases an extra floor has added to the building, in one case one floor is removed and the other five cases show an alteration in the height of the building without adding or removing a floor. All the buildings that added a floor were originally one story buildings.

map 11. type of change of attribute; stories

1:5000

story added
story removed
story altered
no change found

catalogued buildings
HMZQ
sector G
surroundings

stories		
story altered	story added	story removed
5	7	1

table 08. Changes in attribute: stories

1990 **2000** **2013**

figure 05. Example of catalogued building with a story altered

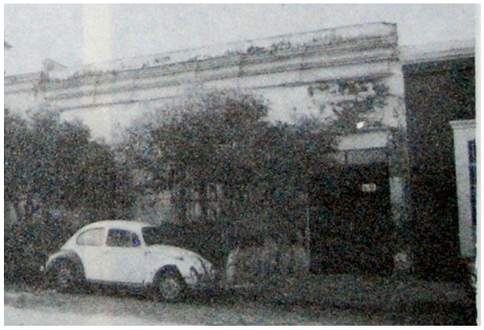
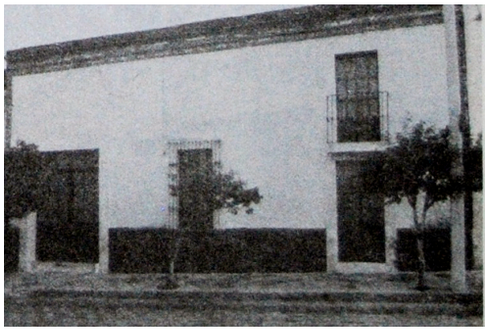


figure 06. Example of catalogued building with a story added

figure 07. Example of catalogued building with a story removed



map 12. typology comparison: stories

1:5000

fits typology

does not fit typology

catalogued buildings

HMZQ

sector G

surroundings

Typology comparison: stories

Comparing the actual number of the stories in 2013 with the ideal state of this attribute reveals that of 298 buildings analyzed in this part, 16 (5.4%) have changed in number of stories in comparison to what is shown in the ideal state. Among the 16 buildings not corresponding to the typology, nine cases were altered in height between 1990 and 2013.


1990
2000
2013

map 13. ideal state of attribute; entrance
1:10000

side access
central access
not specified

catalogued buildings
HMZQ
sector G
surroundings

2.3.3.2 Entrance

Ideal state:

The position of the main entrance of a building is mentioned as an attribute in five building types, covering 292 buildings in the studied area. The buildings shown in the map 13 present central or side access. Hereby buildings with an entrance flanked by two or more windows have central access and buildings presenting one or more windows at only one side of the entrance have side access.

1990, 2000 and 2013:

In maps 14, 15 and 16, a third type of entrance is added, which is when the access to the building in neither side nor central ("other"). Some examples of this case are the buildings with more than one entrance or the ones without any window. In this case the buildings are classified on the number of the entrances in order to study the changes that have occurred over time.

Of all 292 studied buildings in this category, 69 buildings (23.6%) do not have side or central access in 1990 (called 'other'). Among those, most cases (50.7%) have two entrances, 29% have three, 11.6% have one entrance and 8.7% have four entrances or more. In between 1990 and 2000, the amount of houses in each category stays almost the same. An exception is a slight increase of 1.1% in the buildings with an "other" entrance, specifically in the houses with two and three entrances. The number of buildings with an "other" entrance rises also between 2000 and 2013 and reaches 28.1%, with a decrease in one entrance buildings (0.7%) and increase in the ones with two or three entrances (3.1% and 1% respectively). The buildings with different types and number of entrances are distributed all around the studied area.

maps 14, 15 and 16. state of attribute; entrance
1990, 2000 and 2013
1:10000

side access
central access
other (1 door)
other (2 doors)
other (3 doors)
other (4 or more doors)

catalogued buildings
HMZQ
sector G
surroundings

figure 08. Example of a catalogued building with central access, sector G

map 17. change of attribute; entrance
1:5000

changed between 1990 - 2000
changed between 2000 - 2013
changed both periods
no change found

catalogued buildings
HMZQ
sector G
surroundings

Changes in attribute: entrance

In total, ten of 292 houses (3.4%) have changed over time in terms of the entrance. Among those ten changes, two have occurred between 1990 and 2000, six between 2000 and 2011 and two in both periods. In three cases, a door has been added to the building and in two cases a door has been removed. In six cases a door has altered and in one case the door has changed into a window.

map 18. type of change of attribute; entrance

1:5000

- door removed + door added
- door into window + door added
- door altered + door added
- door removed
- door altered
- no change found

- catalogued buildings
- HMZQ
- sector G
- surroundings

access			
door into window	door altered	door added	door removed
1	6	3	2

table 09. Changes in attribute: entrance

1990 **2000** **2013**

figure 09. Example of catalogued building with a door turned into a window

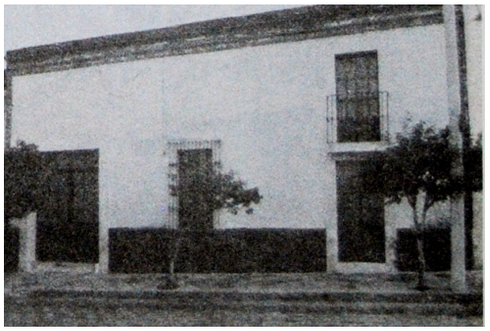


figure 10. Example of catalogued building with an altered door

figure 11. Example of catalogued building with a door added

1990 **2000** **2013**

figure 12. Example of catalogued building with a door removed

Typology comparison: entrance

The state of the entrances in 2013 is compared with the ideal state. The result of this comparison is illustrated in map 19, showing that of the 292 houses studied in this part, 85 (29.1%) do not fit the typology description in terms of entrance type and are equally spread in the whole studied area. A comparison between map 19 and map 18 reveals that 7.1% of the buildings that do not correspond with the typology, have changed over time, and therefore in the remaining buildings the change occurred before 1990.

map 19. typology fit; entrance
1:5000

fits typology
does not fit typology

catalogued buildings
HMZQ
sector G
surroundings


1990
2000
2013

map 20. ideal state of attribute; windows
1:10000

side window (1)
side window(s) (1 or more)
2 or more windows
not specified

catalogued buildings
HMZQ
sector G
surroundings

2.3.3.3 Windows

Ideal state:

The amount of windows is mentioned as an attribute for types 1-7 as it is shown in the map 20. The houses are classified in three groups; the ones with one window (14.4%) , one or more windows (37.3%) or two or more windows(48.3%).

1990, 2000 and 2013:

In these maps, in order to be able to trace the changes in the number of windows over time, the actual amount of windows in each building is shown in each year. In 1990, of all 297 studied buildings on this attribute, 37 (12.5%) have no windows, and the amount of buildings with one, two and three windows are 136 (45.8%), 74 (24.9%) and 22 (7.4%) respectively. The rest of the buildings (9.4%) have four or more windows. In the west half of the research area most of the buildings with three, four and more windows are located and their quantity does not vary over time, dislike the east half, in which buildings with no or one window are mostly located and present changes in their amount over time; one window buildings fall to 42.4% in 2013 and buildings with no window increase to reach 16.5% in 2013. The two window buildings are distributed all around the area and they present a slight decrease of 0.7% in their amount between 1990 and 2013.

maps 21, 22 and 23. state of attribute; windows
1990, 2000 and 2013
1:10000

no window
1 window
2 windows
3 windows
4 or more windows

catalogued buildings
HMZQ
sector G
surroundings

figure 13. Example of a catalogued building with three windows, sector G

map 24. change of attribute; windows
1:5000

changed between 1990 - 2000
changed between 2000 - 2013
changed both periods
no change found

catalogued buildings
HMZQ
sector G
surroundings

Changes in attribute: entrance

In total 25 changes have occurred in 21 houses out of 298 studied ones (7%). In five houses the change has taken place between 1990 and 2000, in 14 between 2000 and 2013 and two in both periods. The most occurred change is the change of a window into door that has happened in 17 cases. Other types of change are when a window has been added (four cases) or removed (three cases) or altered (one case).

map 25. type of change of attribute; windows

1:5000

- window into door + window added
- window into door + window altered
- window removed + window added
- window into door
- window removed
- window added
- window altered
- no change found

- catalogued buildings
- HMZQ
- sector G
- surroundings

windows			
window into door	window altered	window added	window removed
17	2	4	3

table 10. Changes in attribute: windows

1990 **2000** **2013**

figure 14. Example of catalogued building with a window turned into a door

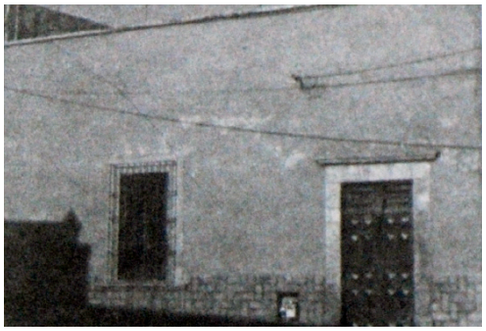


figure 15. Example of catalogued building with an altered window

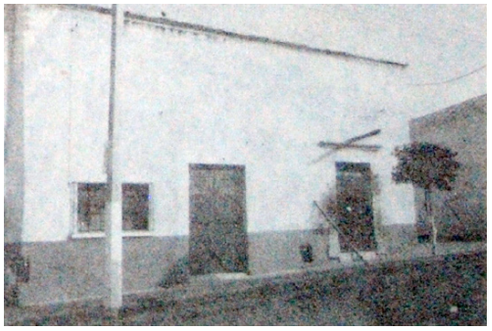


figure 16. Example of catalogued building with a window added

1990 **2000** **2013**

figure 17. Example of catalogued building with a window removed

Typology comparison: windows

In map 26 the outcome of a comparison between the map of amount of windows in 2013 and the ideal state of the windows, reveals that of all 297 buildings with window as an attribute, 62 do not correspond to the typology descriptions of which 62.9% are located in the east half of the research area. Of those 62 buildings, 16 have presented a change in the amount of windows at least once between 1990 and 2013.

map 26. typology fit; windows
1:5000

fits typology
does not fit typology

catalogued buildings
HMZQ
sector G
surroundings


1990
2000
2013

map 27. ideal state of attribute; door and window frameworks, stone or plain
1:10000

stone or plain framework
not specified

catalogued buildings
HMZQ
sector G
surroundings

2.3.3.4 Door and window frameworks

Ideal state:

The framework of the door or window is an attribute for types 2, 3, 4 and 5 and therefore in 278 buildings in the studied area.

1990, 2000 and 2013:

The frameworks are described to be plain or made out of stone, but they are not valued separately. Hence, in order to be able to compare the amount of frameworks, the plain and stone frameworks are illustrated in separate maps.

Stone framework:

In 1990, the buildings with two stone frameworks around their openings are represented most (36.9% of all studied houses) in the research area. This amount is followed by the buildings possessing three (22.6%), four or more (17.9%) and one (14.7%) stone framework(s). The remaining buildings (7.9%) do not present any stone framework on their façade. The state of the buildings in terms of stone frameworks remains almost the same until 2013, the only exceptions are slight changes between 2000 and 2013 in the amount of buildings with no and two stone frameworks; an increase of 0.3% and a decrease of 0.7% respectively. The buildings with no or one stone framework are mostly distributed in the east half of the area and other buildings are spread all around the area.

maps 28, 29 and 30. state of attribute; stone frameworks, 1990, 2000 and 2013
1:10000

no stone framework
1 stone framework
2 stone frameworks
3 stone frameworks
4 or more stone frameworks

catalogued buildings
HMZQ
sector G
surroundings

figure 17. Example of a catalogued building with stone frameworks, sector G


1990
2000
2011

map 31. ideal state of attribute; door and window frameworks, stone or plain
1:10000

stone or plain framework
not specified

catalogued buildings
HMZQ
sector G
surroundings

maps 32, 33 and 34. state of attribute; plain frameworks, 1990, 2000 and 2013
1:10000

no plain framework
1 plain framework
2 plain frameworks
3 plain frameworks
4 or more plain frameworks

catalogued buildings
HMZQ
sector G
surroundings

Plain framework:

In 1990, most of the studied buildings (76.6%) do not have plain frameworks around their openings. The percentage of the buildings with one, two or three plain frameworks is 12.2%, 8.3% and 2.2% respectively. Only two buildings (0.7%) have four or more plain frameworks in their facade. In 2000 and 2013 the state of the buildings in terms of number of plain frameworks is almost the same as that of 1990, the only exception is in 2013 where the number of the buildings with no plain framework is one less than other years and instead one case is added to the number of buildings with two plain frameworks.

figure 18. Example of a catalogued building with plain frameworks, sector G

map 35. change of attribute; door and window frameworks
1:5000

changed between 1990 - 2000
changed between 2000 - 2013
changed both periods
no change found

catalogued buildings
HMZQ
sector G
surroundings

Changes in attribute: door and window frameworks

A comparison among the state of the frameworks in different years reveals the changes that have taken place in the opening frameworks in the buildings over time. In total of all 279 houses possessing this attribute, 29 (10.4%) have presented a change in one or more frameworks. Of those changes, six have occurred between 1990 and 2000 and 21 between 2000 and 2011. The other two are in both periods. In 29 houses presenting a change in their frameworks, 27 changes have taken place, including: altering (19 cases), adding (three cases) and removing (five cases) a framework. The examples of the changes are shown in photos 19, 20 and 21.

map 36. type of change of attribute; door and window frameworks

1:5000

- frame added + frame removed
- frame altered + frame removed
- frame altered + frame added
- frame removed
- frame added
- frame altered
- no change found

- catalogued buildings
- HMZQ
- sector G
- surroundings

door and window frameworks		
frame altered	frame added	frame removed
19	3	5

table 11. Changes in attribute: door and window frameworks

1990 **2000** **2013**

figure 19. Example of catalogued building with an altered frame

figure 20. Example of catalogued building with a frame added

figure 21. Example of catalogued building with a frame removed

map 37. typology fit; frameworks
1:5000

fits typology

catalogued buildings
HMZQ
sector G
surroundings

Typology comparison: door and window frameworks

Comparing the state of the frameworks in 2013 with the typology map shows that in all the buildings the attribute is still present and therefore all the buildings fit the typology description on this attribute.

1990

2000

2013

map 38. ideal state of attribute; door cornices
1:10000

presents door cornice(s)
not specified

catalogued buildings
HMZQ
sector G
surroundings

2.3.3.5 Door cornices

Ideal state:

In houses of types 2, 4 and 5 the cornices around openings are valued as an attribute in the building typology. In map 38 all 191 houses that should present cornices according to the typology description are illustrated.

1990, 2000 and 2013:

In these maps, the amount of the cornices present in each building is shown for each year. In 1990, more than half of the buildings in which cornice is valued as an attribute (54.5%), do not present cornices around their openings. In 20.4% of the buildings only one opening is surrounded by a cornice. This is less for the buildings with two (19.4%) and three (4.7%) openings with cornices. In only two buildings (1%), there are four or more cornices around the openings. In 2000 and 2013 the state of the buildings in the area in terms of amount of cornices present in the facade, are the same as that of 1990.

maps 39, 40 and 41. state of attribute; door cornices
1990, 2000 and 2013
1:10000

no door cornice
1 door cornice
2 door cornices
3 door cornices
4 or more door cornices

catalogued buildings
HMZQ
sector G
surroundings

figure 22. Example of a door with a door cornice, sector G

Changes in attribute: door cornices

As it is shown in map 42, there is no change in presence or amount of cornices around the openings in the studied buildings between 1990 and 2013.

map 42. change of attribute; door cornices
1:5000

no change found

catalogued buildings
HMZQ
sector G
surroundings

map 43. typology fit; door cornices
1:5000

fits typology
does not fit typology

catalogued buildings
HMZQ
sector G
surroundings

Typology comparison: door cornices

Comparing the state of the cornices in 2013 with the ideal map shows that in more than half (53.9%) of the studied buildings possessing this attribute, the state of the cornices differs from the description in building typology.

1990

2000

2013

map 44. ideal state of attribute; window railings
1:10000

presents window railing(s)
not specified

catalogued buildings
HMZQ
sector G
surroundings

2.3.3.6 Window railings

Ideal state:

The window railing is mentioned as attribute for types 3, 4 and 5, covering 128 buildings in the studied area (map 44).

1990, 2000 and 2013:

In most of the studied buildings regarding this attribute, the façade presents two windows with railings in 1990 (36.7%). This amount is followed by buildings with one window with railings (30.5%), no window with railings (16.4%) and three windows with railings (10.9%). The houses presenting four or more windows with railings are represented the least in the area (5.5%). These buildings are mostly located in the west half of the studied area, and the amount stays the same in the years 2000 and 2013. The buildings with no or one window railing are mostly located in the east half of the area and they do change in amount between 1990 and 2013: buildings with no railings increase in amount and reach 20.3% in 2013 while there is a decrease of 4.7% in the amount of houses presenting one railing. Houses with two window railings are distributed equally in the whole research area and have the same amount in 1990 and 2000, and a slight rise of 0.8% between 2000 and 2013.

maps 45, 46 and 47. state of attribute; window railings, 1990, 2000 and 2013
1:10000

no window railing
1 window railing
2 window railings
3 window railings
4 or more window railings

catalogued buildings
HMZQ
sector G
surroundings

figure 23. Example of a window with window railings, sector G

Changes in attribute: window railings

Between the years 1990 and 2013, among all 128 buildings that have window railings as an attribute, in only five cases the window railings have changed (3.9%). Two of the changes have occurred between 1990 and 2000 and three between 2000 and 2013. The railings are either removed (four cases) or added (one case).

map 48. change of attribute; window railings
1:5000

changed between 1990 - 2000
changed between 2000 - 2013
no change found

catalogued buildings
HMZQ
sector G
surroundings

map 49. type of change of attribute;
window railings
1:5000

window railing removed
window railing added
no change found

catalogued buildings
HMZQ
sector G
surroundings

railings	
railing added	railing removed
1	4

table 12. Changes in attribute: door and window frameworks

1990 **2000** **2013**

figure 24. Example of catalogued building with railings added

figure 25. Example of catalogued building with railings removed

map 50. typology fit; window railings

1:5000

fits typology

does not fit typology

catalogued buildings

HMZQ

sector G

surroundings

Typology comparison: window railings

Of all 128 studied buidings for this attribute, 28 do not present window railings according to the typology description and therefore they do not fit the typology. Almost two third (64.3%) of these buildings are in the east half of the area.

1990

2000

2011

map 51. ideal state of attributes; portals
1:10000

presents portals
not specified

catalogued buildings
HMZQ
sector G
surroundings

2.3.3.7 Portals

Ideal state:

Portals are considered as an attribute only in the buildings of type one (six buildings), as presented in map 51. These buildings are located in blocks 3 and 5, in the north-west part of the research area.

1990, 2000 and 2013:

In 1990, of six buildings present portals, three have two portals, one has three portals and two have four or more portals. The same observations could be made for 2000 and 2013.

maps 52, 53 and 54. state of attribute; portals
1990, 2000 and 2013
1:10000

2 portals
3 portals
4 or more portals

catalogued buildings
HMZQ
sector G
surroundings

figure 26. Example of a catalogued building with portals, sector G

Changes in attribute: portals

Comparing the state of the portals in the buildings between 1990 and 2013 reveals no changes in the presence or amount of the portals.

map 55. change of attribute; portals
1:5000

no change

catalogued buildings
HMZQ
sector G
surroundings

map 56. typology fit; portals
1:5000

fits typology

catalogued buildings
HMZQ
sector G
surroundings

Typology comparison: portals

Comparing the actual state of portals in 2013 with the ideal map shows that all the portals are still present in the buildings with portals as an attribute.


1990
2000
2013

2.3.3.8 Balconies

map 57. ideal state of attribute; balconies
1:10000

presents balconie(s)
not specified

catalogued buildings
HMZQ
sector G
surroundings

Ideal state:

The typology description values balconies present on the façade for types 1, 5, 6 and 7, covering 20 buildings in the research area. These buildings are mostly located in the west half of the research area except for two cases.

1990, 2000 and 2013:

These maps are generated based on the amount of balconies present. In 1990, 2000 and 2013, the balcony is no longer present in two buildings (10%). In one building (5%) there is only one balcony. Four houses (20%) have two balconies and and eight houses (40%) have three balconies. The amount of the houses with four or more balconies is five (25%).

maps 58, 59 and 60. state of attribute; balconies
1990, 2000 and 2013
1:10000

no balcony
1 balcony
2 balconies
3 balconies
4 or more balconies

catalogued buildings
HMZQ
sector G
surroundings

figure 27. Example of a catalogued building with balconies, sector G

Changes in attribute: balconies

The map on changes in balconies (map 61) aims to show the authenticity of the original balconies present in the research area. Of the houses that originally presented a balcony on their main façade, all still have their balcony. No balconies have been added or removed between 1990 and 2013 and this attribute is still present in the research area.

map 61. change of attribute; balconies
1:5000

no change

catalogued buildings
HMZQ
sector G
surroundings

map 62. typology fit; balconies
1:5000

fits typology
does not fit typology

catalogued buildings
HMZQ
sector G
surroundings

Typology comparison: balconies

There are two buildings in the studied area (10%) in which the state of the balcony in 2013 is different from the description. None of the non-corresponding buildings has presented a change in the amount of balconies over time.

map 63. Change of façade attributes, 1990 - 2013
1:5000

changed between 1990 - 2000
changed between 2000 - 2013
changed both periods
no change

catalogued buildings
HMZQ
sector G
surroundings

2.3.3.9 Attributes combined

Earlier in this chapter, eight attributes were studied separately and the changes in the buildings were analyzed. The maps in this part are generated as the conclusion of all separated attributes in order to have an overview of how the buildings, conveying one or more of those attributes, have changed over time. Whenever at least one attribute in the building has changed over time, the building is marked as changed.

Changes in façade attributes

In total, of all 374 buildings which originally had residential use, 335 have at least one attribute defined. Among the 335 buildings possessing at least one defined attribute, 40 (11.9%) have witnessed at least one change in at least one attribute, among those 20.0% have changed between 1990 and 2000 and 75.0% between 2000 and 2011. The remaining 5.0% of the buildings have changed in both periods.

map 64. Facade attributes, type of change

1:5000

changed towards typology
changed
no change

catalogued buildings
HMZQ
sector G
surroundings

As more than one attribute might have changed in a building, the number of the changes in the attributes is more than that of the buildings with changed attributes. In total, 84 attribute changes have occurred in 40 houses. Of these 84, the most occurred change is the alteration in the framework (22.4%). This amount is followed by the amount of the windows changed into doors (20.0%), added stories (8.2%), altered doors (7.1%), altered stories and removed frameworks (5.9%). Other changes in the attributes are as follows: removed railing, added door or added window (4.7%), added framework, removed door or removed window (3.5%), altered window (2.4%), removed story, door changed into window or added railing (1.2%).

	stories			access				windows				door and window frameworks			cornices	railings		portals	balconies	buildings	
with reference	story altered	story added	story removed	door into window	door altered	door added	door removed	window into door	window altered	window added	window removed	frame altered	frame added	frame removed	cornice added	railing added	railing removed	change in portals	change in balconies	demolished	total
attribute affected	5	6	0	0	6	2	1	16	1	2	1	18	3	4	0	1	4	0	0	1	71
change towards original type	0	1	1	1	0	1	1	1	1	2	2	1	0	1	0	0	0	0	0	0	13
total	5	7	1	1	6	3	2	17	2	4	3	19	3	5	0	1	4	0	0	1	84

table 13. Changes in attribute: door and window frameworks

map 65. Typology comparison, 2013
1:5000

corresponds with type
does not correspond with type
no valid type

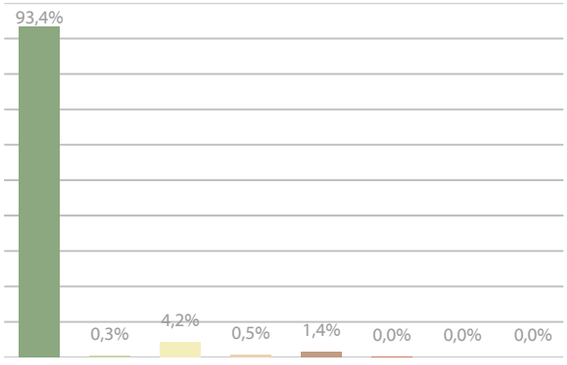
catalogued buildings
HMZQ
sector G
surroundings

Typology comparison: all attributes

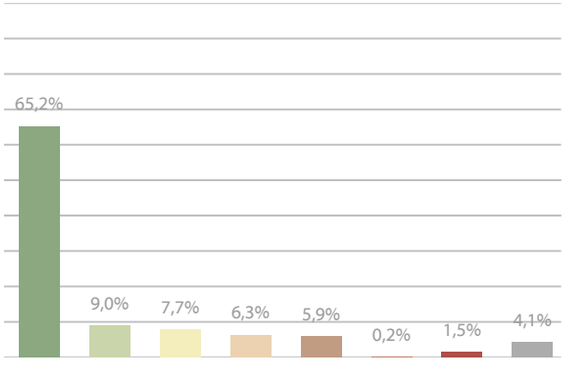
Map 65 shows the buildings that still correspond to the typology. Whenever there is at least one changed attribute in a building, then that building is colored as not having all its defined attributes present and therefore not corresponding to the typology. Among those 335 houses, 202 (60.3%) still have all their defined attributes present in 2013. In 133 houses (39.7%), at least one of the attributes has been changed over time.

Not all attribute changes negatively affect the assigned housing typology. Due to the assigned types and the typology description it could be determined that in some cases an attribute has been changed towards the description of a certain type (table 13). Of the 40 buildings that present changes, 37 buildings include 71 changes that have affected the typology in a negative way which represent 10.4% of all researched houses with defined attribute(s). Three buildings have changed in a way that the building seemed to fit the original typology more, though these still affect the authenticity of the property.

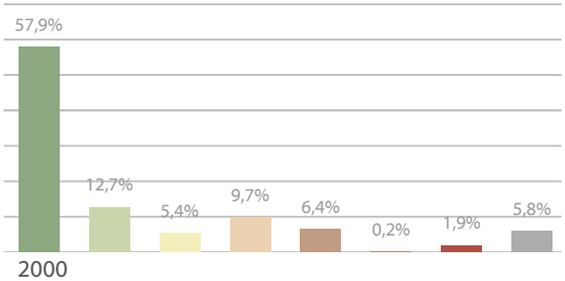
HMZQ



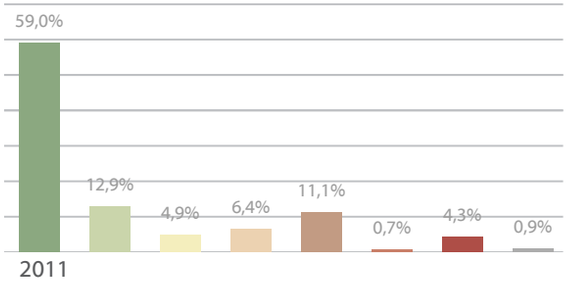
date of origin



1990

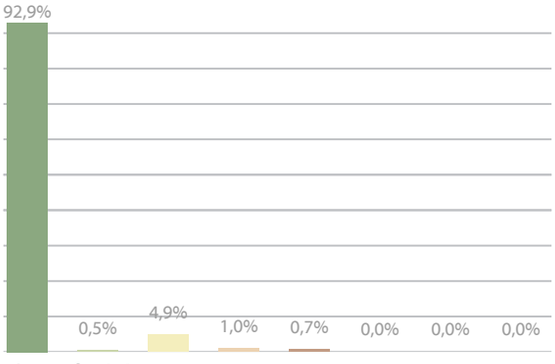


2000

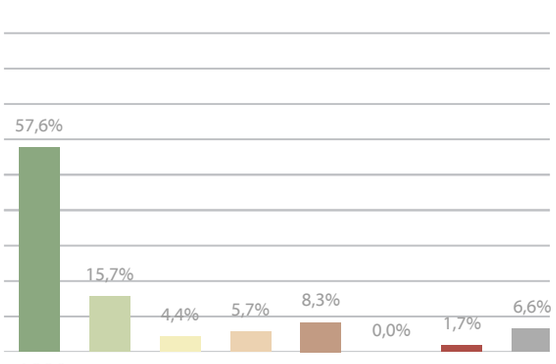


2011

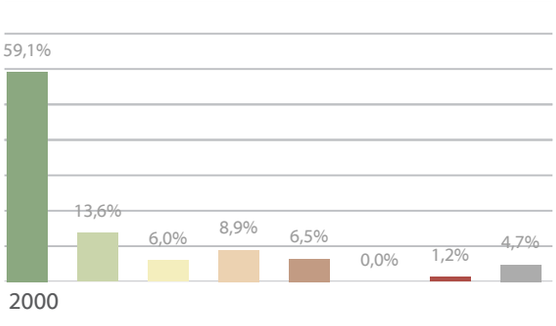
sector G



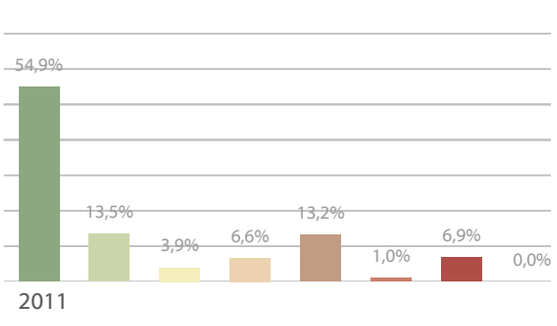
date of origin



1990



2000



2011

2.3.4 Land use

The proportion of different land uses is shown in figure 28 for the original use and for the years 1990, 2000 and 2011. A comparison among these charts presents an overview of the changes in land use from the time of construction until 2011. Originally 93.4% of the buildings in HMZQ had residential use. In 2011, residential buildings cover 59.0% of HMZQ the buildings and are spread mostly in the indigenous quarter. In contrast, the number of commercial uses has increased from 0.6% in the original date to 6.4% in 2011.

Comparing these rates for sector G shows a similar pattern: from 93.0% of originally residential uses in sector G, 54.9 % have kept their original use until 2011, which is slightly less than the percentage of residential buildings in the whole HMZQ. The decrease in residential use is higher in the blocks in the western half of sector G which are closer to the Spanish quarter. The amount of commercial uses also show a similar pattern compared to the entire HMZQ: it increased from 1.0 % in the original situation to 6.6% in 2011.

In 2011, 6.7 % of the buildings in sector G are occupied by mixed use, which is almost twice as much as this amount for the HMZQ (4.3%). In general, in both HMZQ and sector G, from original date until 2011, number of residential buildings has decreased dramatically, while mixed uses, services and commercial uses have increased in number. Public facilities and industries did not present a representative change in amount.

figure 28. Land use, 2011, HMZQ and sector G
adapted from IMPLAN


1990
2000
2011

map 66. Original residential use, sector G
adapted from IMPLAN
1:10000

original residential use

catalogued buildings
HMZQ
sector G
surroundings

maps 67, 68 and 69. Land use, 1990, 2000 and 2011
adapted from IMPLAN
1:10000

residential use
mixed use including residential use
public facility
commercial use
service
industry
mixed use
no use
no data

catalogued buildings
HMZQ
sector G
surroundings

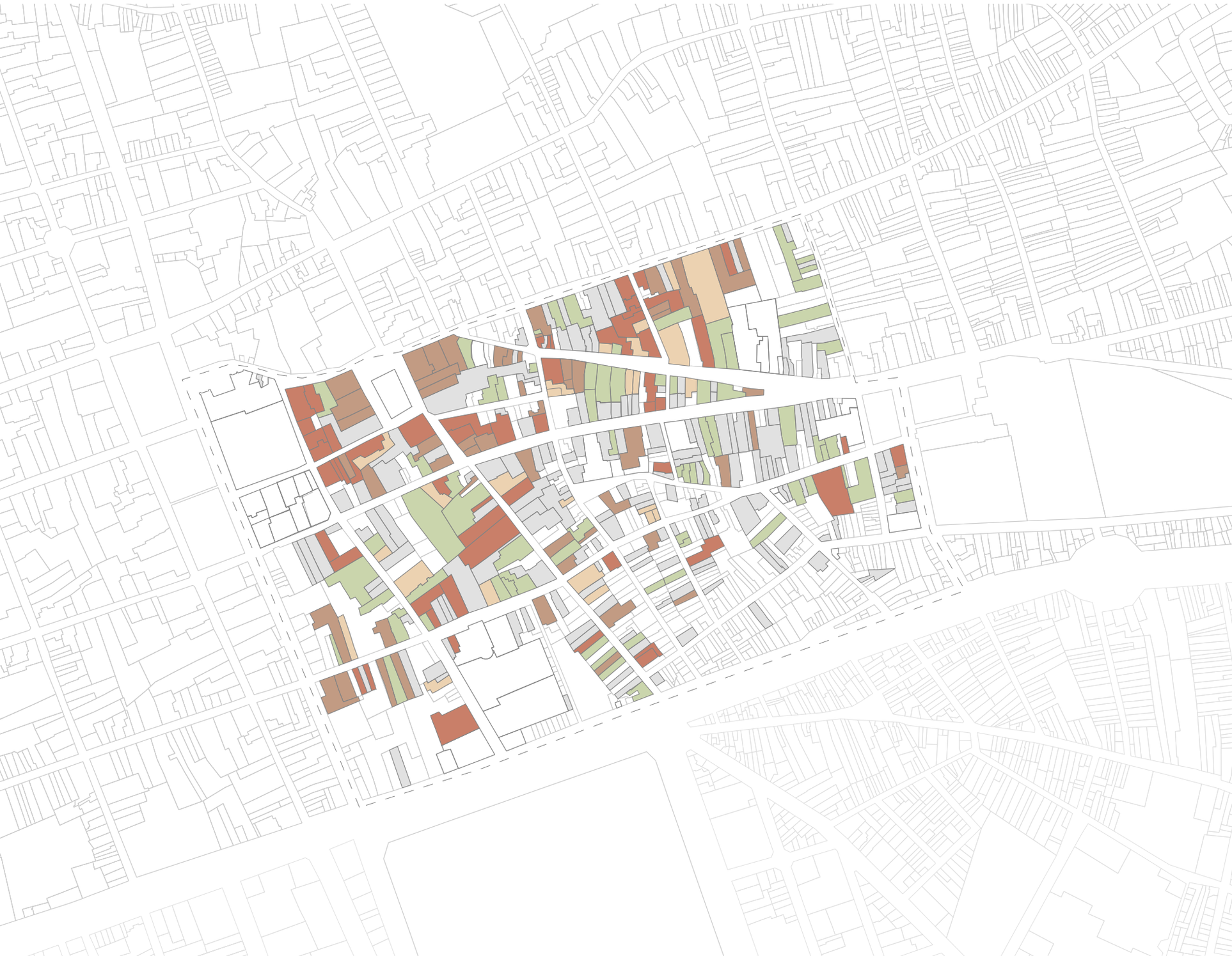
Residential use: original, 1990, 2000 and 2011

In order to study the evolution of the residential use in the studied area, the buildings that were constructed as residential buildings are shown in map 66. Originally 92.9% of the catalogued buildings in sector G had residential use.

1990, 2000 and 2011:

The use of the buildings in 1990, 2000 and 2011 are illustrated in maps 67, 68 and 69. Of all 374 buildings, 61.7% kept their original use until 1990 and 8.9%, 5.1% and 1.4% changed into respectively services, commercial and public facilities. 0.5% are occupied by mixed uses and in 15.4% another use has been added to the residential use. 7.0% of the original houses had no function in 1990. The original houses kept losing their original function to reach 57.8% in 2011. Instead, mixed uses increased to 6.1%. Between 1990 and 2000, there was a rise in the rate of public facilities and commercial uses (5.9% and 8.9% in 2000), but between 2000 and 2011 they decreased to 2.1% and 6.6% respectively. In contrast, the number of buildings with service use and the ones that were mixed with residential use went down to 6.4% and 12.3% in 2000 and rose to 13.3% in 2011.

In general the buildings with uses other than residential, especially services, public facilities and mixed use, are mostly to be found in the west half of the research are, closer to the Spanish quarter.



Changes in originally residential uses

The map of change in the land use demonstrates whether the land use of a building has changed in a building between 1990 and 2011 or not. Of all 374 buildings with original residential use, 200 (53.5%) have data for all years (1990, 2000 and 2011). Among the buildings with available data in all years, 12.5% have changed in terms of land use between 1990 and 2000. 26%% have changed between 2000 and 2011 and in 27.5% the changed has occurred in both periods. The buildings that present a change are distributed equally over the entire research area.

map 70. Changes in originally residential uses, 1990 - 2011, sector G
1:5000

changed between 1990 - 2000
changed between 2000 - 2011
changed both periods
no change
no data

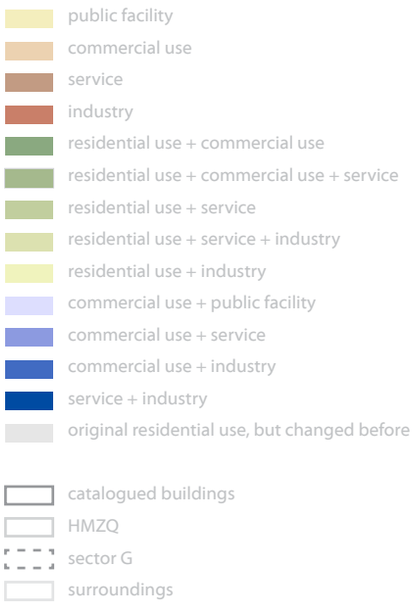
catalogued buildings
HMZQ
sector G
surroundings

New land uses of originally residential uses

Map 71 is generated in order to study the new uses that are replacing the original houses.

Almost one third (32.8%) of the buildings that have shown a change in their land use are occupied by services (21.2%) or commercial uses (10.6%) in 2011. 3.5% have turned into public facilities and 1.3% have industrial use. Almost half (43.8%) of the studied area is covered by the buildings that have (partly) residential use among those 23% are mixed with other uses and 20.7% have residential use in 2011 although their land uses have changed before. Among the buildings possessing mixed including residential uses, the highest amount concern the service and commercial use with 44.2% and 40.3% respectively. Commercial and service (9.6%), service and industrial (3.8%) and industrial use (1.9%) are also mixed with the residential uses. The buildings that do not have residential use as (part of) their use are mostly located in the west half of the area.

map 71. New land uses ("changed into") of originally residential buildings, 2011, sector G
adapted from IMPLAN
1:5000



Land use	% of buildings
Mixed including residential	23.0 %
Public facilities	3.5 %
Commercial	10.6 %
Services	21.2 %
Industry	1.3 %
Mixed use	9.7 %
Residential with previous change	20.7%
Total	**100 %**

table 14. Specific changes ("changed into") of originally residential buildings, 2011

Changes in originally residential uses: 2011

Map 72 is generated as a conclusion map on changes in the land use. It is shown in the map whether the use of the building has changed or not. It is also shown if the use of the building has changed back into the original use. The buildings presenting a change are mostly in the west half of the area, instead the number of the ones with change to the original state are higher in the east half. The buildings that have the same use as the original one are distributed evenly in the area.

map 72. Changes in originally residential uses, 2011, sector G

1:5000

changed
changed back
original use
no data

catalogued buildings
HMZQ
sector G
surroundings

map 73. Originally residential uses, 2011, sector G
1:5000

original residential use

catalogued buildings
HMZQ
sector G
surroundings

Original residential use left

Map 73 is generated to give an overview of the buildings that in 2011 still keep their original use. It shows that out of 374 buidlings with the original residential buildings, 195 (52.1%) are still residential and are mostly to be found on the east half of the area.

sector G

1990

2000

2011

2.3.5 State of conservation

Within the research area, the state of conservation of the catalogued buildings with originally residential use was analyzed using a study from INAH, available in a database provided by IMPLAN. The results are shown in the following three maps in this chapter. First the state of conservation of the buildings - good, regular or bad - has been illustrated for each year (maps 74, 75 and 76). Map 77 shows if the state of a building has changed between 1990 and 2011, and the type of change - improvement or deterioration - is shown in map 78. The state of conservation is studied for four elements in the buildings: roof, façade, walls and mezzanine, and each of them might be in "good", "regular" or "bad" condition. But the state of conservation available in the database from IMPLAN concerns the whole building. Specified criteria were taken into account when deciding on the state of conservation of the building but they are not described in the Management Plan or catalogues by INAH.

The amount of available data on the state of conservation varies in different years (table 15). Therefore the comparative maps are generated on the buildings for which the data is available for 1990, 2000 and 2011.

1990, 2000 and 2011:

In 1990, 53.8% of the originally residential buildings were in regular condition and this rate has decreased 30.1% in 2011. The amount of buildings in good condition has increased from 37.6 % in 1990 to 54.7% in 2000 but has a slight decrease between 2000 and 2011 (0.3%). As it can be seen in maps 74, 75 and 76, the houses in the west half of the area, which are closer to the center, are mostly in good or regular condition (except for some buildings in bad condition in 1990).

maps 74, 75 and 76. State of conservation of originally residential buildings, 1990, 2000 and 2011, sector G
Adapted from IMPLAN
1:10000

good
regular
bad
no data

catalogued buildings
HMZQ
sector G
surroundings

Year	No data	Total
1990	172	374
2000	11	374
2011	6	374

table 15. Amount of buldings with no data for each year in sector G

map 77.Change of state of conservation, 1990 - 2011, sector G

1:5000

changed between 1990 - 2000
changed between 2000 - 2011
changed both periods
no change
no data

catalogued buildings
HMZQ
sector G
surroundings

Changes in state of conservation

Map 77 shows the results of a comparison between 1990 and 2011 in the state of conservation of the studied buidings. Between 1990 and 2000 the condition of 49% of the buildings has either improved (33%) or deteriorated (16%). The rates of the improvements and deteriorations between 2000 and 2011 are 22.1% and 30.1% respectively.

Between 1990 and 2011, 35.1 % of the buildings show an improvement in the state of conservation and 21% have deteriorated, while 43.9% were in the same condition in both 1990 and 2011.

It is also understood from map 78 that the buildings in western half of the studied area - which are closer to the city center - are mostly in the same or better condition in 2011 compared to 1990.

map 78.Type of change of state of conservation, 1990 - 2011, sector G

1:5000

improved
no change
deteriorated
no data

catalogued buildings
HMZQ
sector G
surroundings

	Improved	No change	Deteriorated
1990-2000	33.0 %	51.0 %	16.0 %
2000-2011	22.1 %	47.8 %	30.1 %
1990-2011	35.1 %	43.9 %	21.0 %

table 16. Changes in state of conservation, 1990 - 2011, sector G

3 Relations

3.1 Introduction

As stated in the methodology of this research, the trend of change in land use in relation to façade attributes and the state of conservation was adopted as main topic.

In sector G, 374 buildings were originally residential. Of these, 200 (53.5%) presented relevant data to state that 66.0% of the 200 buildings have changed land use. Therefore the relation between the façade attributes and the originally residential buildings has been explored. The change in use is also studied in relation to the state of conservation.

threats \ attributes	HMZQ	buildings	population	traditional neighborhoods	appearance	cultural strenght	political aspects	San Gregorio	Querétaro	urban elements	urban layout	nomination	natural environment	conservation and restoration	morphology of the blocks	activities of inhabitant	traditions of inhabitants	customs of inhabitants	street layout	total
devaluation of property/urban decay	7	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
deterioration: negative physical change	2	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	4
inadequate appearance	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
people coming from other municipalities in the state of Queretaro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	3
deterioration of buildings	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
noise and air pollution	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
decline of population	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
inadequate conservation	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2
marginality	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
humidity of the walls	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
degradation: social decomposition	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
recentralization process of commercial and tourist activities	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
social depriation of existing urban spaces	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
devaluation of traditional neightboods	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
organized crime, drugaddiction	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
losing inscription on WHL	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
losing identity	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
corruption	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
instability of politics	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
rapid growth of the city	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
environmental pollution	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
new conditions in the speculative process of the peripheral urban area to the urban sprawl of the city	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
permanent loss of properties	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
loss of cultural identity	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
leakage in many circumstances come to the surface	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
especially due to the modification of some roads and the creation of new connections	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
finding income	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
pressure Monuments use change ground to tertiary activities	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
pressure on HMZQ	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
change of functions in HMZQ	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
inappropriate adjustments to morphology	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
loss of residential uses	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
crime	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
alcoholism and drug addiction	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
urban growth	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
deterioration of roads	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
depopulation	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
total	19	12	6	4	4	2	2	2	2	1	1	1	1	1	1	1	1	1	1	63

table 17. Changes in state of conservation, 1990 - 2011, sector G

3.2 Attributes and threats

In table 17 the threatened attributes are shown sorted by the number of times they were mentioned as being threatened. As it can be understood from the graph, “buildings” is mentioned to be the most threatened attribute in the HMZQ. “The population”, the “traditional neighborhood” and “appearance” are also attributes that are listed as most threatened ones.

The relation between different attributes and what they are threatened by is also illustrated in figure 05. It is observed that “devaluation of the property/ urban decay” is the most mentioned threat which is threatening “buildings” in the HMZQ.

	use	attribute(s) affected	change(s) toward typology	no attributes change found	total
1990-2000	changed	3	0	68	71
	percentage of total	4,23%	0,00%	95,77%	100,00%
	changed back	2	0	42	44
	percentage of total	4,55%	0,00%	95,45%	100,00%
	no change	4	1	72	77
	percentage of total	5,19%	1,30%	93,51%	100,00%
	no data	0	0	182	182
	percentage of total	0,00%	0,00%	100,00%	100,00%
	all buildings	9	1	364	374
	percentage of total	2,41%	0,27%	97,33%	100,00%
2000-2011	changed	12	1	121	134
	percentage of total	8,96%	0,75%	90,30%	100,00%
	changed back	6	0	78	84
	percentage of total	7,14%	0,00%	92,86%	100,00%
	no change	17	1	109	127
	percentage of total	13,39%	0,79%	85,83%	100,00%
	no data	2	1	26	29
	percentage of total	6,90%	3,45%	89,66%	100,00%
	all buildings	37	3	334	374
	percentage of total	9,89%	0,80%	89,30%	100,00%
1990-2011	changed	9	1	63	73
	percentage of total	12,33%	1,37%	86,30%	100,00%
	changed back	0	0	25	25
	percentage of total	0,00%	0,00%	100,00%	100,00%
	no change	13	1	81	95
	percentage of total	13,68%	1,05%	85,26%	100,00%
	no data	15	1	165	181
	percentage of total	8,29%	0,55%	91,16%	100,00%
	all buildings	37	3	334	374
	percentage of total	9,89%	0,80%	89,30%	100,00%

table 18. Relation type of change in land use - change in attrubute

3.3 Land use and façade attributes

Between 1990 and 2013, 84 attributes changed both negative and towards the typology description. The changes are represented in 40 buildings out of the 374 researched buildings. Among those 40 buildings with changes, 37 of the buildings have changed negatively. The type of the change in the land use - changed, no change or changed back - is related to the type of attribute change - affected, no change or change towards typology - in table 18. A slight inaccuracy is foreseen because the period 1990 – 2013 (attributes) is compared with the period 1990 – 2011 (land use). More research is needed to provide valid and updated data concerning land use.

Between 1990 and 2000, of 374 buildings, which originally had residential use, 77 present no change in their land use. In 93.5% of those buildings no attribute change has been found. It is noticed that the buildings that did not present a change in land use between 1990 and 2011, have a higher amount of attributes. On the contrary, the least amount of affected attributes concerns the buildings with change in the land use.

Between 2000 and 2013, the highest and lowest rates of the affected attributes concern the buildings that have not changed (13.4%) and changed back to their original use (7.1%). Comparing the state of 1990 with 2013, shows that in all the buildings presenting a change in use, none of the attributes are affected.

From table 18 it can be understood that whenever the building keeps its original use, more attributes are affected. When buildings keep their original residential use there is a bigger chance on negative changes in façade attributes.

Land use and the changes in attributes

The type of change of each studied attribute is related to the new land use of the originally residential buildings as the results are shown in table 19. Because the percentage of all possible changes within each use was not submitted within the data, the percentages of the amount of changes within each use were taken from the total amount of buildings within a use.

85 changes occur in the 374 originally residential buildings (22.7%) within 40 buildings (10.7%). Because the not all attributes are specified in the same within the studied documents, they are not compared. Uses in 2011 wherein more than average changes occurred (>22.7%) are from highest to lowest: mixed uses including residential uses, mixed uses and residential uses. This means that more changes occur within mixed uses and residential uses. Also the amount of changes within services is relatively high.

To make the table more readable for the relation between each type of change and use in 2011, the proportions of changes happening in each land use is colored with a gradient. The more red the color gets, the higher the relation between the type of attribute change and the new use.

There are four relations that represent around a percentage of around 10%. These are strong relations compared to the group of 2nd strongest relations, which are all around 5%. The fist relation around 10% is the relation between mixed use including residential against a window changing into a door. Out of the 45 buildings within this use, four have windows changed into a door (8.9%). For

	stories			access				windows				door and window fr	
	story altered	story added	story removed	door into window	door altered	door added	door removed	window into door	window altered	window added	window removed		
residential	3	3	1	1	3	2	2	8	1	3	2		
percentage of buildings total	1,5%	1,5%	0,5%	0,5%	1,5%	1,0%	1,0%	3,9%	0,5%	1,5%	1,0%		
mixed including residential	2	1	0	0	2	0	0	4	0	0	0		
percentage of buildings total	4,4%	2,2%	0,0%	0,0%	4,4%	0,0%	0,0%	8,9%	0,0%	0,0%	0,0%		
public facilities	0	0	0	0	0	0	0	0	0	0	0		
percentage of buildings total	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%		
commercial	0	0	0	0	0	0	0	1	0	0	0		
percentage of buildings total	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	4,2%	0,0%	0,0%	0,0%		
service	0	2	0	0	0	1	1	2	1	1	1		
percentage of buildings total	0,0%	4,3%	0,0%	0,0%	0,0%	2,1%	2,1%	4,3%	2,1%	2,1%	2,1%		
industry	0	0	0	0	0	0	0	0	0	0	0		
percentage of buildings total	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%		
mixed	0	0	0	0	1	1	0	2	0	0	0		
percentage of buildings total	0,0%	0,0%	0,0%	0,0%	5,0%	5,0%	0,0%	10,0%	0,0%	0,0%	0,0%		
no data	0	1	0	0	0	0	0	0	0	0	0		
percentage of buildings total	0,0%	4,8%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	4,8%
all buildings	5	7	1	1	6	4	3	17	2	4	3		
percentage of buildings total	1,3%	1,9%	0,3%	0,3%	1,6%	1,1%	0,8%	4,5%	0,5%	1,1%	0,8%	5,1%	0,8%
total with data	5	6	1	1	6	4	3	17	2	4	3		
percentage of buildings total	1,4%	1,7%	0,3%	0,3%	1,7%	1,1%	0,8%	4,8%	0,6%	1,1%	0,8%	5,4%	0,6%

mixed use out of 20 buildings two windows changed into door (10.0%). Exactly the same thing happened for altered frameworks. In the 45 mixed residential uses four frameworks have altered (8.9%). Within the 20 building with mixed use two windows changed into door (10.0%). That the same thing happens for altering frameworks as changes from window into door is because this is a consequence. When comparing the photos from the surveys in 1990, 2000 and the photos from the fieldwork in 2013 it got observed that often a part of the framework is kept intact when a window is changed into a door. If a framework is completely renewed when something like this happens, the framework is said to be removed. Of less strong relations the amount of changes are not strong enough to recognize trends for different uses.

Windows changing into doors specially occur within buildings of multiple uses (mixed and mixed including residential). Usually if an extra use is added within the building an extra access is needed.

Of all specified types of changes that happen are window changing into door and framework altering. Because the alteration of frameworks is considered to be a consequence of windows changing into doors this is not being interpreted as being a main threat. Windows that change into doors are being considered as a main threat. They have a relatively large impact on the homogeneity of the typologies. It could also be an indication of a different use of the internal system which could have an effect on internal typology characteristics. Further research is needed to verify this.

door and window frameworks			cornices	railings		portals	balconies	attributes	buildings		total
frame altered	frame added	frame removed	cornice added	railing added	railing removed	change in portals	change in balconies	changed attributes	no attribute changes found within building	buildings with changes found in attributes	
11	2	4	0	1	3	0	0	50	183	23	206
5,3%	1,0%	1,9%	0,0%	0,5%	1,5%	0,0%	0,0%	24,3%	88,8%	11,2%	100,0%
4	0	1	0	0	1	0	0	15	37	8	45
8,9%	0,0%	2,2%	0,0%	0,0%	2,2%	0,0%	0,0%	33,3%	82,2%	17,8%	100,0%
0	0	0	0	0	0	0	0	0	8	0	8
0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	100,0%	0,0%	100,0%
1	0	0	0	0	0	0	0	2	23	1	24
4,2%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	8,3%	95,8%	4,2%	100,0%
1	0	0	0	0	0	0	0	10	43	4	47
2,1%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	21,3%	91,5%	8,5%	100,0%
0	0	0	0	0	0	0	0	0	3	0	3
0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	100,0%	0,0%	100,0%
2	0	0	0	0	0	0	0	6	18	2	20
10,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	30,0%	90,0%	10,0%	100,0%
0	1	0	0	0	0	0	0	2	19	2	21
0,0%	4,8%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	9,5%	90,5%	9,5%	100,0%
19	3	5	0	1	4	0	0	85	334	40	374
5,1%	0,8%	1,3%	0,0%	0,3%	1,1%	0,0%	0,0%	22,7%	89,3%	10,7%	100,0%
19	2	5	0	1	4	0	0	83	315	38	353
5,4%	0,6%	1,4%	0,0%	0,3%	1,1%	0,0%	0,0%	23,5%	89,2%	10,8%	100,0%

table 19. Relation new land use - type of change of attribute

use of residential buildings in 2011	good state of conservation	regular state of conservation	bad state of conservation	avarage state where 100 % is good and 0% is bad	no data	total with data
Residential	102	68	44		4	214
	47,66%	31,78%	20,56%	63,55%		
mixed including residential	22	18	8		2	48
	45,83%	37,50%	16,67%	64,58%		
Public Facilities	8	0	0		0	8
	100,00%	0,00%	0,00%	100,00%		
Commercial	15	9	1		0	25
	60,00%	36,00%	4,00%	78,00%		
Services	42	8	0		0	50
	84,00%	16,00%	0,00%	92,00%		
Industry	3	0	0		0	3
	100,00%	0,00%	0,00%	100,00%		
Mixed	13	9	1		0	23
	56,52%	39,13%	4,35%	76,09%		
No Data	0	1	4		0	5
total with data	205	112	54			371
	55,26%	30,19%	14,56%	70,35%		

table 20. Relation state of conservation - land use

state of conservation 1990-2000 residentail	use change	no use change	use changed back	no data	total with data
improved	27	21	16	2	64
	42,2%	32,8%	25,0%		32,5%
no change	33	43	25	1	101
	32,7%	42,6%	24,8%		51,3%
deteriorated	11	11	10	0	32
	34,4%	34,4%	31,3%		16,2%
no data	6	6	2	168	
total with data	77,00	81,00	53,00		197,00

state of conservation 2000-2011 residentail	use change	no use change	use changed back	no data	total with data
improved	44	19	13	5	76
	57,9%	25,0%	17,1%		21,5%
no change	67	55	49	4	171
	39,2%	32,2%	28,7%		48,4%
deteriorated	30	51	25	4	106
	28,3%	48,1%	23,6%		30,0%
no data	5	8	3	0	16
	31,3%	50,0%	18,8%		4,5%
total with data	146,00	133,00	90,00	13,00	353,00

state of conservation 1990-2011 residentail	use change	no use change	use changed back	no data	total with data
improved	34	30	12	5	76
	44,7%	39,5%	15,8%		34,9%
no change	38	47	12	4	97
	39,2%	48,5%	12,4%		44,5%
deteriorated	16	23	6	4	45
	35,6%	51,1%	13,3%		20,6%
no data	2	5	2	0	9
	22,2%	55,6%	22,2%		4,1%
total with data	90,00	105,00	32,00	13,00	218,00

table 21. Relation change of state of conservation - land use (residential)

3.4 Land use and state of conservation

Table 20 reveals the relation between the state of conservation and the land use in 2011 of the buildings with a residential use from origin. In the column "average state" a comparable representation is displayed so that the state of conservation for buildings with different land uses can be compared with one another. The more towards a 100%, the better the average of state of conservation is. It can be observed that most of the buildings in bad condition concern buildings with residential use, together with buildings with mixed use including residential use.

The commercial and service uses are represented more in the western half of the research area, more towards the city center, and are mainly in good condition. This observation can be undermined with the fact that, in the entire research area, buildings including residential uses have an average state of around 64%, while other functions have a better average state. Residential buildings with commercial and service land uses together have an average state of 87.3% which is high compared to the 64.0% of the buildings that include residential use. Public facilities and industrial uses are all in good state, but represented the least. When buildings with a residential use from origin have mixed use they are mostly in regular shape. These buildings include uses that are not residential. If the uses are not mixed they present a better average state of conservation.

Table 21 compares the change in land use for the buildings with residential use as their original use with the change in their state of conservation. The state of conservation can have improved, stayed the same or deteriorated within the compared years. In the last part of the table, the total time span from 1990 and 2011 is compared. This reveals that buildings which were originally residential that changed in land use have an improved state of conservation compared to the buildings that have not changed land use. When buildings changed back to its original residential use, they deteriorated more than when they changed to another use.

When comparing the tables of 1990-2000 and 2000-2011 it is noticeable that the change in use presents an even more positive effect on the state of conservation. Between 1990 and 2000 the residential buildings that changed land use and improved represent about a third more than buildings that maintained their original residential use in 2000. If the same comparison is done between 2000 and 2011 it shows that the residential buildings that changed land use and improved represent about twice as much than buildings that maintained their original residential use in 2011. This implies that change in use has a positive effect on state of conservation over time.

4 Conclusions

4.1 Discussion

During the desk research phase as well as the field research phase, a lot of influencial aspects were encountered which could be seen as interesting for further research, but not fitting the research frame as set up in the methodology of the intended research. In order to hold focus on the intended research on the relation between the land use and its affection on the façade attributes - but not withhold these influencial aspects from discussion - several interesting aspects are shortly elaborated on in this paragraph.

1) Relation state of conservation and facade attributes

Due to available data on the state of conservation, very well comparable to the data available and created on land use, a comparative analysis was carried out between these two in order to reveal possible relations and to draw conclusions upon them. These results, relations and conclusions are covered within the main content frame of this research report. However, the relation between the state of conservation and facade attributes was not explored. It could be very interesting to conduct this research and compare it to the results and conclusions of the relation between the state of conservation and land use. It will provide interesting insights in the co-relation between land use, facade attributes and state of conservation in the HMZQ.

2) Deficient typology description in the Management Plan

Since urban appearance is considered an important value of the HMZQ by the Management Plan, it should be made clear what this term comprises, from urban scale to detailed level. The typology descriptions however do not extensively describe the architectural elements present on the facades of the monuments in the HMZQ. Frameworks, cornices, window railings and others are mentioned as being valued, but only for some of the typologies. This implies that the same architectural elements might not be valued as part of other typologies because they are not being mentioned as valued in the typology description. Also the architectural element of a roof cornice is not described anywhere in the typology description as being valued, though many roof cornices convey generic architectural value. The not including of such attributes in the typology descriptions could be seen as a threat for when these elements are not being considered as valued, they will not be considered or protected in possible alteration practices.

3) Dissonances

Dissonances can be considered as elements such as graffiti, cables and pipes, advertisements and canopies, possibly affecting architectural aesthetics of the facade. During field research and daily life in the HMZQ it was noticeable how many visual pollution there was, and it can be interesting to relate this to land use, as the dissonances can be seen as another indicator for commercial uses or services.

4) Painted frameworks

It is noticeable that many houses that possess a stone framework around its openings have painted over their stone frameworks, which leads to a covering of the original material. Since this original material (the 'pink stone of Querétaro') is considered as valuable to the HMZQ, this matter should be

considered, at least in the Management Plan.

5) Consolidation, division and number of uses

Considering consolidations and divisions of buildings in sector G, in relation to land use, it is important to investigate whether or not consolidations and divisions can be seen as a threat to the property, since whenever a plot transforms, it involves alterations in architectural layout - being a value to the HMZQ. In this way also the increase or decline in number of uses should be considered as a subject up for investigation as this pressures the same valued attribute. Both phenomena would affect the authenticity and integrity of the property directly in its architectural features and therefore is important to be limited.

6) Policies and stakeholders

Concerning the management of the HMZQ there are many different stakeholders with much or little influence on management practices occurring. Focusing on the study on the trend of change in land use due to occurring developments in the HMZQ and sector G, three stakeholders should be investigated for their influence on these developments; INAH, the municipality of Querétaro and the residents (la Asociación de vecinos del Centro Histórico y barrio de La Cruz (Neighborhood association of the Historical Center and La Cruz)).

The latter, the neighborhood association of La Cruz, complains on the advent of bars and clubs in their habitat, stating that the area turned into an area with cafes, bars and nightclubs. Throughout La Cruz residents show their dissatisfaction by placing their mutual complaint printed on vinyl sheets on their facades, due to lack of response from the municipality of Querétaro, which says: “Querétaro, Cultural Heritage and her citizens; ¡we demand! respect, quality of life and a solution to the problem of the bars and clubs in the historical center and surrounding neighborhoods” (fig. 29).

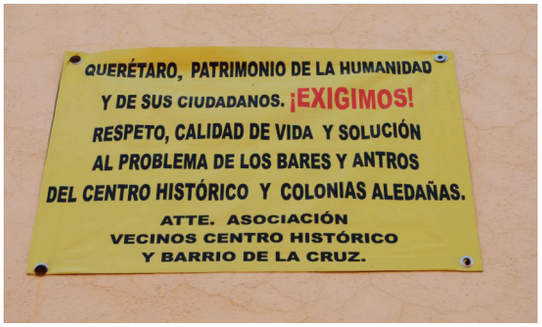


figure 29.complaint on facades in La Cruz

This complaint clearly indicates the controversial interests of the municipality on one side and the residents on the other side. Therefore research into the influences of the different stakeholders in the HMZQ could provide better insights in how to deal with different interests from different parties.

4.2 Conclusions

4.2.1 Introduction

Taking Querétaro as case study to reveal ongoing practices in terms of the authenticity and integrity of the cultural heritage in the Historic Monuments Zone of Querétaro, this research relates the trend of change in land use with the façade attributes of the characteristic housing typologies, to be deemed of Outstanding Universal Value. The trend of change in land use is a current topic in

the HMZQ and particularly in sector G, where the majority of the building stock originally consisted of housing and therefore represents a great part of the original housing typologies. The specific building types are an essential part of the historical urban layout, making the urban layout and giving it its homogeneous appearance.

4.2.2 Attributes and threats

A content analysis based on the cultural significance survey revealed that the aesthetical and historic values are referred more than other values in both documents. In the Management Plan the history and background of Querétaro is explained extensively and ten historic events are referred to. As a conclusion of both documents, urban layout, buildings, traditional neighborhoods and architectural characteristics are the most mentioned attributes. Some other attributes can be considered as the sub attributes, and in general the urban layout of the city and its generative components are valued most which seems logical as it is one of the reasons for the HMZQ to be inscribed as a World Heritage site.

Studying the relation between the mentioned threats and the attributes showed that urban layout and buildings are the attributes that are in danger of being adversely affected.

4.2.3 Façade attributes

The authenticity and integrity of the building height represented by the number of stories are conserved well as it is that relatively few alterations have been made. Though, whenever there is an alteration in this category, the effect often is drastically changing the urban appearance established by the unity or homogeneity of the monuments. Regarding the balconies the authenticity and integrity are well conserved. Most changes in the façade concerned a change in façade openings. Still, again the authenticity and integrity are adequately conserved in this subdivision as it is that the majority does not present changes. The same partially applies for the door and window framework.

It can be concluded that the façade attributes in a large extent are conserved acceptable both in terms of integrity and somewhat less for authenticity. Relatively few of all researched buildings were altered in such an extent between 1990 and 2013 that it affected the housing typology in such a way that they did not correspond to its original type assigned to it anymore.

4.2.4 Land use

The drastic loss of original uses throughout time in the research area indicates the authenticity and integrity of the property are damaged concerning the distribution and proportion of land uses. Though, since the inscription on the World Heritage List in 1996, the authenticity and integrity of the property in terms of the distribution and proportion of land use present a more stable situation for buildings with originally residential use.

4.2.5 State of conservation

From the development in the state of conservation of the monuments can be derived that the state of conservation was generally improving within the period of management of the HMZQ. This indicates a positive trend regarding the integrity of

the property in this period. However, in the more recent period of 2000 to 2011 this trend changed negatively since more residential buildings have deteriorated in this period than between 1990 and 2000. This recent development of deterioration of the monuments can be considered as a threat to the integrity of the property.

4.2.6 Land use and façade attributes

No strong relation has been found between the change of land use and the affected façade attributes, which means change of land use is not a threat to the façade attributes. Some uses within the original residential buildings are a threat to the façade attributes. When a building is of mixed use it is a threat to the façade attributes. Especially the need for extra doors is a threat; more windows change into doors in buildings with mixed use including residential use. Residential mixed with a public facility, commercial use or industrial use have best conserved façade attributes. Hence, maintaining the original residential use does not safeguard the authenticity and integrity of the façade attributes.

4.2.7 Land use and state of conservation

One of the threats found in the Management Plan from the document analysis is the devaluation an deterioration caused by a lack of investment. Another threat from the document analysis stated in the Management Plan is the recentralization processes within the HMZQ. Residential areas become an opportunity for new commercial and service activities that are able to adapt to them. With this comes the possibility that land use will change. These changes of land use have a positive effect on the state of conservation: with a change of use, the state of conservation improves. This could indicate on investments that come with change of use having a positive impact on the state of conservation.

Some uses within the original residential buildings are a case of negative change in the state of conservation. When the use of a building is residential, mixed, mixed including residential, or commercial, it is a threat to the integrity of the building. Residential buildings that have a public facility, service use or industrial use are well conserved. Hence, maintaining the original residential use does not safeguard the integrity of the building.

4.2.8 General conclusion

On the trend of change in land use it can be stated that land uses are changing frequently while the ratio between uses present an almost stable situation. The same trend from before 1990 is slightly visible; residential uses are decreasing in number and there is a small advent in commercial uses and services. The authenticity and integrity of the property in terms of the distribution and proportion of land are better conserved.

It is concluded that the architectural features of the housing typologies are being affected by various alterations and developments, and it is proven the trend of change in land use is occurring, but no valid relation has been found between these two developments. Throughout time the percentages of residential buildings that present changes in their façade attributes and have changed use are similar to the percentages of all residential buildings that

have changed use. So, maintaining the original residential use does not safeguard the authenticity and integrity of the façade attributes.

4.3 Recommendations

1) Continue/complement this research.

It is interesting to do further research on the housing typologies, where changes of land use might reveal effects on the architectural layout behind these facades as it is that not only this research but also the control of INAH and the municipality are limited to the facades of the property.

Also this research can be continued by researching the other sectors in the HMZQ and complement the database created on sector G in order to draw more valid conclusions on the relation between the trend of change in land use and the façade attributes and compare the sectors mutually.

2) Revise land use policy

The distribution policy of the land uses within the HMZQ being carried out by the municipality of Querétaro – the Plan Parcial - seems outdated (2007) and should be revised and updated as the habitability is questionable in some originally residential areas as seen in sector G/La Cruz. Newly assigned uses should be compatible with concerning building types and their context.

3) Assess institutional responsabilities

The different responsabilities concerning the management of the HMZQ by institutions like INAH, IMPLAN and the municipality itself should be assessed in order to improve conservation practices of the heritage in Querétaro. For example: INAH could be involved more in the distribution policy of land uses within the HMZQ, carried out by the municipality. INAH then can assess and control possible impacts by newly assigned uses, prior to issuance of licenses.

4) Revise typology description in the Management Plan

As mentioned in 'discussion', the typology descriptions could be revised and extended in order to make sure to cover all architectural elements of value present in the HMZQ. Hereby it should be made more clear which typologies should convey which attributes, and include whether or not architectural elements not being included in a typology description are valuable or not.

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6 Abbreviations

6. Abbreviations

AB: Advisory Body

ABE: Advisory Body Evaluation

AHT: Chair Architecture Theory and History

AUDE: Unit Architectural and Urban Design and Engineering

HUL: Historic Urban Landscape

ICOMOS: International Council on Monuments and Sites

IUCN: International Union for the Conservation of Nature

OG: Operational Guidelines for the implementation of the World Heritage Convention

OUV: Outstanding Universal Value

SP: States Party

TU/e: Eindhoven University of Technology

UNESCO: United Nations Educational, Scientific and Cultural Organization

WH: World Heritage

WHC: World Heritage Centre